

List of Course Outcome



AKS University


Director
Internal Quality Assurance Cell
AKS UNIVERSITY
Satna (M.P.)



Established by MP legislature Act no. 44 of 2011 and duly recognised by UGC under section 2(f)

AKS UNIVERSITY, SATNA (M.P.)

THE UNIVERSITY WITH DIFFERENCE

Course Outcome (COs) of All Programs

Sl. No.	Faculty	Department	Page No.
1	Faculty of Engineering and Technology	Department Mining Engineering	2
		Department Mechanical Engineering	34
		Department Electrical Engineering	63
		Department Civil Engineering	89
		Department Cement Technology	115
		Department of Computer Science and Engineering	134
2	Faculty of Management Studies	Department Business Administration	187
3	Faculty of Computer Application & Information Technology and Sciences	Department of Computer Science & Technology	241
4	Faculty of Basic Science	Department of Mathematics	273
		Department of Physics	284
		Department of Chemistry	298
		Department Of Basic Science (U G)	311
5	Faculty of Commerce and Financial Studies	Department of Commerce	340
6	Faculty of Education	Department of Education	404
7	Faculty of Agriculture Science and Technology	Department of Agriculture Engineering and Food Technology	435
		Department of Horticulture	482
		Department of Plant Breeding & Genetics	493
		Department of Plant Pathology	506
		Department of Soil Science	514
		Department Of Agronomy	522
		Department of Agricultural Science	534
8	Faculty of Life Science and Technology	Department of Life Sciences	579
		Department of Environmental Studies	641
9	Faculty of Social Science and Humanity	Department of Yoga	652
		Department of Humanities	667
10	Faculty of Paramedical Science and Technology	Department of Pharmacy	748
11	Faculty of Law	Department of LAW	775
12	Faculty of Medical Science	Department of Paramedical Science	919

R. Prasad
 REGISTRAR
 AKS UNIVERSITY
 SATNA (M.P.)



Faculty of Engineering and Technology



Department Mining Engineering



Programme: Ph.D.in Mining Engineering

Course Work

CourseTitle:	Research Methodology
Course Code:	151PH01
CourseTitle:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
151PH01.4	To explain the art of interpretation and the art of writing researchreports
151PH01.5	Evaluate the role and functioning of computer in research

Course Title:	Advances in Mining
Course Code:	151MIN02
Course Title	Advances in Mining
Course Outcomes:	
151MIN02.1	Develop a comprehensive curriculum that covers recentadvancements and innovations in mining technology.
151MIN02.2	Equip students with the latest technical skills and knowledge required in the mining industry.
151MIN02.3	Emphasize ethical considerations and social responsibilities in mining operations.
151MIN02.4	Integrate knowledge from related fields such as environmental science, geology, and engineering.
151MIN02.5	Provide a balanced perspective on both global and national advancements in mining.



Course Title	Research and Publication Ethics
Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
151PH03.6	Develop a valid and ethical research report.

Course Title:	Review of Literature
Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing areview of literature in respect of recent trends and technologies.



Programme: M. Tech. Mining Engineering

Course Code:	PCC -MIN 01
Course Title:	Applied Rock Mechanics
Course Outcomes:	
PCC -MIN 01.1	Garnering the fundamental concept of In-situ Stresses
PCC -MIN 01.2	Describe the various types of Stress Around Mine Openings
PCC -MIN 01.3	Analyse the Design of Mine Openings and Pillars
PCC -MIN 01.4	Explain the Design of Support and Goaf Support
PCC-MIN 1.5	Elaborates the concepts of Rock Bursts, Bumps and Mine Subsidence

Course Code:	PE-MIN-06
Course Title:	Geo-informatics
Course Outcomes:	
PE-MIN-06.1	Acquiring the ability to interpret the distribution and processes of management.
PE-MIN-06.2	Understanding the dynamic interrelationship between mining and geology.
PE-MIN-06.3	Accurate topographic data and aerial imagery guide engineers in designing efficient and safe infrastructure.
PE-MIN-06.4	Improving decision-making, saving costs, and ensuring adherence to rules.
PE-MIN-06.5	Identify the most efficient paths, avoid congested areas, and optimize the utilization of their fleet.

Course Code:	PCC-MIN 02
Course Title:	Operations Research
Course Outcomes:	
PCC-MIN 02.1	Describe about the basic concept of operation research.
PCC-MIN 02.2	Explain about the importance of linear programming like simplex methods.
PCC-MIN 02.3	Discuss about the importance of network analysis like CPM and PERT which is benefitted for mining solutions.



PCC-MIN 02.4	Illustrate the study about queue theory and problems solving.
PCC-MIN 02.5	Understand the non-linear programming problems.

Course Code:	PE MIN 10
Course Title:	Project Management
Course Outcomes:	
PE MIN 10.1	Garnering concept of fundamental management theories and their evolution
PE MIN 10.2	Comprehension and application of management theories in mining projects
PE MIN 10.3	Developing skills for human resource and conflict management and build0020upof proper organization structure
PE MIN 10.4	Development of skills for resource allocation and utilization and inventory control
PE MIN 10.5	Comprehension of capital budgeting, financial resources and project evaluation techniques

Course Code:	PE-MIN-08
Course Title:	ROCK SLOPE ENGINEERING
Course Outcomes:	
PE-MIN- 08.1	Describe about the knowledge origin and strength of rock.
PE-MIN- 08.2	Explain about the knowledge of rock mass classification.
PE-MIN- 08.3	Discuss about the rock site characterization.
PE-MIN- 08.4	Illustrate the study of discontinuities of rock mass.
PE-MIN- 08.5	Discuss about the fractured media of rock.

Course Code:	PCCMIN 310
Course Title:	Safety and Risk Management in Mines
Course Outcomes:	
PCCMIN 310.1	Explain the various aspects various management principles and branches of management
PCCMIN 310.2	Describe the Acts and Rules for Health and Safety



PCCMIN 310.3	Describe the Acts and Rules for Health and Safety
PCCMIN 310.4	Describe the Acts and Rules for Mineral Conservation and Environmental protection
PCCMIN 310.5	Comprehend the MMDR Act 1957 and Rules.

Course Code:	PE-MIN-11
Course Title:	Computer Application in Mining
Course Outcomes:	
PE-MIN- 11.1	Describe about the computer hardware, computer software, importance of artificial intelligence and importance of software in mining.
PE-MIN-11.2	Explain about the importance of mining software in various operations in surface mine design
PE-MIN-11.3	Discuss about the importance of mining software which is related with environmental issues.
PE-MIN-11.4	Illustrate the study about mining project and mine valuation which is related with computer software.
PE-MIN-11.5	Discuss about the various mining software which is related with various mining problems.

Course Code:	PE MIN 02
Course Title:	Eco-Friendly Mining
Course Outcomes:	
PE MIN 02.1	Garnering concept of Eco-friendly mining based on sustainable development principles. Formulation of SD framework for mining.
PE MIN 02.2	Enactment of sustainability development principles in Acts, Laws & Regulations related to mining projects and activities
PE MIN 02.3	Environmental impacts of mining and mitigation plans
PE MIN 02.4	Energy security of India and need for sustainable coal mining. Short term and Long term perspective of energy mix in India and its impact on mining industry.
PE MIN 02.5	Innovative mining technologies and their application for sustainable development.



Course Code:	PE-MIN-10
Course Title:	Mineral Resource Evaluation and Geostatistics
Course Outcomes:	
PE-MIN-10.1	Student will be able to understand the sampling and reserve estimation technique.
PE-MIN-10.2	Students will be able to analyze the real mine data for better mine planning and design.
PE-MIN-10.3	Students will be able to comprehend different geostatistics techniques for resource estimation.
PE-MIN-10.4	Illustrate the study about queue theory and problems solving.
PE-MIN-10.5	Develop the modeling of samples.

Course Code:	PCC -MIN 04
Course Title:	Rock Fragmentation Engineering
Course Outcomes:	
PCC -MIN 04.1	abrogate Rock Fragmentation by Blasting
PCC -MIN 04.2	Describe the Fragmentation Measurement Methods
PCC -MIN 04.3	Evaluate the Blasting Nuisances
PCC -MIN 04.4	Explain the Mechanical Methods of Fragmentation
PCC -MIN 04.5	Analyse the Special Blasting Techniques and Alternative Rock Breakage Methods

Course Code:	PE-MIN-08
Course Title:	ROCK MASS STRUCTURES
Course Outcomes:	
PE-MIN-8.1	Describe about the knowledge origin and strength of rock.
PE-MIN-8.2	Explain about the knowledge of rock mass classification.
PE-MIN-8.3	Discuss about the rock site characterization.
PE-MIN-8.4	Illustrate the study of discontinuities of rock mass.
PE-MIN-8.5	Discuss about the fractured media of rock.



Course Code:	PE MIN 03
Course Title:	SUBSIDENCE ENGINEERING
Course Outcomes:	
PE MIN 03.1	Theories of surface and sub-surface subsidence due to mining
PE MIN 03.2	What are the types of subsidence? What are the factors affecting subsidence.
PE MIN 03.3	Prediction of subsurface. How to plot Subsidence and subsidence graphs and models.
PE MIN 03.4	Special mining methods technology layouts to minimize subsidence.
PE MIN 03.5	Impact of subsidence on structures. How to measure it. How to control it

Course Code:	PE MIN 09
Course Title:	Underground Space Technology
Course Outcomes:	
HSMC 201- 1.1	Garnering concept of underground space technology (UST) based on rock excavation engineering and its importance in urban development.
HSMC 201- 1.2	Comprehension and application of rock mechanics and soil mechanics principles for underground structure construction
HSMC 201- 1.1	Developing engineering skills in tunnel constructions in variable geo-mechanical rock conditions
HSMC 201- 1.2	Understanding the reorientation of stresses during single and multiple excavations and determination of their influence zones
HSMC 201- 1.1	Development of knowledge and skill for in-situ stress and strain determination of rocks as structural material

Course Code:	OEC-MIN02
Course Title:	EIA & EMP of Mining Industry
Course Outcomes:	
OEC- MIN02.1	Describe about the knowledge of EIA.
OEC- MIN02.2	Explain about the knowledge of EMP.
OEC- MIN02.3	Discuss about the negative impact of mining on environment.
OEC- MIN02.4	Illustrate the study of quality management system.
OEC- MIN02.5	Discuss about the various mining laws, policy and regulation.



Course Code:	PE-MIN-14
Course Title:	Engineering Geology
Course Outcomes:	
PE-MIN-14.1	Describe physiographic division of India and geological time scale.
PE-MIN-14.2	Analyze process of ore formation of economic Mineral deposits.
PE-MIN-14.3	Demonstrate metallic and non-metallic deposits, their origin and occurrence.
PE-MIN-14.4	Explain physical properties, processes of occurrence of coal, petroleum and fossil fuels.
PE-MIN-14.5	Evaluate geophysical prospecting methods, application of remote sensing and GIS.

Course Code:	OEC-MIN01
Course Title:	Introduction to Mining Engineering
Course Outcomes:	
OEC-MIN01.1	Describe about the exploratory concept, drilling machines used for exploration.
OEC-MIN01.2	Explain about the importance of shaft sinking, methods of shaft sinking and also importance of explosive.
OEC-MIN01.3	Discuss about the importance of underground mining concept, and its methods.
OEC-MIN01.4	Illustrate the study about importance of surface mining concept, methods of surface mining and machineries used in surface mining.
OEC-MIN01.5	Discuss about the various negative impact of mining on environment.

Course Code:	PE-MIN-15
Course Title:	Mining of Deep Seated Deposits
Course Outcomes:	
PE-MIN-15.1	Identify and understand the Complex Coal Deposits.
PE-MIN-15.2	Analyze the challenges of exploitation
PE-MIN-15.3	Analyze design requirement of experimental trials.
PE-MIN-15.4	Application of Numerical Modeling Techniques to Control Ground Problems.



PE-MIN-15.5	Apply Innovative Technologies in the field.
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Course Code:	PE-MIN-13
Course Title:	Remote sensing & GIS for Mining applications
Course Outcomes:	
PE-MIN-13.1	Describe the various features of Photogrammetry.
PE-MIN-13.2	Explain the Remote sensing process and data collection.
PE-MIN-13.3	Describe the GIS system and their attributes.
PE-MIN-13.4	Analyse the spatial data and geography distributions.
PE-MIN-13.5	Analyse and measure the spatial pattern of feature values.

Course Code:	OEC-MIN04
Course Title:	Mineral Resources of India
Course Outcomes:	
OEC- MIN04.1	Describe the properties of metallic and non-metallic minerals.
OEC- MIN04.2	Explain the regulatory frame of mineral authority in India.
OEC- MIN04.3	Describe the PSU and its role in mining
OEC- MIN04.4	Explain the distribution of non-metallic mineral resources in India
OEC- MIN04.5	Evaluate the distribution of non-metallic mineral resources in India



Programme: B.Tech. Mining Engineering

Semester-I

Course Code:	ESC 104
Course Title:	Basic Electrical Engineering
Course Outcomes:	
ESC 104.1	Apply network theorems to solve electrical DC circuits.
ESC 104.2	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC 104.3	Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
ESC 104.4	Understand the basic operating principle, types, efficiency of Transformers.
ESC 104.5	Understand the basic operating principle, types of machines.

Course Code:	Design Thinking & Idea Lab
Course Title:	ESC 103
Course Outcomes:	
ESC 103.1	Identify the problems that fall under the purview of human centered design process for creative problem solving.
ESC 103.2	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques.
ESC 103.3	Build simple prototypes for problems using gathered user requirements.

Course Code:	BSC-103
Course Title:	Engineering Chemistry
Course Outcomes:	
BSC-103.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC-103.2	Describe the concept of symmetry chirality and optical activity and synthesis of chiral molecules.
BSC-103.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and



	transition metal complexes
BSC-103.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain Concept of acid-base, metallurgy, Emf cell and corrosion.
BSC-103.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various Spectroscopic techniques.

Semester-II

Course Code:	ESC 102
Course Title:	Engineering Graphics & Design
Course Outcomes:	
ESC 102.1	Get introduced with Engineering Graphics and visual aspects of design.
ESC 102.2	Know and use common drafting tools with the knowledge of drafting standards.
ESC 102.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
ESC 102.4	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
ESC 102.5	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD

Course Code:	BSC07
Course Title:	Biology for Engineers.
Course Outcomes:	
BSC07.1	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry.
BSC07.2	To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.
BSC07.3	To convey that —Genetics is to biology what Newton's laws are to Physical Sciences and Understand the molecular basis of coding and decoding genetic information is universal
BSC07.4	To convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth



BSC07.5	To convey the concept of microbes and their role in environment
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Course Code:	IKS101
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes:	
IKS101.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
IKS101.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
IKS101.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
IKS101.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
IKS101.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	ESC-105
Course Title:	Manufacturing Practice Workshop
Course Outcomes:	
ESC-105.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC-105.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques.
ESC-105.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC-105.4	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.



ESC-105.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.
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Course Code:	BSC 102
Course Title:	Engineering Mathematics –I
Course Outcomes:	
BSC 102.1	Define and understand the concept of limits, Evaluate limits algebraically and graphically, Apply the basic rules of differentiation, including the power rule, product rule, quotient rule, and chain rule. Use linear approximation and differentials to estimate values of functions
BSC 102.2	Define and understand the basic concepts of matrices, Differentiate between different types of matrices Perform basic matrix operations, Use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics.
BSC 102.3	Define and compute partial derivatives of functions of several variables, Define and compute the gradient vector of a scalar function, Apply the chain rule to compute derivatives of composite functions involving multiple variables, Identify critical points of multivariable functions.
BSC 102.4	Understand the definition of a first-order ordinary differential equation, Solve separable differential equations using the separation of variables technique, Sketch direction fields to visualize the behavior of solutions, Apply first-order ODEs to model and analyze various phenomena
BSC 102.5	Understand and state the Fundamental Theorem of Calculus, both parts and apply the Fundamental Theorem to evaluate definite integrals. Apply integration techniques, including substitution, integration by parts, and partial fractions.

Course Code:	BSC 101
Course Title:	Physics-01
Course Outcomes:	
BSC 101.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC 101.2	Apply concepts in interference and diffraction to solve relevant



	numerical problems and to relate to relevant engineering applications.
BSC 101.3	Learn the basic concepts of dual nature of matter and wave packet and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC 101.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure
BSC 101.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering..

Course Code:	ES-101
Course Title:	Problem Solving and Programming
Course Outcomes:	
ES-101.1	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ES-101.2	Acquire knowledge regarding the building blocks of programming language.
ES-101.3	Apply python for solving basic programming solutions.
ES-101.4	Create algorithms using learnt programming skills.
ES-101.5	Understand real world problems and developing computer solutions for those.

Course Code:	SDGs01
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
SDGs01.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
SDGs01.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
SDGs01.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.



SDGs01.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
SDGs01.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Program and proceses.

Course Code:	AU102
Course Title:	Sports And Yoga
Course Outcomes:	
AU102.1	Awake the students understand the importance of Introduction of Yoga.
AU102.2	To make the students understand the importance of Fundamentals of Yoga
AU102.3	To expose the students to a variety of physical and yogic activities aimed at stimulating their continued Inquiry about Yoga, physical education, health and fitness.
AU102.4	To create a safe, progressive, methodical and efficient activity based plan to enhance improvement and minimize risk of injury and Yoga & Lifestyle
AU102.5	To develop among students an appreciation of physical activity as a lifetime pursuit and a means to better health

Course Code:	MIN-101
Course Title:	Basic Mining Engineering
Course Outcomes:	
MIN-101.1	Describe about geology of coal and other minerals.
MIN-101.2	Explain about mines act and regulations.
MIN-101.3	Summarize about mining methods such as opencast mining and Undergroundmining.
MIN-101.4	Illustrate about Environmental impact assessment and its management plan.
MIN-101.5	Utilize the vocational training knowledge in his professional career.



Course Code:	BSC104
Course Title:	Engineering Mathematics -II
Course Outcomes:	
BSC104.1	Understand the importance of Laplace transform and elementary properties of Laplace transform
BSC104.2	To introduce effective mathematical tools for the solutions of ordinary differential equations and solutions with Bessel functions and Legendre functions
BSC104.3	Demonstrate an understanding of the Vector Calculus
BSC104.4	Define and recognize the method to solve Sequences and series
BSC104.5	Students will create the concept of a Partial Differential Equations

Course Code:	05MI303
Course Title:	Mine Development & Drilling Blasting
Course Outcomes:	
05MI303.1	Understand the knowledge of prospecting, methods of exploration.
05MI303.2	Acquired the knowledge of different shaft sinking methods, working cycle of shaft sinking.
05MI303.3	Understanding of the special types of shaft sinking methods, safety in shaft sinking and statutory provisions as laid down under CMR, MMR issued by DGMS.
05MI303.4	Understanding of the knowledge of explosive properties, blast design parameters in open cast mining and types of different drilling machines.
05MI303.5	Understanding of the preparation of tunnels, Drivage techniques with blasting.



Course Code:	BSC202
Course Title:	Engineering Mathematics III
Course Outcomes:	
BSC202.1	By the end of the course students are expected to have deep understanding in complex analysis with a focus on Cauchy-Riemann equations, analytic functions, harmonic functions, and conformal mappings.
BSC202.2	By the end of the course students are expected to understand the concept of a contour integral in the complex plane, concept of zeros of analytic functions and behavior of functions near essential singularities.
BSC202.3	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course in elementary probability theory and random variables.
BSC202.4	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering measures of central tendency and measures of dispersion.
BSC202.5	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering correlation and regression, rank correlation, curve fitting, and various tests of significance.

Course Code	HMSC 301
Course Title:	Universal Human Values
Course Outcomes:	
HMSC 301.1	To understanding Value Education
HMSC 301.2	Students will have the ability to learn about Harmony in the Human Being.
HMSC 301.3	Student will be able to gain knowledge on Harmony in the Family and Society.
HMSC 301.4	Understanding Harmony in the Nature/Existence.
HMSC 301.5	Student will able to understand about Implications of Holistic Understanding- A Lookat Professional Ethics.



Course Code:	MIN-301
Course Title:	Mining Geology-I
Course Outcomes:	
MIN-301.1	Describe the origin of earth and its importance in social life.
MIN-301.2	Analyze the origin, characteristics features and importance of rocks and minerals.
MIN-301.3	Apply the knowledge and identification of physical properties of rocks and minerals.
MIN-301.4	Identifying Physical and Chemical Properties of Minerals.
MIN-301.5	Comprehend the geological formations in India.

Course Code:	PCC-ME-201
Course Title:	STRENGTH OF MATERIALS
Course Outcomes:	
PCC-ME- 201.1	Apply elasticity principles to analyze and design structures, understanding stress-strain relationships, deformations, and temperature effects for practical engineering solutions."
PCC-ME- 201.2	Analyze plane stresses using principal stresses, Mohr's circle, and transformations. Understand plain strain, principal strains, and combined loading in structures and pressure vessels.
PCC-ME- 201.3	Develop shear force and bending moment diagrams for beams, understanding loading rate relationships and identifying maximum moments and contra flexure points.
PCC-ME- 201.4	Derive flexural and shear formulas, analyze stress distribution, calculate slope and deflection using double integration method for standard cases.
PCC-ME- 201.5	Analyze strain energy in axial loads, bending, torsion, determine torsion stresses, and study buckling of columns using Euler's and Rankine's formulas.



Course Code:	PCC-MIN03
Course Title:	Surface Mining
Course Outcomes:	
PCC- MIN03.1	Explain the terminologies, classification and opening of surface mining.
PCC- MIN03.2	Explain the Planning of surface mines, excavation sequence.
PCC- MIN03.3	Describe Drilling mechanism, selection of drills for coal and other formations.
PCC- MIN03.4	Explain Methods of excavation & transportation.
PCC- MIN03.5	Evaluate application and selection of Special methods of mining.

Course Code:	PCC-MIN04
Course Title:	Underground Coal Mining
Course Outcomes:	
PCC- MIN04.1	will garner an insight into the present status of underground coal mining in India, its limitations from the technological as well as economical point of view and will develop a logical understanding defining the future trend
PCC- MIN04.2	Acquire the knowledge of the methods of access and egress to underground coal deposits with specific reference to vertical shaft sinking in consideration of their design, dimension & location optimization.
PCC- MIN04.3	Will develop complete knowledge and understanding of the design elements of Board & Pillar (B&P) method of development in coal mines
PCC- MIN04.4	Will comprehend the technical challenges associated with the depillaring operation in underground coal mines and accordingly adopt methods of safe operation for extraction and reduction of coal pillars
PCC- MIN04.5	Will be able to identify and accordingly adopt such types of geo-mining conditions in underground coal mines where specific conditions exist to adopt special mining methods like partial extraction methods or other non- conventional methods.



Course Code:	PCC- MIN 07
Course Title:	Advanced Underground Coal Mining
Course Outcomes:	
PCC- MIN07.1	Will comprehend the role of Mass Production Technologies (MPTs) in underground coal mining in general and their application in Indian underground coal mines in particular for radical transformation of techno-economical parameters of UG coal mines at national level
PCC- MIN07.2	Will be acquainted with Continuous Miner Technology, one of the world acclaimed MPTs applicable with B&P method of mining with complete understanding of its configuration, panel design and operational pre-requisites
PCC- MIN07.3	Will garner knowledge about the geo-technical challenges associated with mechanized depillaring with Continuous Miner technology and dealing with such challenges for their practical application in mines successfully
PCC- MIN07.4	Will be acquainted with the Powered Support Longwall Technology as the safest, most productive and techno-economically most acclaimed globally accepted underground mining technology along with its equipment configuration and scope of application. The student will also develop the skill to select the powered supports based on geo-technical data and analysis of load concentration on the working area.
PCC- MIN07.5	Will be able to comprehend the challenges associated with thick seam mining, its different methods in variable mining conditions and analytically resolve their applicability challenges.

Course Code:	ME 203
Course Title:	FLUID MECHANICS
Course Outcomes:	
ME 203.1	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
ME 203.2	Analyze fluid motion using Lagrangian/Eulerian methods, study flow lines and particle acceleration.
ME 203.3	Apply Euler's/Bernoulli's equations, understand Venturimeter, Orifice meter, and implications of momentum equations.
ME 203.4	Differentiate between laminar/turbulent flow, study pipe flow, energy losses, configurations, and pipe phenomena.



ME 203.5	Master boundary layer theory, friction factors, and separation control, plus dimensional analysis methods and model laws in fluid dynamics.
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Course Code:	PCC-MIN06
Course Title:	Introduction to surveying, mine surveying and their applications.
Course Outcomes:	
PCC-MIN06.1	Understand the mine surveying and basic requirements of mine surveying.
PCC-MIN06.2	Learn the different types of measurement, like linear and angular horizontal and vertical techniques
PCC-MIN06.3	To know the magnetism and declination
PCC-MIN06.4	To know the leveling methods and calculation
PCC-MIN06.5	To know the curve setting.

Course Code:	MIN-208
Course Title:	Mine Ventilation & Environment-I
Course Outcomes:	
MIN-208.1	Explain the necessity of ventilation in Coal and Metal mines.
MIN-208.2	Explain air flow system
MIN-208.3	Determine the effects of natural ventilation
MIN-208.4	Illustrate about Mechanical ventilation
MIN-208.5	Assess mine ventilation devices. Explain the necessity of ventilation in Coal and Metal mines



Course Code:	MIN-401
Course Title:	Mining Geology-II
Course Outcomes:	
MIN-401.1	Describe physiographic division of India and geological time scale.
MIN-401.2	Analyze process of ore formation of economic Mineral deposits.
MIN-401.3	Demonstrate metallic and non-metallic deposits, their origin and occurrence.
MIN-401.4	Explain physical properties, processes of occurrence of coal, petroleum and fossil fuels.
MIN-401.5	Evaluate geophysical prospecting methods, application of remote sensing and GIS.

Course Code:	HSMC05
Course Title:	Project Management
Course Outcomes:	
HSMC05.1	Garnering concept of fundamental management theories and their evolution
HSMC05.2	Comprehension and application of management theories in mining projects
HSMC05.3	Developing skills for human resource and conflict management and build up of proper organization structure
HSMC05.4	Development of skills for resource allocation and utilization and inventory control
HSMC05.5	Comprehension of capital budgeting, financial resources and project evaluation techniques



Course Code:	HMSC304
Course Title:	Industrial Psychology
Course Outcomes:	
HMSC304.1	Understand key concepts, theoretical perspectives, and trends in industrial psychology.
HMSC304.2	Create a better work environment for better performance.
HMSC304.3	Understand customer behavior.
HMSC304.4	Apply different work methods to improve industrial efficiency.
HMSC304.5	Understand Criteria's in evaluation of job-related factor

Course Code:	MIN504
Course Title:	ROCK MECHANICS & STRATA CONTROL
Course Outcomes:	
MIN504.1	Classify and interpret different types stresses in rock- mass.
MIN504.2	Acquire the knowledge of geological investigation of rock mass, classification, identification and survey of joints.
MIN504.3	Analyse and classify the rock behavior from laboratory testing and find out RMR, RQD, Q-system from the given data.
MIN504.4	Apply RMR to design support system of mine. Install instruments to assess their situ stresses.
MIN504.5	Use different theories of rock failures, dynamic properties of rock mass in analyzing slope stability of waste dump.

Course Code:	MIN603
Course Title:	ADVANCE ROCK MECHANICS AND STRATA CONTROL
Course Outcomes:	
MIN603.1	Interpret Stress State and design of Local and Mass Support System (Rock Enforcement).
MIN603.2	Apply stress and deformation related instrumentation to measure rock movement and interpretation of data
MIN603.3	Predict surface subsidence and assess rock bursts and bump. Apply measures



	to control subsidence and bursts.
MIN603.4	Analyse mechanism of caving and slope failure. Apply FLAC 3D and FLAC 2D to assess slope failure.
MIN603.5	Apply numerical analysis in geo mechanics by using different methods of numerical modeling of rock masses and computational methods too.

Course Code:	PCC MIN 11
Course Title:	Innovative and Sustainable Mining
Course Outcomes:	
PCC MIN 11.1	Garnering concept of sustainability and the chronology of its development. Understanding the sustainability development framework in mining
PCC MIN 11.2	Environmental impacts of mining and mitigation plans
PCC MIN 11.3	Energy security of India. Transformation in the energy mix in India to cope upwith the global commitment of reducing carbon footprint
PCC MIN 11.4	Coal Bed Methane and other forms of clean coal technologies. Other non-conventional forms of energy
PCC MIN 11.5	Innovative mining technologies and their application for sustainable development.

Course Code:	PCC-MIN17
Course Title:	Mine Electrical Engineering
Course Outcomes:	
PCC-MIN17.1	Understand the principle, working, and performance characteristics of DC generators and performance characteristics of DC motors with various speed control methods and Starters for DC machines.
PCC-MIN17.2	Analyse the Construction and working of a three-phase Induction Motors, the basic concept of single-phase Induction Motors. The discussion about the construction and working of the Synchronous Machine will be donewith their respective applications.
PCC-MIN17.3	Understand the Electrical Drives and Power Semiconductor devices with theknowledge of the communication interference in mines.
PCC-MIN504.4	Understand the protection schemes in mines and power distribution with power economics.
PCC-MIN17.5	Acknowledge energy conservation in different scenarios and electrical safety.



Course Code:	PCCMIN 310
Course Title:	Mine Management General Safety & Mine Legislation
Course Outcomes:	
PCCMIN 310.1	Explain the various aspects various management principles and branches of management
PCCMIN 310.2	Describe the Acts and Rules for Health and Safety
PCCMIN 310.3	Describe the Acts and Rules for Health and Safety
MIN504.4	Describe the Acts and Rules for Mineral Conservation and Environmental protection
PCCMIN 310.5	Comprehend the MMDR Act 1957 and Rules.

Course Code:	MIN-306
Course Title:	Mine Ventilation & Environment-II
Course Outcomes:	
MIN-306.1	Identify different types of mine fires and their detection, monitoring and control measures.
MIN-306.2	Explain Spontaneous Heating
MIN-306.3	Summarize Mine Explosions
MIN-306.4	Illustrate about Mine Rescue and Recovery work
MIN-306.5	Assess mine inundation dangers.



Course Code:	PCC MIN16
Course Title:	Mining Machinery-II
Course Outcomes:	
PCC MIN16.1	will garner an insight into the theoretical aspects of physical and mechanical properties of metals and alloys and their application in construction of steel wire ropes as an important element in several mining activities
PCC MIN16.2	Understanding the principles of operation of winding systems in vertical shafts along with acquiring the knowledge of the configuration of winding equipment, their safety features to meet the statutory requirement as per mines laws.
PCC MIN16.3	Will develop complete knowledge and understanding of the design elements of different types of haulage systems for Underground mines and their proper selection criteria in terms of types and required motor power along with safety features as per statute.
PCC MIN16.4	Will comprehend the technical aspects associated with the use of different types of locomotives in underground mine conditions and different conveyor systems with analytical concept for their applicability in specific conditions
PCC MIN16.5	Will garner an understanding about the need for adopting specific types of winning machines for their constructional and design details in underground coal mines, both for conventional and mechanized mines.

Course Code:	PEC-MIN05
Course Title:	Coal and Non-Coal Mineral Processing
Course Outcomes:	
PEC-MIN05.1	Explain the various aspects of beneficiation of ores and industrial minerals for value addition.
PEC-IN05.2	Describe the Scope, objectives, and limitations of mineral processing (commination & liberation).
PEC-MIN05.3	Explain the Industrial screens, mechanical classifiers, hydro cyclones, gravity separation.
PEC-MIN05.4	Explain coal processing, grade improvement, Indian scenario.
PEC-MIN05.5	Evaluate beneficiation of coal and simple ores of gold, iron, manganese.



Course Code:	PE-MIN-11
Course Title:	Computer Application in Mining
Course Outcomes:	
PE-MIN-11.1	Describe about the computer hardware, computer software, importance of artificial intelligence and importance of software in mining.
PE-MIN-11.2	Explain about the importance of mining software in various operations in surface mine design
PE-MIN-11.3	Discuss about the importance of mining software which is related with environmental issues.
PE-MIN-11.4	Illustrate the study about mining project and mine valuation which is related with computer software.
PE-MIN-11.5	Discuss about the various mining software which is related with various mining problems.

Course Code:	OEC-MIN03
Course Title:	Disaster Management
Course Outcomes:	
OEC-MIN03.1	To provide basic conceptual understanding of disasters
OEC-MIN03.2	To understand approach of disaster management
OEC-MIN03.3	Mitigation and management techniques in case of disasters
OEC- MIN03.4	To build skills to respond to disasters
OEC- MIN03.5	Assessment of social, environmental and economic impact of disasters



Course Code:	OEC-MIN02
Course Title:	EIA & EMP of Mining Industry
Course Outcomes:	
OEC- MIN02.1	Describe about the knowledge of EIA.
OEC- MIN02.2	Explain about the knowledge of EMP.
OEC- MIN02.3	Discuss about the negative impact of mining on environment.
OEC- MIN02.4	Illustrate the study of qualitymanagement system.
OEC- MIN02.5	Discuss about the various mining laws, policy and regulation.

Course Code:	PEC MIN-406
Course Title:	Mine Planning and Design
Course Outcomes:	
PEC MIN- 406.1	Identify the Fundamentals of mine planning:
PEC MIN- 406.2	Explain Techno economics of Production planning
PEC MIN-406.3	Summarize mine infrastructure planning.
PEC MIN-406.4	Illustrate Planning for mine sub systems:
PEC MIN-406.5	Assess Project Planning & Environmental Management



Course Code:	MIN701
Course Title:	MINERAL ECONOMICS
Course Outcomes:	
MIN701.1	Apply the knowledge of mining in context to economics of minerals and relevant land and sea laws.
MIN701.2	Classify mineral resources into different categories as per UNFC and JORC
MIN701.3	Analyse the financial parameters related to mineral value
MIN701.4	Calculate the tax and market structure related to mineral.
MIN701.5	Utilize the aspects of national mineral policy and EXIM policy related to mineral industry

Course Code:	PCC MIN16
Course Title:	Mining Machinery-III
Course Outcomes:	
PCC MIN16.1	will garner an insight into the theoretical aspects of physical and mechanical properties of metals and alloys and their application in construction of steel wire ropes as an important element in several mining activities
PCC MIN16.2	Understanding the principles of operation of winding systems in vertical shafts along with acquiring the knowledge of the configuration of winding equipment, their safety features to meet the statutory requirement as per mines laws.
PCC MIN16.3	Will develop complete knowledge and understanding of the design elements of different types of haulage systems for Underground mines and their proper selection criteria in terms of types and required motor power along with safety features as per statute.
PCC MIN16.4	Will comprehend the technical aspects associated with the use of different types of locomotives in underground mine conditions and different conveyor systems with analytical concept for their applicability in specific conditions
PCC MIN16.5	Will garner an understanding about the need for adopting specific types of winning machines for their constructional and design details in underground coal mines, both for conventional and mechanized mines.



Course Code:	OEC-MIN04
Course Title:	Mineral Resources of India
Course Outcomes:	
OEC-MIN04.1	Describe the properties of metallic and non-metallic minerals.
OEC-MIN04.2	Explain the regulatory frame of mineral authority in India.
OEC-MIN04.3	Describe the PSU and its role in mining
OEC-MIN04.4	Explain the distribution of non-metallic mineral resources in India
OEC-MIN04.5	Evaluate the distribution of non-metallic mineral resources in India

Course Code:	PEC-MIN01
Course Title:	Quantitative Decision Making
Course Outcomes:	
PEC-MIN01.1	Provides a good understanding of decision making techniques, methodologies and tools helps students make better organizational and operational decisions.
PEC- MIN01.2	Formulate linear programming problems and solve Linear Programming Problems using appropriate techniques and optimization solvers.
PEC- MIN01.3	Students will grasp fundamental project management concepts, including scheduling, resource allocation, and project control.
PEC- MIN01.4	Students will learn fundamental concepts of simulation, including system modeling, random variables and Monte Carlo Simulation.
PEC- MIN01.5	Students will grasp the fundamental concepts of transportation and assignment problems, including problem formulation, constraints, and objectives.



Course Code:	MINL403
Course Title:	Rock Excavation Engineering
Course Outcomes:	
MINL403.1	Present status of rock excavation in engineering
MINL403.2	Advances in Rock Drilling
MINL403.3	To have latest knowledge of Drilling and Blasting
MINL403.4	Equipment s used to excavate mineral without Blasting
MINL403.5	Latest technology about tunneling



Department **Mechanical Engineering**



Programme:

Doctor of Philosophy Mechanical Engineering

Semester-I

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research.
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report
151PH03.6	Develop a valid and ethical research report.



Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literaturein respect of recent trends and technologies.



Programme: M. Tech. (Mechanical Engineering)

Semester-I

Course Code:	MMF104E
Course Title:	Advanced Tool Design
Course Outcomes:	
MMF104E.1	Define tooling_s for different types of production systems.
MMF104E.2	Understand jigs and fixture design and their elements
MMF104E.3	Design fixture for machining, welding and inspection using forces
MMF104E.4	Study cost analysis, maintenance and CAD of tools
MMF104E.5	Apply software knowledge for design of tools

Course Code:	MMF102
Course Title:	CNC Technology
Course Outcomes:	
MMF102.1	Understand how the Cartesian coordinate system relates to CNC Routing, Turning and Milling operations
MMF102.2	Be introduced to master cam's machining of tw are program
MMF102.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
MMF102.4	Calculate speeds and feeds for CNC machining operations and Debug a CNC part programming
MMF102.5	Simulate part program son CNC machining simulation software

Course Code:	MMF104B
Course Title:	Machine tool design
Course Outcomes:	
MMF104B.1	Study kinematics o f various machine tools.
MMF104B.2	Understand principles of various machine tool feed and speed drives
MMF104B.3	Design power screws, slide ways and machine tool spindle with bearings
MMF104B.4	Design structure and other auxiliary mechanism of machine tool.



MMF104B.5	Apply modular design aesthetics and ergonomics for machine tool.
MMF104B.6	Study acceptance test of machine tools and methods of machine tool condition

Course Code:	MMF104A
Course Title:	Finite Element Method
Course Outcomes:	
MMF104A.1	Understand the fundamental concepts of finite element method to solve engineering problems.
MMF104A.2	Formulate finite element models using appropriate element selection, development of stiffness & force matrices, and application of boundary conditions
MMF104A.3	Solve structural, thermal, and fluid flow problems in one dimension using the developed finite element formulations
MMF104A.4	Formulate Two-Dimensional Finite Element models and shape function derivation for triangular and rectangular elements.
MMF104A.5	Solve two dimensional problems for plane stresses-strains and for dynamics systems using the developed finite element formulations

Course Code:	PE105
Course Title:	Manufacturing Engineering Laboratory
Course Outcomes:	
PE105.1	Measure cutting forces in turning, milling and drilling operations.
PE105.2	Modeling of machine components using software like ANSYS, LSDYNA
PE105.3	Experiment on EDM, PCM, Wire EDM
PE105.4	Design a Pneumatic circuit for a given application
PE105.5	Optimize the machining processes. Experiment on CMM, Robotics and PROCAST

Course Code:	MMF104H
Course Title:	Quality Control and Reliability
Course Outcomes:	
MMF104H.1	Study various approaches of quality.



MMF104H.2	Understand kaizen, Deming and Juran_s quality control policies
MMF104H.3	Study design of experiments using factorial approach and analyze the experiments.
MMF104H.4	Discuss various quality improvement processes using charts, block diagram,distribution and QFD
MMF104H.5	Understand statistical processes controlling quality and reliability assessment of product. Apply Taguchi_s experimental design for quality control

Course Code:	MMF104C
Course Title:	Sheet Metal Engineering
Course Outcomes:	
MMF104C.1	Understand the applications of sheet metal processes.
MMF104C.2	Predict the spring back in metal forming products
MMF104C.3	Understand the presses used in metal forming
MMF104C.4	Describe the computer aided metal forming
MMF104C.5	Draw the forming limiting diagrams

Course Code:	MMF104L
Course Title:	Manufacturing Planning and Control
Course Outcomes:	
MMF104L.1	Apply the systems concept for the design of production and service systems.
MMF104L.2	Make forecasts in the manufacturing and service sectors using selected quantitativeand qualitative techniques
MMF104L.3	Apply the principles and techniques for planning and control of the production andservice systems to optimize/make best use of resources
MMF104L.4	Explain Understand the importance and function of inventory and to be able to apply selected techniques for its control and management under dependent and independent demand Circumstances.
MMF104L.5	Understand the lot sizing and production scheduling and Study about qualityplanning, cost planning and control.



Course Code:	MMF104I
Course Title:	Processing of Advanced Materials
Course Outcomes:	
MMF104I.1	Understand the advanced materials and their applications
MMF104I.2	Describe the manufacturing methods for GFRP composites
MMF104I.3	Explain the manufacturing methods for MMC and CMC composites
MMF104I.4	Identify the difficulties in machining of advanced materials
MMF104I.5	Understand the application of High speed machining for advanced materials

SEMESTER - II

Course Code:	PCC-MMF202
Course Title:	Casting and Moulding Technology
Course Outcomes:	
PCC-MMF202.1	Identify suitable casting processes and their working principles to manufacture products
PCC-MMF202.2	Design and analyze the melt flow in mould gating and rising system
PCC-MMF202.3	Understanding casting solidification phenomenon and identify various casting defects and their remedies.
PCC-MMF202.4	Classify different mould types for plastics product and understand polymerization and synthesis techniques
PCC-MMF202.5	Understand different plastics processing methods and their working principles

Course Code:	PCC-MMF201
Course Title:	Metal Forming Processes
Course Outcomes:	
PCC-MMF201.1	Understand the theory of plasticity and yield criteria.
PCC-MMF201.2	Understanding Metal Forming Processes and Applications.
PCC-MMF201.3	Analyze metal forming processes
PCC-MMF201.4	Design rolls for rolling, forging and extrusion
PCC-MMF201.5	Describe the latest trends in metal forming



CourseCode:	MMF203I
CourseTitle:	Metrology and computer aided inspection
Course Outcomes:	
MMF203I.1	Understanding metrology standards, GD&T procedures, surface metrology, and tolerance analysis for precision measurement and quality assurance.
MMF203I.2	Application of laser-based metrology for dimensional, roundness, and surface roughness measurements in manufacturing and inspection processes
MMF203I.3	Use of optoelectronic devices, machine vision, and advanced techniques for on-line monitoring, tool wear measurement, and surface characterization
MMF203I.4	Types and applications of Coordinate Measuring Machines (CMMs), integration with computer systems for dimensional and surface finish metrology
MMF203I.5	Utilization of various sensors including optical, inductive, capacitive, and advanced technologies like laser and ultrasonic for inspection in manufacturing environments.

Course Code:	MMF203M
Course Title:	Modeling and simulation
Course Outcomes:	
MMF203M.1	Analyze different system models and simulations, understanding their steps, advantages, and hypothesis testing.
MMF203M.2	Develop and validate credible simulation models using statistical procedures and stochastic input elements
MMF203M.3	Generate random variants and variables using various methods and understand simulation languages and their features
MMF203M.4	Perform output data analysis, applying methods for steady-state analysis and comparing simulation techniques
MMF203M.5	Apply simulation techniques to flow shop, job shop systems, and inventory management problems



Course Code:	MMF203K
Course Title:	Processing and Characterization Techniques
Course Outcomes:	
MMF203K.1	Enhance knowledge on processing for different material..
MMF203K.2	To know the characteristic and properties after processing of material.
MMF203K.3	To know about latest characterization technique
MMF203K.4	Enhance knowledge of thermal analysis technique
MMF203K.5	To examine fine detail using microscope.

Course Code:	MMF204A
Course Title:	Research Methodology
Course Outcomes:	
MMF204A.1	Students will be able to Understand and Describe importance of research.
MMF204A.2	Students will be able to Classify and select appropriate resources for Research.
MMF204A.3	Students will be able to Analyze the contents of literature and identify furtherscope
MMF204A.4	Students will be able to Formulate a Research Problem
MMF204A.5	Students will be able to apply effective written and oral Presentation skills.



Course Code:	MMF203H
Course Title:	Total Productive Maintenance
Course Outcomes:	
MMF203H.1	Students will be able to understand and apply the different types of maintenance principles/practices to increase the productivity of plant and equipment with a modest investment in maintenance.
MMF203H.2	Students will be able to understand as to how the equipment effectiveness can be maximized, they will also learn about five pillars of TPM
MMF203H.3	Students will be able to prepare the maintenance master plan and implement the TPM
MMF203H.4	Students will be able to understand about human factors in maintenance, maintenance logistics and Spare parts management
MMF203H.5	Students will be able to apply various condition monitoring techniques to identify the instantaneous condition of the machine and take the corrective action for any potential defect

Course Code:	PE201
Course Title:	Seminar-I
Course Outcomes:	
PE201.1	Identification and objective of the seminar topic, along with a literature review that includes recent technological trends.
PE201.2	In-depth analysis and interpretation of technical data related to the seminar topic, including case studies and practical implementation examples
PE201.3	Preparation and delivery of the seminar presentation, including a question and answer session

Course Code:	PE202
Course Title:	Mini-Project
Course Outcomes:	
PE202.1	Methodology for project design and project scheduling
PE202.2	Methods of Data collection and data compilation
PE202.3	Product development



PE202.4	Data analysis and data interpretation
PE202.5	Concluding remark and future work

Semester-III

Course Code:	MMF301
Course Title:	Project Management and Intellectual Property Rights
Course Outcomes:	
MMF301.1	Enumerate and demonstrate fundamental terms such as copy-rights, Patents, Trademarks etc.
MMF301.2	Interpret and follow Laws of copy-rights, Patents, Trademarks and various IP registration Processes to register own project research.
MMF301.3	Exhibit the enhance capability to do economic analysis of IP rights, technology and innovation related policy issues and firms_ commercial strategies.
MMF301.4	Develop awareness at all levels (research and innovation) of society to develop patentable technologies.
MMF301.5	Apply trade mark law, copy right law, patent law and also carry out intellectual property audits

Course Code:	PE302
Course Title:	Project Stage-I
Course Outcomes:	
PE302.1	Methodology for project design and project scheduling
PE302.2	Methods of Data collection and data compilation
PE302.3	Product development
PE302.4	Data analysis and data interpretation
PE302.5	Concluding remark and future work



Semester-IV

Course Code:	PE401
Course Title:	Project Stage-II
Course Outcomes:	
PE401.1	PROJ-404.1: Understand the organizational environment and recognize the requirement of the organization and cope with the organizational scenario.
PE401.2	Identify career paths taking into account their individual strengths and aptitude and prepare a report about the work experience in the organization.
PE401.3	Develop the employability skills and Start-Up skills to increase his/her ability to engage in life-long learning
PE401.4	Develop individual confidence to handle various engineering assignments and acquire life skills to meet societal challenges



Programm: B. Tech. (Mechanical Engineering)

Semester-I

Course Code:	BSC201
Course Title:	Engineering Mathematics -II
Course Outcomes:	
BSC201.1	Understand the importance of Laplace transforms and elementary properties of Laplace transform
BSC201.2	To introduce effective mathematical tools for the solutions of ordinary differential equations and solutions with Bessel functions and Legendre functions
BSC201.3	Demonstrate an understanding of the Vector Calculus
BSC201.4	Define and recognize the method to solve Sequences and series
BSC201.5	Students will create the concept of a Partial Differential Equations

Course Code:	BSC202
Course Title:	Physics-I
Course Outcomes:	
BSC202.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electrooptic device and CRO.
BSC202.2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications
BSC202.3	Learn the basic concepts of dual nature of matter, wave packet, and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC202.4	Recall the basic concepts of crystal structure and apply the min solving numerical problems based on the min relating to applications for determination of crystal structure.
BSC202.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.



Course Code:	BSC202
Course Title:	Physics-I
Course Outcomes:	
BSC202.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electrooptic device and CRO.
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BSC202.4	Recall the basic concepts of crystal structure and apply the min solving numerical problems based on the min relating to applications for determination of crystal structure
BSC202.5	Relatethebasicideaoftotalinternalreflectiontothepropagationoflightinanopticalfiber and make Use of the fiber concepts to solve numerical problems and relate to applications in engineering.

Course Code:	BSC203
Course Title:	Biology for Engineers
Course Outcomes:	
BSC203.1	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry CO 2: To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.
BSC203.2	To convey that —Genetics is to biology what Newtons laws are to Physical Sciences and understand the molecular basis of coding and decoding genetic information is universal
BSC203.3	To convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth
BSC203.4	To convey the concept of microbes and their role in environment.
BSC203.5	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry CO 2: To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.



Course Code:	ESC101
Course Title:	Basic Electrical Engineering
Course Outcomes:	
ESC101.1	Apply network theorems to solve electrical DC circuits.
ESC101.2	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC101.3	Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
ESC101.4	Understand the basic operating principle, types, efficiency of Transformers.
ESC101.5	Understand the basic operating principle, types of machines

Course Code:	ESC202
Course Title:	Engineering Graphics & Design
Course Outcomes:	
ESC202.1	Get introduced with Engineering Graphics and visual aspects of design.
ESC202.2	Know and use common drafting tools with the knowledge of drafting standards.
ESC202.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
ESC202.4	Produce part models carry out assembly operation and show working procedure of a designed project work using animation.
ESC202.5	To make the student understand the viewing perception of a solid object in I so metric and perspective Projection, Design modulation and simulation by Auto CAD.

Course Code:	ESC106
Course Title:	Basic Civil Engineering
Course Outcomes:	
ESC106.1	Impart the knowledge on importance of Civil Engineering in the infrastructural development of society
ESC106.2	Identify the types uses and properties of various building materials.
ESC106.3	Identify the type of construction for different components of a building
ESC106.4	Establish an idea about the different types of masonry work
ESC106.5	Analyze various types of roofs and floors.



Course Code:	HSMC-201
Course Title:	Design Thinking & Idea Lab
Course Outcomes:	
HSMC 201- 1.1	Identify the problems that fall under the purview of human centered design process for creative problem solving.
HSMC 201- 1.2	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques.
HSMC-201.3	Build simple prototypes for problems using gathered user requirements

Course Code:	HSMC-202
Course Title:	Indian Knowledge System
Course Outcomes:	
HSMC-202.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
HSMC-202.2	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
HSMC-202.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
HSMC-202.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
HSMC-202.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Semester-II

Course Code:	BSC102
Course Title:	Engineering Mathematics –I
Course Outcomes:	
BSC 102.1	Understand the concept of differentiation
BSC 102.2	Understand the basic concepts of matrices.
BSC 102.3	Understand the basic concepts of Limit, continuity and partial derivatives.
BSC 102.4	Understand the basic concepts of Exact differential equations.
BSC 102.5	Understand the basic concepts of definite and improper integrals



Course Code:	BSC101
Course Title:	Chemistry-I
Course Outcomes:	
BSC 101.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC 101.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
BSC 101.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BSC 101.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
BSC 101.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.

Course Code:	ESC-104
Course Title:	Problem Solving and Programming
Course Outcomes:	
ESC-104.1	Understand the basic concept of Programming languages, software, algorithm and flowchart. ESC- CO 2: Acquire knowledge regarding the building blocks of programming language.
ESC-104.2	Apply python for solving basic programming solutions.
ESC-104.3	Create algorithms using learnt programming skills.
ESC-104.4	Understand real world problems and developing computer solutions for those.
ESC-104.5	Understand the basic concept of Programming languages, software, algorithm and flowchart. ESC- CO 2: Acquire knowledge regarding the building blocks of programming language.

Course Code:	ESC-105
Course Title:	Manufacturing Practice Workshop
Course Outcomes:	
ESC-105.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC-105.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques.
ESC-105.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC-105.4	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.



ESC-105.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.
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Course Code:	HSMC-101
Course Title:	Communication Skills
Course Outcomes:	
HSMC-101.1	Speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC-101.2	Interact properly with improved Leadership Skills ,Problem Solving Skills, Social skills a d Communication Skills .Students will also be able to understand the Importance of Team Work
HSMC-101.3	Communicate effectively in Hindi and English languages with out hindrances.
HSMC-101.4	Convey their messages accurately by under standing the significance of grammar as it plays a vital role in improving speaking and writing skills
HSMC-101.5	Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers

Course Code:	HSMC-102
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC-102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC-102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC-102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC-102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
HSMC-102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.



Course Code:	HSMC-103
Course Title:	Yoga and Meditation
Course Outcomes:	
HSMC-103.1	A students shall be able to describe the Brief Introduction of yoga and its practices
HSMC-103.2	A students shall be able to describe the pranayama with the practice of bandh,mudra. CO3: A students shall be able to describe the mediation.

Semester-III

Course Code:	ESC-ME203
Course Title:	Engineering Thermodynamics
Course Outcomes:	
ME203.1	Grasp fundamental thermodynamic concepts, systems, energy forms, and basic processes.
ME203.2	Apply energy conservation principles to closed and open systems, understanding their significance in various devices.
ME203.3	Comprehend entropy and the limitations it imposes on energy conversion processes.
ME203.4	Understand gas equations, pure substance properties, and phase change diagrams.
ME203.5	Analyze different power cycles, evaluating efficiency and practical limitations.

Course Code:	ESC101
Course Title:	Basic Electronics Engineering
Course Outcomes:	
PCC ESC101.1	Understanding of the concept of semiconductor materials, pn junction, pn junction diodes and special purpose diodes.
PCC ESC101.2	Understanding of Diode Applications as Rectifiers, filters for rectifiers, voltage regulators.
PCC ESC101.3	Explain the principle, construction and working of Transistor and different biasing techniques.
PCC CS-301.4	Explain the principle, construction and working of FET_s ,JFET_s, MOSFET_s.
PCC ESC101.5	Explain the principle, construction and working of feedback amplifiers, Oscillators and its types.



Course Code:	BSC206
Course Title:	Engineering Mathematics III
Course Outcomes:	
BSC206.1	By the end of the course students are expected to have deep understanding in complex analysis with a focus on Cauchy-Riemann equations, analytic functions, harmonic functions, and conformal mappings.
BSC206.2	By the end of the course students are expected to understand the concept of a contour integral in the complex plane, concept of zeros of analytic functions and behavior of functions near essential singularities..
BSC206.3	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course in elementary probability theory and random variables.
BSC206.4	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering measures of central tendency and measures of dispersion.
BSC206.5	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering correlation and regression, rank correlation, curve fitting, and various tests of significance.

Course Code:	ESC 207
Course Title:	Engineering Mechanics
Course Outcomes:	
ESC 207.1	Understanding of term Mechanics and its classification
ESC 207.2	Understanding Resolution and composition of force acting on the rigid body
ESC 207.3	Compute the resultant of force for different system of force and study of different laws related to different force system
ESC 207.4	compute the different types of load acting on a different types of beam
ESC 207.5	Compute the centroid , second moment of area, center of gravity, moment of inertia and mass moment of inertia

Course Code:	BSC 208
Course Title:	Environment Science (Audit)
Course Outcomes:	
BSC 208.1	Understand and evaluate the global scale of environmental problem.
BSC 208.2	To outline the resources, ecosystem, diversity and explain the conservation and its significations



BSC 208.3	To identify the environmental issues, types of pollutions and their impact
BSC 208.4	Develop critical thinking for shaping strategies.
BSC 208.5	For environmental protection, social equity and sustainable development

Course Code:	PCC-ME-201
Course Title:	MECHANICS OF DEFORMABLE SOLIDS
Course Outcomes:	
PCC-ME-201.1	Apply elasticity principles to analyze and design structures, understanding stress-strain relationships, deformations, and temperature effects for practical engineering solutions
PCC-ME-201.2	Analyze plane stresses using principal stresses, Mohr's circle, and transformations. Understand plain strain, principal strains, and combined loading in structures and pressure vessels.
PCC-ME-201.3	Develop shear force and bending moment diagrams for beams, understanding loading rate relationships and identifying maximum moments and contra flexure points.
PCC-ME-201.4	Derive flexural and shear formulas, analyze stress distribution, calculate slope and deflection using double integration method for standard cases.
PCC-ME-201.5	Analyze strain energy in axial loads, bending, torsion, determine torsion stresses, and study buckling of columns using Euler's and Rankine's formulas.

Semester-IV

Course Code:	PCC-ME 206
Course Title:	Engineering Materials and Applications
Course Outcomes:	
PCC-ME 206.1	Students will apply diverse material properties to engineering applications, considering cost and standards adherence
PCC-ME 206.2	Students will conduct and interpret mechanical tests, including tension, compression, fatigue, and hardness, while understanding key concepts like Young's modulus and yield strength, including an introduction to non-destructive testing techniques
C-ME 206.3	Students will learn about diverse materials, including steel, copper, aluminum, nickel-based alloys, and titanium, and their heat treatment techniques for enhancing properties in engineering applications
C-ME 206.4	Students will comprehend classification, applications, polymerization, properties, and applications of polymers, ceramics, composites, and advanced materials.
C-ME 206.5	Students will analyze properties, applications, and types of conducting, semiconducting, magnetic, superconducting, dielectric, and smart materials



Course Code:	PCC ME 203
Course Title:	FLUID MECHANICS AND HYDRAULIC MACHINES
Course Outcomes:	
PCC ME 203.1	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
PCC ME 203.2	Analyze fluid motion using Lagrangian/Eulerian methods, study flow lines and particle acceleration
PCC ME 203.3	Apply Euler's/Bernoulli's equations, understand Venturimeter, Orifice meter, and implications of momentum equations
PCC ME 203.4	Differentiate between laminar/turbulent flow, study pipe flow, energy losses, configurations, and pipe phenomena.
PCC ME 203.5	Master boundary layer theory, friction factors, and separation control, plus dimensional analysis methods and model laws in fluid dynamics

Course Code:	PCC ME 202
Course Title:	HEAT TRANSFER
Course Outcomes:	
PCC ME 202.1	Explain different modes of heat transfer and Calculate heat transfer for one-dimensional steady state conduction in solids
PCC ME 202.2	Explain the phenomenon of transient heat transfer in one dimension. Define, classify and analyze the fins
PCC ME 202.3	Discuss various correlations of natural and forced convection, Explain and solve heat transfer problems in forced and natural convection
PCC ME 202.4	Define, classify and analyze the performance of heat exchanges such as parallel flow, counter flow and cross flow heat exchangers. Discuss various boiling and condensation regimes.
PCC ME 202.5	Discuss mechanism and various laws associated with Thermal radiation. Find out shape factors for the various geometries and evaluate the rate of heat exchange between them

Course Code:	PCC-ME-205
Course Title:	Kinematic and Dynamics of machines
Course Outcomes:	
PCC-ME-205.1	Demonstrate a clear understanding of fundamental concepts related to kinematics and dynamics of machines and enumerate different link-based mechanisms with basic understanding of motion
PCC-ME-205.2	Student will be able to understand fundamentals of gear theory which will be the prerequisite for gear design. Student will be able to perform force analysis of Spur, Helical, Bevel, Worm and Worm gear.
PCC-ME-205.3	The student will analyze the different type of Governor and applicability in practical application The student will analyze the



	gyroscopic couple or effect for stabilization of Ship Aero plane and Four-wheeler vehicles
PCC-ME-205.4	Student will be able to design cam profile for given follower motions and understand cam Jump phenomenon, advance cam curves
PCC-ME-205.5	Understand the principles of balancing rotating and reciprocating masses and the importance of stability in machine design

Course Code:	PCC-ME204
Course Title:	Manufacturing Process
Course Outcomes:	
PCC-ME204.1	Understand various manufacturing processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality
PCC-ME204.2	Acquire fundamental knowledge and design widely used and very important primary manufacturing processes such as casting, forming, forging rolling extrusion
PCC-ME204.3	Acquire knowledge about the various tools, equipment, machinery and operations required for material removal processes
PCC-ME204.4	understand the unconventional machining processes, like EDM,EBM, LBM etc
PCC-ME204.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application

Semester-V

Course Code:	HSMC 304
Course Title:	Finance & Accounting
Course Outcomes:	
SMC 304.1	Acquire the knowledge in accounting system of maintenance of journal, ledger, Trial balance and final account
SMC 304.2	Acquire the basic concept of accounting of depreciation and Royalty.
SMC 304.3	Exposed to various provision of hire purchase system and evaluate del credere commission, normal and abnormal loss, value of unsold stock in consignment account
SMC 304.4	Familiarize and understand the basic accounting concepts of different type of branch and the Evaluate the unrealized profit under the departmental accounting.
SMC 304.5	Develop the application skills regarding the dissolution of a firm in case of insolvency



Course Code:	HSMC301
Course Title:	INDUSTRIAL PSYCHOLOGY
Course Outcomes:	
HSMC301.1	Understanding of key concepts, theoretical perspectives, and trends in industrial psychology
HSMC301.2	Evaluate the problems thorough and systematic competency mode
HSMC301.3	Analyze the problems present in environment and design a job analysis method.
HSMC301.4	Create a better work environment for better performance.
HSMC301.5	Design a performance appraisal process and form for the human behavior.

Course Code:	PCC-ME 301
Course Title:	Machine Element and System Design
Course Outcomes:	
PCC-ME 301.1	Student will be able to define different phases in design process, standardization of parts, stress concentration of machine parts.
PCC-ME 301.2	Students will be able to design different types of riveted joints, cotter and knuckle joint, threaded and welding joints.
PCC-ME 301.3	Students will be able to design helical spring with axial loading and subjected to fatigue loadings.
PCC-ME 301.4	Students will be able to design shafts based on strength, rigidity and critical speed
PCC-ME 301.5	Students will be able to design different types of rigid and flexible coupling.

Course Code:	PCC-ME-304
Course Title:	Measurement and Metrology
Course Outcomes:	
PCC-ME-304 .1	Student gain a comprehensive understanding of fundamental measurement principles, including precision, accuracy, and units of measurement
PCC-ME-304 .2	Student understood the suitable instrument for measurement of temperature, pressure and flow
PCC-ME-304 .3	Learn techniques and methodologies in metrology for calibration, inspection, and quality control purposes
PCC-ME-304 .4	Understood the different equipment for measurement of various mechanical properties.
PCC-ME-304 .5	Student get the knowledge about Electrical measurement and various measuring instrument related to it

Course Code:	PCC-ME 302
Course Title:	Mechatronics
Course Outcomes:	
PCC-ME-302.1	Identify key elements of mechatronics and its representation by block diagram.
PCC-ME-302.2	Understand the concept of sensors and use of interfacing systems.
PCC-ME-302.3	Understand the concept and applications of different actuators
PCC-ME-302.4	Illustrate various applications of mechatronic systems.
PCC-ME-302.5	Develop PLC ladder programming and implementation in real life problem.



Course Code:	HSMC302
Course Title:	Operations Research
Course Outcomes:	
HSMC302.1	The student will demonstrate the process of problem solving in Operations Research.
HSMC302.2	The student will apply the linear programming problem method to solve the various business management problems quantitatively.
HSMC302.3	The student will use the transportation and assignment techniques to solve the transportation and assignment problems quantitatively.
HSMC302.4	The student will apply network analysis techniques like PERT and CPM to solve the scheduling of activities and resource allocation related problems.
HSMC302.5	The student will calculate the optimum value of game and optimum replacement period using game theory and replacement theory respectively.

Semester-VI

Course Code:	PEC-ME06
Course Title:	Additive Manufacturing
Course Outcomes:	
PEC-ME06.1	Students will comprehend the evolution, advantages, and classification of AM processes, distinguishing them from subtractive and forming techniques.
PEC-ME06.2	Gain proficiency in Liquid State-based AM processes, focusing on Stereo lithography, Solid Ground Curing, and their applications in diverse industries.
PEC-ME06.3	Acquire in-depth knowledge of Solid State-based AM processes, specifically Fused Deposition Modeling, Laminated Object Manufacturing, and other techniques, along with practical demonstrations.
PEC-ME06.4	Develop expertise in Powder Bed Fusion Processes, understanding powder fusion mechanisms, and comparing various processes like Selective Laser Sintering and Electron Beam Melting.
PEC-ME06.5	Apply AM techniques to product development lifecycle phases, exploring applications in rapid prototyping, tooling, aerospace, medical, and other sectors, emphasizing real-world scenarios and case studies

Course Code:	PEC-ME 05
Course Title:	Computational fluid dynamics
Course Outcomes:	
PEC-ME 05.1	Understand the classification of PDEs, governing equations
PEC-ME 05.2	Understand the basic principles of computational methods.
PEC-ME 05.3	Apply finite volume method to solve steady and unsteady diffusion, advection-diffusion problems
PEC-ME 05.4	Understand Solution algorithms and various discretization schemes
PEC-ME 05.5	Solve engineering problems using CFD software.



Course Code:	PCC-ME 305
Course Title:	Computer Aided Design and Analysis
Course Outcomes:	
PCC-ME 305.1	Understanding of computer technology and CAD software
PCC-ME 305.2	To broaden and deepen their capabilities in doing Different types of Transformations in Design.
PCC-ME 305.3	To impart knowledge of Curves and Surfaces in modeling
PCC-ME 305.4	Have abilities and capabilities for applying Solid modeling techniques
PCC-ME 305.5	Apply/develop solutions or to do research in the areas of Optimization of Design

Course Code:	PCC-ME 307
Course Title:	Manufacturing Automation
Course Outcomes:	
PCC-ME 307.1	Students should gain a comprehensive understanding of the concepts, principles, and technologies involved in manufacturing automation, including robotics, programmable logic controllers (PLCs), sensors, actuators, and human-machine interfaces
PCC-ME 307.2	Students should be able to describe and analyze different types of automation systems used in manufacturing processes, such as fixed automation, programmable automation, and flexible automation.
PCC-ME 307.3	Students should develop programming skills necessary for configuring and controlling automated systems, including programming languages such as ladder logic, Structured Text, Function Block Diagrams, or other relevant languages used in PLC programming.
PCC-ME 307.4	Students should learn how to troubleshoot common issues with automation systems and perform routine maintenance tasks to ensure optimal performance and uptime.
PCC-ME 307.5	Awareness of emerging trends and technologies in manufacturing automation, such as Industrial Internet of Things (IIoT), Artificial Intelligence (AI), Machine Learning (ML), and advanced robotics, and their potential applications in improving manufacturing processes.

Course Code:	PCC- ME 308
Course Title:	Product Innovation & Entrepreneurship
Course Outcomes:	
PCC- ME 308.1	Acquire the knowledge of Entrepreneurship and different theories of Entrepreneurship, challenges and process of Entrepreneurship. sighting, opportunity evaluation process and different business models.
PCC- ME 308.2	Acquire the basic concept of Entrepreneurial mindset and creativity with innovative ideas related to technology.
PCC- ME 308.3	Exposed to various methods of Opportunity analysis which includes opportunity
PCC- ME 308.4	Familiarize and understand Various techniques of pitching, various sources of funds, Types of investors and understanding of the three financial statements: Profit and loss account, Balance sheet, and cash flow statement.
PCC- ME 308.5	Acquire the concept of Collaboration it's types, Networking and it's types and Intellectual property rights.



Course Code:	PCC-ME307
Course Title:	Production & Operation Management
Course Outcomes:	
PCC-ME307.1	Understanding of the intricacies of production systems and resources, the classification of production types and the pivotal roles played by line supervisors and production managers.
PCC-ME307.2	Students will be able to effectively manage the entire project life cycle, from concept phase to execution and completion, while ensuring quality, handling risks, and achieving project objectives
PCC-ME307.3	Students will be able to effectively plan, control, and manage production and supply chain operations to achieve optimal efficiency and cost-effectiveness.
PCC-ME307.4	Understand the principles of factory management and their application in modern manufacturing systems. Apply the concepts of factory management to improve productivity, quality, and sustainability.
PCC-ME307.5	Students will be able to apply mathematical and problem-solving techniques to optimize resource allocation and decision-making in various operational and logistical systems.

Semester-VII

Course Code:	PEC-ME 01
Course Title:	REFRIGERATION AND AIR CONDITIONING
Course Outcomes:	
PEC-ME 01.1	Grasp refrigeration principles, analyze vapor compression systems, and understand limitations for practical applications
PEC-ME 01.2	Comprehend multi-stage and multi-evaporator systems, including flash gas removal, inter cooling, and diverse configurations with applications, advantages, and limitations
PEC-ME 01.3	Students will grasp gas cycle refrigeration concepts, aircraft applications, and cooling tower types, performance, operation, and energy-saving opportunities
PEC-ME 01.4	Master psychrometry, moist air properties, psychrometric processes, heat transfer rates, and applications including SHF, bypass factor, ADP, and airwashers
PEC-ME 01.5	Apply design conditions, understand thermal comfort, psychrometric calculations, and design various summer air conditioning systems, considering ventilation, bypass factors, and reheat strategies



Course Code:	PEC -ME 03
Course Title:	Renewable Energy Engineering
Course Outcomes:	
PCC ESC101.1	understanding of basic energy concepts, including the principles of energy conversion and the environmental impact of energy utilization
PCC ESC101.2	Analyze solar radiation data, estimate solar radiation on different surfaces, and comprehend the functioning of various solar thermal systems and photovoltaic systems. They will also gain knowledge about thermal energy storage methods
PCC ESC101.3	Acquire expertise in wind energy, including the basics of fluid mechanics, wind turbine aerodynamics, and the different types of wind turbines. They will be capable of evaluating wind turbine siting and understanding wind energy conversion systems
PCC CS-301.4	Understanding of various renewable energy sources, including fuel cells and biomass energy. They will be able to classify fuel cells, grasp their operating principles and thermodynamics, as well as comprehend biomass conversion technologies and urban waste to energy conversion
PCC ESC101.5	Recognize the significance of nuclear, ocean, and geothermal energy

Course Code:	PEC-ME 04
Course Title:	Finite Element Analysis
Course Outcomes:	
PEC-ME 04.1	Understand the fundamental concepts of finite element method to solve engineering problems.
PEC-ME 04.2	Formulate finite element models using appropriate element election, development of stiffness & force matrices, and application of boundary conditions
PEC-ME 04.3	Solve structural, thermal, and fluid flow problems in one dimension using the developed finite element formulations
PEC-ME 04.4	Formulate Two-Dimensional Finite Element models and shape function derivation for triangular and rectangular elements
PEC-ME 04.5	Solve two dimensional problems for plane stresses-strains and for dynamic systems using the developed finite element formulations

Course Code:	PEC-ME 02
Course Title:	Power Plant Engineering
Course Outcomes:	
PEC-ME 02.1	Discuss various components of steam power plant and the factors influencing the site selection for the plant
PEC-ME 02.2	Illustrate the working of gas turbine and combined power plant and its components
PEC-ME 02.3	Explain the components, principles and working of nuclear power plant
PEC-ME 02.4	Explain the working of hydroelectric power plant and renewable power system
PEC-ME 02.5	Explain the economics involved in Power Plant and identify the factors related to selection of plant



Course Code:	PROJ- ME 401
Course Title:	Engineering Project-2 (Design & Analysis)
Course Outcomes:	
PROJ- ME 401.1	Methodology for project design and project scheduling
PROJ- ME 401.2	Methods of Data collection and data compilation
PROJ- ME 401.3	Product development
PROJ- ME 401.4	Data analysis and data interpretation
PROJ- ME 401.5	Concluding remark and future work

Semester-VIII

Course Code:	PROJ- ME 402
Course Title:	Engineering Project-3 (Prototype & Testing)
Course Outcomes:	
PROJ- ME 402.1	PROJ-404.1: Understand the organizational environment and recognize the requirement of the organization and cope with the organizational scenario.
PROJ- ME 402.2	Identify career paths taking into account their individual strengths and aptitude and prepare a report about the work experience in the organization.
PROJ- ME 402.3	Develop the employability skills and Start-Up skills to increase his/her ability to engage in life-long learning
PROJ- ME 402.4	Develop individual confidence to handle various engineering assignments and acquire life skills to meet societal challenges

Course Code:	SEM- ME 403
Course Title:	Seminar
Course Outcomes:	
SEM- ME 403.1	Identification and objective of the seminar topic, along with a literature review that includes recent technological trends
SEM- ME 403.2	In-depth analysis and interpretation of technical data related to the seminar topic, including case studies and practical implementation examples.
SEM- ME 403.3	Preparation and delivery of the seminar presentation, including a question and answer session.



Department

Electrical Engineering



Programme: Bachelor of Technology (Electrical Engineering)

Semester-I

Course Title:	Physics-I
Course Code:	BSC101
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 101.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC 101.2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications.
BSC 101.3	Learn the basic concepts of dual nature of matter and wave packet and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC 101.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure
BSC 101.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.

Course Title:	Engineering Mathematics –I
Course Code:	BSC102
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 102.1	Define and understand the concept of limits, Evaluate limits algebraically and graphically, apply the basic rules of differentiation, including the power rule, product rule, quotient rule, and chain rule. Use linear approximation and differentials to estimate values of functions
BSC 102.2	Define and understand the basic concepts of matrices, Differentiate between different types of matrices Perform basic matrix operations, Use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics
BSC 102.3	Define and compute partial derivatives of functions of several variables, Define and compute the gradient vector of a scalar function, Apply the chain rule to compute derivatives of composite functions involving multiple variables, Identify critical points of multivariable functions.
BSC 102.4	Understand the definition of a first-order ordinary differential equation ,Solve separable differential equations using the separation of variables technique, Sketch direction fields to visualize the behavior of solutions, Apply first-order ODEs to model and analyze various phenomena
BSC 102.5	Understand and state the Fundamental Theorem of Calculus, both parts and apply the Fundamental Theorem to evaluate definite integrals. Apply integration techniques, including substitution, integration by parts, and partial fractions.



Course Title:	BSC105
Course Code:	Biology for Engineers
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 105.1	convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry
BSC 105.2	convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted
BSC 105.3	convey that —Genetics is to biology what Newton’s laws are to Physical Sciences and understand the molecular basis of coding and decoding genetic information is universal
BSC 105.4	convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth
BSC 105.5	convey the concept of microbes and their role in environment

Course Title:	ESC101
Course Code:	Basic Electrical Engineering
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 101.1	Apply network theorems to solve electrical DC circuits.
ESC 101.2	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC 101.3	Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
ESC 101.4	Understand the basic operating principle, types, efficiency of Transformers
ESC 101.5	Understand the basic operating principle, types of machines.



Course Title:	ESC102
Course Code:	Engineering Graphics & Design
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 102.1	Get introduced with Engineering Graphics and visual aspects of design
ESC 102.2	Know and use common drafting tools with the knowledge of drafting standards.
ESC 102.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
ESC 102.4	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
ESC 102.5	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD

Course Title:	ESC103
Course Code:	Design Thinking & Idea Lab
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 103.1	Identify the problems that fall under the purview of human centered design process for creative problem solving.
ESC 103.2	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques.
ESC 103.3	Build simple prototypes for problems using gathered user requirements.

Course Title:	ESC106
Course Code:	Basic Civil Engineering
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 106.1	Impart the knowledge on importance of Civil Engineering in the infrastructural development of society
ESC 106.2	Identify the types, uses and properties of various building materials
ESC 106.3	Identify the type of construction for different components of a building
ESC 106.4	Establish an idea about the different types of masonry work
ESC 106.5	Analyze various types of roofs and floors.



Course Title:	HSMC08
Course Code:	Sustainable Development Goals (SDGs)
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC08.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC08.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC08.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC08.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
HSMC08.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values- based education for sustainable development in educational programmes and processes.

Semester-II

Course Title:	Engineering Chemistry
Course Code:	BSC103
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 101.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC 101.2	Describe the concept of symmetry, chirality and optical activity and yn the size chiral drug
BSC 101.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond,andtransition metal complexes.
BSC 101.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.



BSC 101.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.
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Course Title:	Engineering Mathematics -II
Course Code:	BSC104
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 104.1	Understand the importance of Laplace transform and elementary properties of Laplace transform
BSC 104.2	2 To introduce effective mathematical tools for the solutions of ordinary differential equations and solutions with Bessel functions and Legendre functions
BSC 104.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BSC 104.4	Define and recognize the method to solve Sequences and series
BSC 104.5	Students will create the concept of a Partial Differential Equations.

Course Title:	Programming for problem solving
Course Code:	ESC104
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 104.1	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ESC 104.2	Acquire knowledge regarding the building blocks of programming language.
ESC 104.3	Apply python for solving basic programming solutions.
ESC 104.4	Create algorithms using learnt programming skills.
ESC 104.5	Understand real world problems and developing computer solutions for those.



Course Title:	Manufacturing Practice Workshop
Course Code:	ESC105
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 105.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC 105.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques.
ESC 105.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC 105.4	Appreciate and access the use of casting processes in manufacturing and understand the Working of various casting processes.
ESC 105.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.

Course Title:	Communication Skills
Course Code:	HSMC01
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC01.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC01.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
HSMC01.3	Students will be able to communicate effectively in Hindi and English languages without hindrances
HSMC01.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
HSMC01.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.



Course Title:	Fundamentals of Indian Knowledge System
Course Code:	HSMC07
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC07.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture..
HSMC07.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
HSMC07.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
HSMC07.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
HSMC07.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites etc.

Course Title:	Sports And Yoga
Course Code:	HSMC09
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC09.1	A make the students understand the importance of Introduction of Yoga.
HSMC09.2	To make the students understand the importance of Fundamentals of Yoga.
HSMC09.3	To expose the students to a variety of physical and yogic activities aimed at stimulating their continued inquiry about Yoga, physical education, health and fitness
HSMC09.4	To create a safe, progressive, methodical and efficient activity based plan to enhance improvement and minimize risk of injury.
HSMC09.5	To develop among students an appreciation of physical activity as a lifetime pursuit and a means to better health.



Semester III

Course Title:	Electrical Circuit Analysis
Course Code:	EE201
Course Outcomes (CO): After the completion of this course students will be able to:	
EE201.1	Apply different network theorems to analyze given network to evaluate different electrical parameters such as voltage, current, power etc.
EE201.2	Understand and apply the procedure of solving 1st and 2nd order differential equation to find the time response of given RL, RC and RLC networks.
EE201.3	Understand and learn the properties of Single phase and three phase AC circuits
EE201.4	Understand Laplace Transform and its significance in Network analysis.
EE201.5	Analyze two port networks using different network parameters such as Z, Y, Hybrid and ABCD Parameters.

Course Title:	ANALOG ELECTRONICS
Course Code:	EE202
Course Outcomes (CO): After the completion of this course students will be able to:	
EE202.1	Understanding the fundamental of diode, its characteristics and its various types.
EE202.2	Understanding the various applications of diode.
EE202.3	Design and analysis of bipolar junction transistor, its various configurations and applications
EE202.4	Design and analysis of junction field effect transistor and metal oxide semiconductor field effect transistor and its various configurations.
EE202.5	Design and analysis of op-amp, its characteristics and various applications.



Course Title:	Electrical Machine-1
Course Code:	EE 203
Course Outcomes (CO): After the completion of this course students will be able to:	
EE 203.1	Understand the concepts of magnetic circuits.
EE203.2	Understand the phenomenon of electromagnetic force and torque
EE203.3	Understand the operation of DC machines.
EE203.4	Analyze the differences in operation of different dc machine configurations
EE203.5	Analyze single phase and three phase transformers circuits.

Course Title:	Engineering Mathematics III
Course Code:	BSC 206
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 206.1	Understand the concepts of magnetic circuits.
BSC 206.2	Understand the phenomenon of electromagnetic force and torque
BSC 206.3	Understand the operation of DC machines.
BSC 206.4	Analyze the differences in operation of different dc machine configurations
BSC 206.5	Analyze single phase and three phase transformers circuits.

Course Title:	Engineering Mathematics III
Course Code:	BSC 206
Course Outcomes (CO): After the completion of this course students will be able to:	
BSC 206.1	By the end of the course students are expected to have deep understanding in complex analysis with a focus on Cauchy-Riemann equations, analytic functions, harmonic functions, and conformal mappings.
BSC 206.2	By the end of the course students are expected to understand the concept of a contour integral in the complex plane, concept of zeros of analytic functions and behavior of functions near essential singularities
BSC 206.3	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course in elementary probability theory and random variables
BSC 206.4	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering measures of central tendency and measures of dispersion.
BSC 206.5	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering correlation and regression, rank correlation, curve fitting, and various tests of significance.



Course Title:	Engineering Mechanics
Course Code:	ESC 207
Course Outcomes (CO): After the completion of this course students will be able to:	
ESC 207.1	Understanding of term Mechanics and its classification.
ESC 207.2	Understanding Resolution and composition of force acting on the rigid body.
ESC 207.3	Compute the resultant of force for different system of force and study of different laws related to different force system.
ESC 207.4	compute the different types of load acting on different types of beam.
ESC 207.5	Compute the centroid, second moment of area, center of gravity, moment of inertia and mass moment of inertia.

Semester-IV

Course Title:	DIGITAL ELECTRONICS
Course Code:	EE204
Course Outcomes (CO): After the completion of this course students will be able to:	
EE204.1	Understand the design process of digital hardware, use Boolean algebra to minimize the logical expressions and optimize the implementation of logical functions
EE204.2	Design and analysis of combinational logic circuits.
EE204.3	Design and analysis of sequential logic circuits.
EE204.4	Understand the process of Analog to Digital conversion and Digital to Analog conversion.
EE204.5	Understand the process of Analog to Digital conversion and Digital to Analog conversion.

Course Title:	Electrical Machine – II
Course Code:	EE205
Course Outcomes (CO): After the completion of this course students will be able to:	
EE205.1	Understand the constructional and working details of AC machine winding.
EE205.2	Understand the concept of pulsating magnetic fields
EE205.3	Understand the concepts of rotating magnetic fields
EE205.4	Understand the operation of ac machines.
EE205.5	Analyze performance characteristics of ac machines.



Course Title:	POWER ELECTRONICS
Course Code:	EE206
Course Outcomes (CO): After the completion of this course students will be able to:	
EE206.1	To gain knowledge of various applications of semiconductor switches by understanding their static and dynamic characteristics.
EE206.2	To gain knowledge of various applications of semiconductor switches by understanding their static and dynamic characteristics.
EE206.3	To gain knowledge on basic DC-DC converters and their operation under continuous and discontinuous mode of conduction for RLE loads
EE206.4	To identify and formulate the requirements for four quadrants operation of DCmotor.
EE206.5	To differentiate and understand the significance of various commutation circuits and their consequence on device stress. To understand the principle of DC-ACconversion and the different topology for three phase to three phase and singlephase to single phase DC-AC conversion.

Course Title:	Signals and Systems
Course Code:	EE207
Course Outcomes (CO): After the completion of this course students will be able to:	
EE207.1	Understanding the concept and properties of different types of Signals andSystems
EE207.2	Understanding the behavior of continuous and discrete time LTI systems
EE207.3	Analyzing the different signals and systems using Fourier series and Fouriertransform.
EE207.4	Understanding the significance of signals and system using Laplace transform andZ- transform
EE207.5	Analyzing the signals by applying Sampling and Reconstruction theorems,applications of signals and systems.

Course Title:	Electromagnetic Fields
Course Code:	EE208
Course Outcomes (CO): After the completion of this course students will be able to:	
EE208.1	Develop understanding of vector analysis and its use in different types of coordinate systems.
EE208.2	Understand different concepts and laws that govern static Electric fields andapply them to solve magneto statics problems.
EE208.3	Study the nature of electric field inside conductor, insulator and Dielectrics.
EE208.4	Understand different concepts and laws that governs static Magnetic fields andapply them to solve magneto statics problems
EE208.5	Analyze electromagnetic wave propagation in different media



Course Title:	Principle of management
Course Code:	HSMC02
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC02.1	to learn about management and its principles.
HSMC02.2	to understand the process of planning and decision making.
HSMC02.3	Apply the concept of organizing for the effective functioning of a management
HSMC02.4	Evaluate leadership style to anticipate the consequences of each leadership style.
HSMC02.5	Demonstrate the techniques for controlling and coordination

Course Title:	Environmental Science (Audit)
Course Code:	OC201
Course Outcomes (CO): After the completion of this course students will be able to:	
OC201.1	Understand about air, water and soil pollution and there causes.
OC201.2	aware of various laws and policies for environment protection
OC201.3	understand about benefits and barriers of EMS and purpose of EIA
OC201.4	understand about objective and scope of Environmental Auditing and their types
OC201.5	prepare an audit report for a given organization and evaluate the impact of their activities on environment

Semester-V

Course Title:	Power Systems-I
Course Code:	EE309
Course Outcomes (CO): After the completion of this course students will be able to:	
EE309.1	Understand the concepts of power systems.
EE309.2	Understand the various power system components
EE309.3	Understand the generation of over-voltages and insulation coordination
EE309.4	Evaluate fault currents for different types of faults and to understand basic protection schemes.
EE309.5	Understand concepts of HVDC power transmission and renewable energy generation.



Course Title:	Control System
Course Code:	EE310
Course Outcomes (CO): After the completion of this course students will be able to:	
EE310.1	Understand the concept of Control System, their types and procedure of Calculation of overall Transfer function using Various Methods.
EE310.2	Understand and Apply the procedure of Time Domain analysis of given ControlSystem.
EE310.3	Determine the Stability of given system by using Different Methods
EE310.4	Understand and Apply different control Strategies to obtain desired Response of Given system.
EE310.5	Understand and Apply Procedure of State Space Analysis, Transfer functionDecomposition, Observability and Controllability.

Course Title:	MICROPROCESSOR AND MICROCONTROLLERS
Course Code:	EE311
Course Outcomes (CO): After the completion of this course students will be able to:	
EE311.1	Understanding the architecture, pin details and operation of eight-bit and sixteen-bit micro processor
EE311.2	Ability to develop programming skills of eight-bit and sixteen-bit microprocessor.
EE311.3	Understanding the architecture, pin details and function of various I/O and memory inter facing IC_s used with 8086 microprocessor.
EE311.4	Understanding the architecture, pin details and function of various communication and bus interfacing IC_s used with 8086 micro processor
EE311.5	Understanding of the architecture, pin details, operation and application of 8051.

Course Title:	Wind and Solar Energy Systems
Course Code:	EE301
Course Outcomes (CO): After the completion of this course students will be able to:	
EE301.1	Understand the energy scenario and the growth of power generation from renewable energy sources.
EE301.2	Understand the basic physics of wind and solar power generation.
EE301.3	Understand the power electronic interfaces for wind and solar generation.
EE301.4	Understand the issues related to the grid integration of solar and wind energy systems.
EE301.5	Study the Network Integration Issues.



Course Title:	Electrical Drive
Course Code:	EE302
Course Outcomes (CO): After the completion of this course students will be able to:	
EE302.1	Understand the Characteristics of dc motor.
EE302.2	Understand the concepts speed control using chopper
EE302.3	Understand the methods using Induction motor characteristics
EE302.4	Understand the methods using Induction motor characteristics
EE302.5	To Understand the speed control of Slip ring Induction Motor.

Course Title:	Electronic Devices
Course Code:	OEC301
Course Outcomes (CO): After the completion of this course students will be able to:	
OEC301.1	Understanding of the concept of semiconductor materials, pn junction, pn junction diodes and special purpose diodes.
OEC301.2	Understanding of Diode Applications as Rectifiers , filters for rectifiers, voltageregulators
OEC301.3	Explain the principle, construction and working of Transistor , and different biasingtechniques
OEC301.4	Explain the principle, construction and working of FET_s , JFET_s, MOSFET_s
OEC301.5	Explain the principle, construction and working of feedback .amplifiers,Oscillators and its types

Course Title:	DATASTRUCTURE AND ALGORITHMS
Course Code:	OEC302
Course Outcomes (CO): After the completion of this course students will be able to:	
OEC302.1	Understanding abstract specification of data-structures and their implementation
OEC302.2	Understanding time and space complexity of programs and data-structures.
OEC302.3	Knowledge of basic data-structures, their applications and relative merits
OEC302.4	Ability to convert an algorithmic solution to a program using suitable data-structures and analyze the trade-offs involved in terms of time and space complexity
OEC302.5	Acquire basic knowledge of the graphs.

Course Title:	Analog and Digital Communication
Course Code:	OEC303
Course Outcomes (CO): After the completion of this course students will be able to:	



OEC303.1	To develop ability to analyse system requirements of analog and digital communication systems.
OEC303.2	To understand the concept of angle Modulation, to acquire the knowledge of each block in FM and PM transmitters and receivers, To understand the concepts of baseband transmissions
OEC303.3	Analyze and design of various Pulse modulation and demodulation techniques, Understand the effect of noise present Pulse modulation, Attain the knowledge of conversion of pulse modulation to digital output
OEC303.4	To understand and analyze the significance of Digital modulation techniques, Attain the knowledge about ASK, FSK and PSK Transmitters and Receivers and its types.
OEC303.5	To analyze the importance of different Modulation and communication techniques in modern communication system.

Course Title:	Computer Networks
Course Code:	OEC304
Course Outcomes (CO): After the completion of this course students will be able to:	
OEC304.1	Understand the architecture principles that have enabled the orders of magnitude expansion of the Internet
OEC304.2	Understand networked applications and their protocols, their installation, operation, and performance tuning
OEC304.3	Understand layering as a means of tackling complexity, layering applied to the Internet
OEC304.4	Understand protocols as a structured means of reliable communications
OEC304.5	Be familiar with tools for configuring, monitoring and tuning the Internet and hosts

Course Title:	Embedded System
Course Code:	OEC305
Course Outcomes (CO): After the completion of this course students will be able to:	
OEC305.1	Identify hardware and software components of an embedded system
OEC305.2	Learn the basics of OS and RTOS
OEC305.3	Illustrate different Inter Process Communication (IPC) mechanisms used by tasks/process/tasks to communicate in multitasking environment
OEC305.4	Design simple embedded system-based applications
OEC305.5	To introduce the typical components of an embedded system & different communication interfaces



Course Title:	Industrial Psychology
Course Code:	HSMC03
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC03.1	Understand key concepts, theoretical perspectives, and trends in industrialpsychology.
HSMC03.2	Create a better work environment for better performance.
HSMC03.3	Understand customer behavior.
HSMC03.4	Apply different work methods to improve industrial efficiency.
HSMC03.5	Understand Criterias in evaluation of job-related factor

Course Title:	Operations Research
Course Code:	HMSC04
Course Outcomes (CO): After the completion of this course students will be able to:	
HSMC04.1	The student will demonstrate the process of problem solving in OperationsResearch.
HSMC04.2	The student will apply the linear programming problem method to solve thevarious business management problems quantitatively
HSMC04.3	The student will use the transportation and assignment techniques to solvethetransportation and assignment problems quantitatively.
HSMC04.4	The student will apply network analysis techniques like PERT and CPM to solve the scheduling of activities and resource allocation related problems
HSMC04.5	The student will calculate the optimum value of game and optimum replacement period using game theory and replacement theory respectively.

Semester- VI

Course Title:	Power Systems-II
Course Code:	EE312
Course Outcomes (CO): After the completion of this course students will be able to.	
EE312.1	Use numerical methods to analyze a power system in steady state.
EE312.2	Understand stability constraints in a synchronous grid
EE312.3	Understand methods to control the voltage, frequency and power flow.
EE312.4	Understand the monitoring and control of a power system.
EE312.5	Understand the basics of power system economics.

Course Title:	Measurement and Instrumentation
Course Code:	EE313
Course Outcomes (CO): After the completion of this course students will be able to.	



EE313.1	Understand the concept of measurement, their types and characteristics
EE313.2	Understand construction, working and application of different types of measuring instruments.
EE313.3	Measure the value of unknown resistance, Inductance and capacitance using different methods.
EE313.4	Use CRO to view the pattern of different waveforms and measure their voltage, time period, frequency etc.
EE313.5	Understand the working of different types of transducers to measure unknown physical quantities.

Course Title:	Electronic Design Lab
Course Code:	EE314
Course Outcomes (CO): After the completion of this course students will be able to.	
EE313.1	Design various diode circuits and analyze their response.
EE313.2	Design various Transistor circuits and analyze their response
EE313.3	Design power supply circuit and analyze their response.
EE313.4	Design various filter circuits and analyze their response.
EE313.5	Make a project for a given problem

Course Title:	POWER SYSTEM PROTECTION
Course Code:	EE303
Course Outcomes (CO): After the completion of this course students will be able to.	
EE303.1	Understand the basic concepts of power system protection and relays and Explain the working of different types of switchgear Equipments like circuit breakers. To understand the theory of arcing phenomenon.
EE303.2	Understand how lightning occurs and its behavior and to protect power system against over voltages.
EE303.3	Understand insulation coordination.
EE303.4	Explain working of different types of relays in power system, to protect transformer, alternator, feeders transmission line, motor and bus bar.
EE303.5	To understand the concept of Static relay

Course Title:	HVDC Transmission Systems
Course Code:	EE304
Course Outcomes (CO): After the completion of this course students will be able to.	
EE304.1	Understand the advantages of DC transmission over AC transmission.



EE304.2	Understand the operation of Line Commutated Converters and Voltage Source Converters.
EE304.3	Understand the control strategies used in the HVDC transmission system.
EE304.4	Understand different components of HVDC system.
EE304.5	Understand the improvement of power system stability using an HVDC system.

Course Title:	High Voltage Engineering
Course Code:	EE305
Course Outcomes (CO): After the completion of this course students will be able to.	
EE305.1	Understand Breakdown in Gases.
EE305.2	Understand Breakdown in liquid and solid Insulating materials.
EE305.3	Understand the concept of Generation of High Voltages.
EE305.4	Measure High Voltages and Currents.
EE305.5	Perform High Voltage Testing of Electrical Apparatus.

Course Title:	Power quality and FACTS
Course Code:	EE306
Course Outcomes (CO): After the completion of this course students will be able to.	
EE306.1	Understand the characteristics of ac transmission and the effect of shunt and series reactive compensation.
EE306.2	Understand the working principles of FACTS devices, their operating characteristics and Applications
EE306.3	Understand the Voltage Source Converter based FACTs and their operation and control
EE306.4	Understand the power quality problems in distribution System.
EE306.5	understanding the operating behavior and control strategies of DVR, UPQC and STATCOM

Course Title:	Power Plant Engineering
Course Code:	OEC306
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC306.1	Discuss various components of steam power plant and the factors influencing the site selection for the plant.
OEC306.2	Illustrate the working of gas turbine and combined power plant and its components.
OEC306.3	Explain the components, principles and working of nuclear power plant.
OEC306.4	Explain the working of hydroelectric power plant and renewable power



	system.
OEC306.5	Explain the economics involved in Power Plant and identify the factors related to selection of plant.

Course Title:	Strength of Materials
Course Code:	OEC307
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC307.1	Apply elasticity principles to analyze and design structures, understanding stress-strain relationships, deformations, and temperature effects for practical engineering solutions."
OEC307.2	Analyze plane stresses using principal stresses, Mohr's circle, and transformations. Understand plain strain, principal strains, and combined loading in structures and pressure vessels.
OEC307.3	Develop shear force and bending moment diagrams for beams, understanding loading rate relationships and identifying maximum moments and contra flexure points.
OEC307.4	Derive flexural and shear formulas, analyze stress distribution, calculate slope and deflection using double integration method for standard cases
OEC307.5	Analyze strain energy in axial loads, bending, torsion, determine torsion stresses, and study buckling of columns using Euler's and Rankine's formulas.

Course Title:	Fluid Machinery
Course Code:	OEC308
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC308.1	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
OEC308.2	Analyze fluid motion using Lagrangian /Eulerian methods, study flow lines and particle acceleration
OEC308.3	Apply Euler's/Bernoulli's equations, understand Venturi meter, Orifice meter, and implications of momentum equations.
OEC308.4	Differentiate between laminar/turbulent flow, study pipe flow, energy losses, configurations, and pipe phenomena
OEC308.5	Master boundary layer theory, friction factors, and separation control, plus dimensional analysis methods and model laws in fluid dynamics.



Course Title:	PROJECT MANAGEMENT
Course Code:	HSMC05
Course Outcomes (CO): After the completion of this course students will be able to.	
HSMC05.1	Students will demonstrate an understanding of fundamental project management principles, including project lifecycle, stakeholders, constraints, and success criteria.
HSMC05.2	Students will be able to apply various project management methodologies
HSMC05.3	Students will develop comprehensive project plans that include scope definition, scheduling, resource allocation, budgeting, risk management, and communication strategies
HSMC05.4	Students will gain hands-on experience with project management tools and software
HSMC05.5	Students will assess project performance using key performance indicators (KPIs), metrics, and benchmarks, and make data-driven decisions to optimize project outcomes.

Semester-VII

Course Title:	Electrical Energy Conservation and Auditing
Course Code:	EE407
Course Outcomes (CO): After the completion of this course students will be able to.	
EE407.1	Define principles and objectives of energy management and energy audit.
EE407.2	Understand Energy Conservation Act 2001 and its features. Understand various forms & elements of energy.
EE407.3	Identify electrical and thermal utilities. Understand their basic principle of operation and assess performance of various equipment.
EE407.4	Identify areas of energy conservation and adopt conservation methods in various systems.
EE407.5	Evaluate the techno economic feasibility of the energy conservation technique adopted.

Course Title:	Electrical Machine Design
Course Code:	EE408
Course Outcomes (CO): After the completion of this course students will be able to.	
EE408.1	Understand the construction and performance characteristics of electrical machines
EE408.2	Understand the various factors which influence the design: electrical, magnetic and thermal loading of electrical machines
EE408.3	Understand the principles of electrical machine design and carry out a basic design of an Induction machine



EE408.4	Understand the principles of electrical machine design and carry out a basic design of a Synchronous machine.
EE408.5	Use software tools to do design calculations.

Course Title:	Computational Electromagnetics
Course Code:	EE409
Course Outcomes (CO): After the completion of this course students will be able to.	
EE409.1	Understand basic fundamentals of Electrostatics, Electromagnetics and energy transformer vectors.
EE409.2	Apply analytical methods to solving field equations
EE409.3	Understand and apply finite difference method (FDM) and finite element method (FEM).
EE409.4	Analyze and understand different experimental methods.
EE409.5	Gain the knowledge of various applications of computational electromagnetics.

Course Title:	Power system dynamics and control
Course Code:	EE410
Course Outcomes (CO): After the completion of this course students will be able to.	
EE410.1	to be able to know about the power system stability, operations and analysis of power system dynamics
EE410.2	to learn about the modeling of Synchronous Machines and Associated Controllers
EE410.3	to understand the modeling of different power systems components
EE410.4	to be able to understand how to accomplish the stability analysis of the power system
EE410.5	to be able to know about the techniques to improve the system stability.

Course Title:	Electrical and Hybrid Vehicle
Course Code:	EE411
Course Outcomes (CO): After the completion of this course students will be able to.	
EE411.1	Understand the basic constructional feature and design components.
EE411.2	Understand the Motor Torque Calculations For Electric Vehicle.
EE411.3	Understand the working of Electric Drive and controller
EE411.4	Understand the Energy Storage Solutions (ESS) and Battery Management System (BMS)/Energy Management System (EMS).
EE411.5	Understand the working of control unit and Electric Vehicles charging station with Indian and Global scenario.
Course Title:	Advanced Electric Drives



Course Code:	EE412
Course Outcomes (CO): After the completion of this course students will be able to.	
EE412.1	Understand the operation of power electronic converters and their control strategies.
EE412.2	Understand the scalar and vector control strategies for induction motor drives
EE412.3	Understand the scalar and vector control strategies for synchronous motor drives
EE412.4	Understand the construction and control scheme of permanent magnet BLDC, PMSM motor and switched Reluctance Motor (SRM) drives
EE412.5	Understand the implementation of the control strategies using digital signal processors

Course Title:	Industrial Electrical Systems
Course Code:	EE413
Course Outcomes (CO): After the completion of this course students will be able to.	
EE413.1	Understand the electrical wiring systems for residential, commercial and industrial consumers, representing the systems with standard symbols and drawings, SLD
EE413.2	Understand various components of industrial electrical systems.
EE413.3	Analyze and select the proper size of various electrical system components
EE413.4	Analyze and select the proper size of various electrical system components
EE413.5	understand the Automation system

Course Title:	Digital Control System
Course Code:	EE414
Course Outcomes (CO): After the completion of this course students will be able to.	
EE414.1	Obtain and analyze discrete representation of LTI systems.
EE414.2	Obtain Z-Transform and Inverse Z Transform for analyzing discrete time systems
EE414.3	Analyze stability of open loop and closed loop discrete-time systems.
EE414.4	Obtain State space Model of Digital Control system.
EE414.5	Design and analyze different types of digital controllers



Course Title:	Digital signal processing
Course Code:	EE415
Course Outcomes (CO): After the completion of this course students will be able to.	
EE415.1	Understanding of Discrete time signals and systems, significance of sampling and reconstruction.
EE415.2	Applications of Z-transform in Digital signals and systems
EE415.3	Identify the properties and characteristics of discrete Fourier Transform along with their Mathematical representation and analysis.
EE415.4	Understanding the basic concepts designing of different types of filters.
EE415.5	Analyzing the Applications of Digital Signal Processing

Course Title:	ELECTRICAL MATERIALS
Course Code:	OEC409
Course Outcomes (CO): After the completion of this course students will be able to.	
EE415.1	Learn the various properties of conducting materials used in electrical engineering.
EE415.2	Realize the dielectric properties of different insulators in static and alternating fields
EE415.3	Realize the magnetic properties of magnetic materials used in electrical engineering.
EE415.4	Learn the various properties of semiconducting materials used in electrical engineering.

Course Title:	Modern Manufacturing Process.
Course Code:	OEC410
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC410.1	Understand various manufacturing processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality
OEC410.2	Acquire fundamental knowledge and design widely used and very important primary manufacturing processes such as casting, forming, forging, rolling, extrusion
OEC410.3	Acquire knowledge about the various tools, equipment, machinery and operations required for material removal processes
OEC410.4	understand the unconventional machining processes, like EDM, EBM, LBM etc.
OEC410.5	Analyze and assess the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.



Course Title:	Internet of Things
Course Code:	OEC411
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC411.1	Learn the basics of databases and data management.
OEC411.2	Understand various theoretical and practical principles involved in the design and use of databases systems with the help of database.
OEC411.3	Learn the Transaction management with grant and revoke.
OEC411.4	Design and implement databases for various scenarios.
OEC411.5	Design a database scenario for handling any organizations centralized data.

Course Title:	Big Data Analytics
Course Code:	OEC411
Course Outcomes (CO): After the completion of this course students will be able to.	
OEC412.1	Understand and apply big data flow to actual projects as well as apply data analytics life cycle to big data projects.
OEC412.2	Apply appropriate techniques and tools to solve big data problems.
OEC412.3	Describe big data and use cases from selected business domains
OEC412.4	Explain NoSQL big data management
OEC412.5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics

Course Title:	Finance and Accounting
Course Code:	HSMC06
Course Outcomes (CO): After the completion of this course students will be able to.	
HSMC06.1	To understand and apply financial management principles in decision-making.
HSMC06.2	Analyze and determine optimal capital structures, assessing cost of capital.
HSMC06.3	prepare financial statements and handling various aspects of company accounts.
HSMC06.4	Handle debenture-related transactions and accounting entries.
HSMC06.5	Understand and comply with accounting standards, including Ind AS, IFRS, and international reporting standards.



Course Title:	Project Work-I
Course Code:	PROJ-EE401
Course Outcomes (CO): After the completion of this course students will be able to.	
PROJ-EE401.1	Demonstrate a sound technical knowledge of their selected project topic.
PROJ-EE401.2	Analyze, design and implement solution methodologies.
PROJ-EE401.3	Identify problem and formulate a solution for it.
PROJ-EE401.4	Utilize system approach to provide engineering solutions.
PROJ-EE401.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.

Course Title:	Project work-II
Course Code:	PROJ-EE402
Course Outcomes (CO): After the completion of this course students will be able to.	
PROJ-EE402.1	Demonstrate a sound technical knowledge of their selected project topic.
PROJ-EE402.2	Analyze, design and implement solution methodologies.
PROJ-EE402.3	Identify problem and formulate a solution for it.
PROJ-EE402.4	Utilize system approach to provide engineering solutions.
PROJ-EE402.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.

Semester-VIII

Course Title:	On job plant training
Course Code:	OJT-EE401
Course Outcomes (CO): After the completion of this course students will be able to.	
OJT-EE401.1	Engage in industry initiatives as part of their internship.
OJT-EE401.2	Demonstrate how to use the sophisticated equipment and methods the used during their internship.
OJT-EE401.3	Engage with employees of the industry while maintaining the discipline and engineering processes that are required.
OJT-EE401.4	Gain knowledge of appropriate workplace conduct and strengthen their ability to operate in a team and with others.
OJT-EE401.5	Create expert work reports and presentations.



Department

Civil Engineering



B.Tech. Civil Engineering

Semester-I

Course Code:	BSC 101
Course Title:	Physics-I
Course Outcomes:	
BSC 101.1:	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC 101.2:	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications.
BSC 101.3:	Learn the basic concepts of dual nature of matter and wave packet and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC 101.4:	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure.
BSC 101.5:	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.

Course Code:	BSC 102
Course Title:	Engineering Mathematics –I
Course Outcomes:	
BSC 102.1:	Define and understand the concept of limits, evaluate limits algebraically and graphically, Apply the basic rules of differentiation, including the power rule, product rule, quotient rule, and chain rule. Use linear approximation and differentials to estimate values of functions
BSC 102.2:	Define and understand the basic concepts of matrices, differentiate between different types of matrices Perform basic matrix operations, use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics.
	Define and compute partial derivatives of functions of several variables, Define and compute the gradient vector of a scalar



BSC 102.3:	function, Apply the chain rule to compute derivatives of composite functions involving multiple variables, Identify critical points of multivariable functions.
BSC 102.4:	Understand the definition of a first-order ordinary differential equation, solve separable differential equations using the separation of variables technique, Sketch direction fields to visualize the behavior of solutions, Apply first-order ODEs to model and analyses various phenomena.
BSC 102.5:	Understand and state the Fundamental Theorem of Calculus, both parts and apply the Fundamental Theorem to evaluate definite integrals. Apply integration techniques, including substitution, integration by parts, and partial fractions.

Course Code:	BSC 105
Course Title:	Biology for Engineers
Course Outcomes:	
BSC 105.1:	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry.
BSC 105.2:	To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.
BSC 105.3:	To convey that “Genetics is to biology what Newton’s laws are to Physical Sciences” and understand the molecular basis of coding and decoding genetic information is universal.
BSC 105.4:	To convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth
BSC 105.5:	To convey the concept of microbes and their role in environment.

Course Code:	ESC 101
Course Title:	Basic Electrical Engineering
Course Outcomes:	
ESC 101.1:	Apply network theorems to solve electrical DC circuits.
ESC 101.2:	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC 101.3:	Analyse the three phase AC circuits and solve series and parallel magnetic circuits.



ESC 101.4:	Understand the basic operating principle, types, efficiency of Transformers.
ESC 101.5:	Understand the basic operating principle, types of machines.

Course Code:	BSC 101
Course Title:	Physics-I
Course Outcomes:	
ESC 101.1:	Apply network theorems to solve electrical DC circuits.
ESC 101.2:	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC 101.3:	Analyse the three phase AC circuits and solve series and parallel magnetic circuits.
ESC 101.4:	Understand the basic operating principle, types, efficiency of Transformers.
ESC 101.5:	Understand the basic operating principle, types of machines.

Course Code:	ESC 102
Course Title:	Engineering Graphics & Design
Course Outcomes:	
ESC 102.1:	Get introduced with Engineering Graphics and visual aspects of design.
ESC 102.2:	Know and use common drafting tools with the knowledge of drafting standards.
ESC 102.3:	Apply computer aided drafting techniques to represent line, surface or solid models indifferent Engineering viewpoints.
ESC 102.4:	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
ESC 102.5:	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD.



Course Code:	ESC 103-L
Course Title:	Design Thinking & Idea Lab
Course Outcomes:	
ESC 103-L.1:	Identify the problems that fall under the purview of human centered design process for creative problem solving.
ESC 103-L.2:	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques
ESC 103-L.3:	Build simple prototypes for problems using gathered user requirements.

Course Code:	ESC 106
Course Title:	Basic Civil Engineering
Course Outcomes:	
ESC 106.1:	Impart the knowledge on importance of Civil Engineering in the infrastructural development of society.
ESC 106.2:	Identify the types, uses and properties of various building materials.
ESC 106.3:	Identify the type of construction for different components of a building.
ESC 106.4:	Establish an idea about the different types of masonry work
ESC 106.5:	Analyse various types of roofs and floors.

Course Code:	HSMC 08
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC 08.1:	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC 08.2:	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC 08.3:	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable



	resource use.
HSMC 08.4:	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
HSMC 08.5:	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	HSMC 07
Course Title:	Indian Knowledge System
Course Outcomes:	
HSMC 07.1:	To understand the ancient civilization, Indian Knowledge Systems, Concept of Pancha Maha Bhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
HSMC 07.2:	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashastra etc.
HSMC 07.3:	Student will be able to gain knowledge on Vedic Science, Astronomy, Astronauts, Vedic Mathematics, Aeronautics, Metallurgy, Nakshatras, Panchang, Concept of Zero, Pi and point etc.
HSMC 07.4:	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
HSMC 07.5:	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites etc.



Course Code:	BSC 103
Course Title:	Engineering Chemistry
Course Outcomes:	
BSC 103.1:	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC 103.2:	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drugmolecule.
BSC 103.3:	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metalcomplexes.
BSC 103.4:	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
BSC 103.5:	Collectively aim to equip students with a comprehensive understanding of the theoreticalprinciples, practical methodologies, and diverse applications of various spectroscopic techniques.

Course ode:	BSC 104
Course Title:	Engineering Mathematics-II
Course Outcomes:	
BSC 104.1:	Understand the importance of Laplace transform and elementary properties of Laplacetransform.
BSC 104.2:	To introduce effective mathematical tools for the solutions of ordinary differential equationsand solutions with Bessel functions and Legendre functions.
BSC 104.3:	Demonstrate an understanding of the Vector Calculus.
BSC 104.4:	Define and recognize the method to solve Sequences and series.
BSC 104.5:	Students will create the concept of a Partial Differential Equations.



Course Code:	ESC 104
Course Title:	Programming for Problem Solving
Course Outcomes:	
ESC 104.1:	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ESC 104.2:	Acquire knowledge regarding the building blocks of programming language.
ESC 104.3:	Apply python for solving basic programming solutions.
ESC 104.4:	Create algorithms using learnt programming skills
ESC 104.5:	Understand real world problems and developing computer solutions for those.

Course Code:	ESC 105
Course Title:	Manufacturing Practice workshop
Course Outcomes:	
ESC 105.1:	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC 105.2:	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC 105.3:	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC 105.4:	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.
ESC 105.5:	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.



Course Code:	HSMC 01
Course Title:	Communication Skill (English)
Course Outcomes:	
HSMC 01.1:	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC 01.2:	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work
HSMC 01.3:	Students will be able to communicate effectively in Hindi and English languages without hindrances.
HSMC 01.4:	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills
HSMC 01.5:	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	HSMC 09
Course Title:	Sports And Yoga
Course Outcomes:	
HSMC 09.1:	A make the students understand the importance of Introduction of Yoga.
HSMC 09.2:	To make the students understand the importance of Fundamentals of Yoga.
HSMC 09.3:	To expose the students to a variety of physical and yogic activities aimed at stimulating their continued inquiry about Yoga, physical education, health and fitness.
HSMC 09.4:	To create a safe, progressive, methodical and efficient activity-based plan to enhance improvement and minimize risk of injury and Yoga & Lifestyle
HSMC 09.5:	To develop among students an appreciation of physical activity as a lifetime pursuit and a means to better health



Semester-III

Course Code:	PCC CE 02	
Course Title:	Surveying	
Course Outcomes:		
PCC 02.1:	CE	Explain Basic surveying instruments and techniques.
PCC 02.2:	CE	Apply skills in using basic surveying instruments and analyze data.
PCC 02.3:	CE	Apply skills to conduct traverse survey & to find the area.
PCC 02.4:	CE	Describe the principles and various methodologies involved in tachometry.
PCC 02.5:	CE	Identify the various parts of equipment used in theodolite and Tachometer.

Course Code:	BSC 201	
Course Title:	Engineering Mathematics-III	
Course Outcomes:		
BSC 201.1:	By the end of the course students are expected to have deep understanding in complex analysis with a focus on Cauchy-Riemann equations, analytic functions, harmonic functions, and conformal mappings.	
BSC 201.2:	By the end of the course students are expected to understand the concept of a contour integral in the complex plane, concept of zeros of analytic functions and behavior of functions near essential singularities.	
BSC 201.3:	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course in elementary probability theory and random variables.	
BSC 201.4:	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering measures of central tendency and measures of dispersion.	
BSC 201.5:	The course provide a comprehensive overview of the skills and understanding that students are expected to gain from a course covering correlation and regression, rank correlation, curve fitting, and various tests of significance.	



Course Code:	BSC 106 AU
Course Title:	Environment Science (Audit)
Course Outcomes:	
BSC 106 AU.1:	Gain an understanding of the fundamental of industrial pollution.
BSC 106 AU.2:	To educate, train about environmental laws and policies.
BSC 106 AU.3:	Implement critical thinking toward Environmental Management System.
BSC 106 AU.4:	Develop, Implement, maintain Environmental Audit for Organizations
BSC 106 AU.5:	For environmental protection, social equity and sustainable development.

Course Code:	ESC 201
Course Title:	Basic Electronics Engineering
Course Outcomes:	
ESC 201.1:	Understanding of the concept of semiconductor materials, pn junction diodes and BJT and its types.
ESC 201.2:	Understanding of Operational amplifier its construction working and its different types.
ESC 201.3:	Explain the principle, construction and working of different timing circuits and oscillator with its types.
ESC 201.4:	Explain the basic concepts of digital electronics, Boolean algebra, logic gates and different logic circuits.
ESC 201.5:	Explain the principle of Electronics Communication System its types and different modulation techniques

Course Code:	ESC 203
Course Title:	Engineering Mechanics
Course Outcomes:	
ESC 202.1:	Understanding of term Mechanics and its classification.
ESC 202.2:	Understanding Resolution and composition of force acting on the rigid body.
ESC 202.3:	Compute the resultant of force for different system of force and study



	of different laws related to different force system.
ESC 202.4:	Compute the different types of load acting on different types of beam.
ESC 202.5:	Compute the centroid, second moment of area, center of gravity, moment of inertia and mass moment of inertia.

Course Code:	PCC CE 03
Course Title:	Fluid Mechanics-I
Course Outcomes:	
PCC CE 03.1:	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
PCC CE 03.2:	Analyze fluid motion using Lagrangian /Eulerian methods, study flow lines and particle acceleration.
PCC CE 03.3:	Apply Euler's/Bernoulli's equations, understand Venturi meter, Orifice meter, and implications of momentum equations.
PCC CE 03.4:	Differentiate between laminar/turbulent flow, study pipe flow, energy losses, configurations, and pipe phenomena.
PCC CE 03.5:	Master boundary layer theory, friction factors, and separation control, plus dimensional analysis methods and model laws in fluid dynamics.

Course Code:	HSMC 301
Course Title:	Universal Human Values
Course Outcomes:	
HSMC 301.1:	To understanding Value Education.
HSMC 301.2:	Students will have the ability to learn about Harmony in the Human Being
HSMC 301.3:	Student will be able to gain knowledge on Harmony in the Family and Society.
HSMC 301.4:	Understanding Harmony in the Nature/Existence.
HSMC 301.5:	Student will be able to understand about Implications of Holistic Understanding- A Look at Professional Ethics



Semester-IV

Course Code:	PCC CE 04
Course Title:	Construction Technology
Course Outcomes:	
PCC-CE 04.1.	Students who successfully complete this course will be able to understand various Types of foundation and reason behind the structure and foundation failure.
PCC-CE 04.2.	The course will provide basic knowledge in calculation and design of masonry structures and masonry buildings.
PCC-CE 04.3.	Ability to use necessary skills, techniques and modern engineering tools for civil engineering practice.
PCC-CE 04.4.	Identify the factors to be considered in planning and construction of buildings.
PCC-CE 04.5.	Understand the practices and techniques for Temporary/Special construction Works.

Course Code:	PCC CE 05
Course Title:	Theory of Structures
Course Outcomes:	
PCC CE 05.1:	Find the force in members of trusses by method of joints.
PCC CE 05.2:	Ability to analyze indeterminate structures.
PCC CE 05.3:	Analysis beams and frames by slope deflection method.
PCC CE 05.4:	Ability to analysis arches, cables and suspension bridges.
PCC CE 05.5:	Ability to use influence line diagrams as a valid tool for structural analysis.



Course Code:	PCC CE 06
Course Title:	Transportation-I
Course Outcomes:	
PCC CE 06.1:	At the end of this course students will be able to apply the knowledge of railway track components, materials and fixtures and fastenings.
PCC CE 06.2:	Be able to apply theoretical and practical aspects of project management techniques to achieve project goals.
PCC CE 06.3:	Solve problems of railway track geometrics, train resistance, points and crossings, Signaling and control system.
PCC CE 06.4:	Identify the factors to be considered in planning and construction of railway tracks. PCC CE 06.5: Understand the practices and techniques for Temporary/Special construction Works.
PCC CE 06.5:	Understand the practices and techniques for Temporary/Special construction Works.

Course Code:	PCC CE 06
Course Title:	Geo-Technical Engineering
Course Outcomes:	
PCC CE 07.1:	Understand the various index properties of soil, determine them experimentally and classify the soil accordingly.
PCC CE 07.2:	Evaluate the permeability of soil and also compute analytically the vertical stress in a semi-infinite soil mass.
PCC CE 07.3:	Determine the compactive effort required to obtain necessary degree of compaction and also various consolidation parameters of soil.
PCC CE 07.4:	Understand the significance of shear strength parameters in various geotechnical analyses.
PCC CE 07.5:	Specify a strategy for site investigation to identify the soil deposits and determine the depth and spatial extent within the ground.



Course Code:	PCC CE 13
Course Title:	Fluid Mechanics-II
Course Outcomes:	
PCC CE 13.1	Understand the Uniform flow in open channels.
PCC CE 13.2	Acquired the knowledge of non-uniform flow in open channels.
PCC CE 13.3	Understand the Pipe flow problems.
PCC CE 13.4	Understanding of Turbines.
PCC CE 13.5	Understanding of Centrifugal pumps.

Course Code:	HSMC 05
Course Title:	Project Management
Course Outcomes:	
HSMC 05.1	Students will demonstrate an understanding of fundamental project management principles, including project lifecycle, stakeholders, constraints, and success criteria.
HSMC 05.2	Students will be able to apply various project management methodologies.
HSMC 05.3	Students will develop comprehensive project plans that include scope definition, scheduling, resource allocation, budgeting, risk management, and communication strategies.
HSMC 05.4	Students will gain hands-on experience with project management tools and software.
HSMC 05.5	Students will assess project performance using key performance indicators (KPIs), metrics, and benchmarks, and make data-driven decisions to optimize project outcomes.



Course Code:	HSMC 06
Course Title:	Finance and Accounting
Course Outcomes:	
HSMC 06.1	Ability to understand and apply financial management principles in decision-making.
HSMC 06.2	Analyzing and determining optimal capital structures, assessing cost of capital.
HSMC 06.3	Proficiency in preparing financial statements and handling various aspects of company accounts.
HSMC 06.4	Competence in handling debenture-related transactions and accounting entries.
HSMC 06.5	Understanding and complying with accounting standards, including Ind AS, IFRS, and international reporting standards.

Semester-V

Course Code:	PCC CE 12
Course Title:	Design of Concrete Structure
Course Outcomes:	
PCC CE 12 .1	Understand the Basic Principles of Structural Design & Beam Section.
PCC CE 12 .2	Acquired the knowledge of Design of Beams.
PCC CE 12 .3	Understanding of the Design of slab.
PCC CE 12 .4	Familiarize with Classification of Columns and Footings.
PCC CE 12 .5	Understanding Staircases.



Course Code:	PCC CE 09
Course Title:	Construction Materials
Course Outcomes:	
PCC CE 09.1	To understand elements of building construction with respect to substructure and superstructure.
PCC CE 09.2	To gain in depth knowledge and understanding of different building materials used for construction.
PCC CE 09.3	Ability to use necessary skills, techniques and modern engineering tools for civil engineering practice.
PCC CE 09.4	Identify the factors to be considered in planning and construction of buildings.
PCC CE 09.5	Understand the practices and techniques for Temporary/Special construction works.

Course Code:	PCC CE 10
Course Title:	Strength of Materials
Course Outcomes:	
PCC CE 10.1	Apply elasticity principles to analyze and design structures, understanding stress-strain relationships, deformations, and temperature effects for practical engineering solutions."
PCC CE 10.2	Analyze plane stresses using principal stresses, Mohr's circle, and transformations. Understand plain strain, principal strains, and combined loading in structures and pressure vessels.
PCC CE 10.3	Develop shear force and bending moment diagrams for beams, understanding loading rate relationships and identifying maximum moments and contra flexure points.
PCC CE 10.4	Derive flexural and shear formulas, analyze stress distribution, calculate slope and deflection using double integration method for standard cases.
PCC CE 10.5	Analyze strain energy in axial loads, bending, torsion, determine torsion stresses, and study buckling of columns using Euler's and Rankine's formulas.



Course Code:	PCC CE 11
Course Title:	Building Materials Lab
Course Outcomes:	
PCC CE 11.1	Students are able to understand the behavior of material under different loading.
PCC CE 11.2	Student are able to understand and calculate the different type of stress simple stress, shearstress, direct stress and bending stress in the material.
PCC CE 11.3	Students are students are able to understand and calculate the shear force and bendingmoment for beam of different loading.
PCC CE 11.4	Students are able to calculate the deflection of beam for different loading.
PCC CE 11.5	Students are able to understand the property, use, advantage and disadvantage of differentmaterial used in construction.

Course Code:	HSMC 03
Course Title:	Industrial Psychology
Course Outcomes:	
HSMC 03.1	Understand key concepts, theoretical perspectives, and trends in industrial psychology.
HSMC 03.2	Create a better work environment for better performance.
HSMC 03.3	Understand customer behavior.
HSMC 03.4	Apply different work methods to improve industrial efficiency.
HSMC 03.5	Understand Criteria's in evaluation of job-related factor.

Course Code:	OEC CE 01
Course Title:	Geology and Remote Sensing
Course Outcomes:	
OEC CE 01.1	Acquire the basic knowledge of Mineralogy, Petrology and Stratigraphy for better understanding the nature and distribution of geological resources and construction materials.
OEC CE 01.2	Understand the deformation and attitude of rocks due to geo-dynamic earth processes.



OEC CE 01.3	Understanding of the various activities of Geological & Geophysical prospecting, RemoteSensing and Site investigations.
OEC CE 01.4	Familiarize with the engineering properties of rocks masses and soils.
OEC CE 01.5	Geological Constraints of major Engineering Structures (Dam, Tunnel, Bridge&Highways).

Course Code:	PCC CE 14
Course Title:	Environmental Engineering-I
Course Outcomes:	
PCC CE 14.1	Impart Knowledge on the structure of drinking water supply systems, including water transport, treatment and quantity of water.
PCC CE 14.2	The Major objective of operation and maintenance of water supply system is to provide sustainable, equitable, consistent, economic safe and adequate water.
PCC CE 14.3	Understand the water quality criteria and standards, and their relation to public health.
PCC CE 14.4	Understand the water quality criteria and standards, and their relation to public health.
PCC CE 14.5	Analyze the distribution network for pipe loops.

Semester-VI

Course Code:	PCC CE 08
Course Title:	Transportation engineering-II
Course Outcomes:	
PCC CE 08.1	Formulating strategies for highway project prioritization, funding, and implementation & Performing laboratory tests and field inspections to assess the quality and suitability of highway materials.
PCC CE 08.2	Applying geometric design elements, including horizontal and vertical alignments, cross- sections, and sight distances, to create safe and efficient highway layouts.
PCC CE 08.3	Analyzing the characteristics of different traffic control devices and their impact on trafficflow and safety, such as traffic signals, signs, and markings.
PCC CE 08.4	Understanding the principles of pavement design methods, including



	empirical, mechanistic-empirical, and performance-based approaches, to develop durable and cost-effective pavement structures suitable for varying traffic and environmental conditions.
PCC CE 08.5	Demonstrating the ability to plan, execute, and supervise highway construction standards, safety regulations, and environmental requirements to ensure the timely completed infrastructure.

Course Code:	PCC CE 15
Course Title:	Environmental Engineering-II
Course Outcomes:	
PCC CE 15.1	Ability to estimate sewage generation and design sewer system including Sewagepumping stations.
PCC CE 15.2	Understand the sewage characteristics, treatment and disposal according to national and international standards.
PCC CE 15.3	Ability to perform basic design of the unit operations and processes that are used in sewage treatment.
PCC CE 15.4	Understand the biological treatment and sludge disposal.
PCC CE 15.5	To know about Advanced waste water treatment techniques.

Course Code:	PCC CE 16
Course Title:	Advanced Surveying
Course Outcomes:	
PCC CE 16.1	Identify and handle various conventional surveying instruments.
PCC CE 16.2	To analyse different surveying methods for suitability for different conditions.
PCC CE 16.3	Undertake surveying of land using total station & Setting out Curves.
PCC CE 16.4	Measure and layout out elevations and relative heights between points By trigonometrically leveling.
PCC CE 16.5	Explain the fundamentals of Photogrammetric and its applications.



Course Code:	PCC CE 17
Course Title:	Design of Advanced Concrete Structure
Course Outcomes:	
PCC CE 17 .1	Understand the Design of Multistory Buildings - Sway and non-sway buildings, Shearwalls and other bracing elements.
PCC CE 17 .2	Acquired the knowledge of Design of Earth Retaining Structures Cantilever and counterfort types retaining walls.
PCC CE 17 .3	Understanding of the Water Tanks Tanks on ground and underground tanks Square, rectangular, circular tanks, Overhead tanks square, rectangular, circular & intze tanks.
PCC CE 17 .4	Familiarize with classification of bridges, T-beam & Slab bridges- for highway loading(IRC Loads).
PCC CE 17 .5	Understanding Prestressing concepts materials, systems of prestressing & losses Introduction to working & limit.

Course Code:	OEC CE 02
Course Title:	Artificial Intelligence
Course Outcomes:	
OEC CE 02.1	Understand the basic concepts and techniques of Artificial Intelligence.
OEC CE 02.2	Apply AI algorithms for solving practical problems
OEC CE 02.3	Describe human intelligence and AI
OEC CE 02.4	Explain how intelligent system works.
OEC CE 02.5	Apply basics of Fuzzy logic and neural networks

Course Code:	PROJ CE 01
Course Title:	Engineering Project-I
Course Outcomes:	
PROJ CE 01.1	Demonstrate a sound technical knowledge of their selected project topic.
PROJ CE 01.2	Analyze, design and implement solution methodologies
PROJ CE 01.3	Identify problem and formulate a solution for it.



PROJ CE 01.4	utilize system approach to provide engineering solutions.
PROJ CE 01.5	Demonstrate the knowledge, skills and attitudes of a professional engineer.

Semester-VII

Course Code:	PEC CE 01
Course Title:	Quantity, Surveying and Costing
Course Outcomes:	
PEC CE 01.1	Introduction of estimation and measurement of different items in building.
PEC CE 01.2	Rate analysis for different types of works.
PEC CE 01.3	Types of estimates and method of estimates Make specifications and prepare tenderdocuments.
PEC CE 01.4	Estimate the material quantities, prepare a bill of quantities, Prepare value estimates
PEC CE 01.5	valuation of building and rent analysis

Course Code:	PEC CE 02
Course Title:	Water Resource Engineering
Course Outcomes:	
PEC CE 02.1	Compute mean precipitation, infiltration rate and runoff from a catchment area and workout yield from a well.
PEC CE 02.2	Construct unit hydrograph and S-hydrograph, and compute peak flood flow and designflood for hydraulic structures.
PEC CE 02.3	Workout reservoir capacity using a mass curve, develop idea about reservoirsedimentation and its control.
PEC CE 02.4	Calculate irrigation water requirement for the given cropping pattern in canal commandand design of lined canals.
PEC CE 02.5	Suggest measures of water conservation in drought prone areas.



Course Code:	PEC CE 03
Course Title:	CAD Lab
Course Outcomes:	
PEC CE 03.1	Develop geometric figures using various commands.
PEC CE 03.2	Apply preliminary settings of CAD work sheet and develop plan of various buildings.
PEC CE 03.3	Develop elevation and section of various type of buildings with detailing.
PEC CE 03.4	Develop rain water harvesting, septic tank drawing and service plan of the building.
PEC CE 03.5	Develop the drawing and service plan of the building.

Course Code:	PEC CE 04
Course Title:	Building Planning & Management
Course Outcomes:	
PEC CE 04 .1	Impart the symbols, sign and conventions from the given drawing.
PEC CE 04 .2	Prepare the line plan of Residential and public Building Using Principal of Planning.
PEC CE 04 .3	Prepare the Submission & working Drawing from the Given requirement for load Bearingstructure.
PEC CE 04 .4	Prepare the Submission & working Drawing from the Given requirement for Framedstructure.
PEC CE 04 .5	Draw Two- and three-Point Perspective Drawing for given small object



Course Code:	PEC CE 05
Course Title:	Construction Planning and Management
Course Outcomes:	
PEC CE 05 .1	Understanding the construction project schedules.
PEC CE 05 .2	Analyze methods, materials, and equipment used to construct projects.
PEC CE 05 .3	Understanding the Construction Contracts Understanding the Tenders Understanding the concept of Arbitration Understanding the Legal Requirements.
PEC CE 05 .4	Analyze construction documents for planning and management of construction processes.
PEC CE 05 .5	Understand the legal implications of contract, common, and regulatory law to manage a construction project.

Course Code:	PROJ CE 02
Course Title:	Engineering Project-II
Course Outcomes:	
PROJ CE 02 .1	Identify the real-world power system problems
PROJ CE 02 .2	Analyze, design and implement solution methodologies.
PROJ CE 02 .3	Apply modern engineering tools for solution
PROJ CE 02 .4	learn about different software development process models, software, engineering principles and develop an ability to apply them to software design of real-life problems.
PROJ CE 02 .5	Write technical reports following professional ethics.



Course Code:	OEC CE 03
Course Title:	Design of Steel Structure
Course Outcomes:	
OEC CE 03 .1	Understand the basic concept of designing steel structural elements and design their riveted, bolted and welded joints.
OEC CE 03 .2	Design various tension and compression members.
OEC CE 03 .3	Design flexural members i.e. beams and plate girders.
OEC CE 03 .4	Design of columns and their bases.
OEC CE 03 .5	Design of multi storey frames and gantry girders.

Course Code:	OEC CE 04
Course Title:	Foundation Engineering
Course Outcomes:	
OEC CE 04.1	Understand the types of foundation and evaluate the type of foundation to be used after soil investigation.
OEC CE 04.2	Understand various terminologies related to shallow foundations and their design.
OEC CE 04.3	Understand various terminologies related to deep foundations and their design.
OEC CE 04.4	Evaluate the type of foundation to be used at sites with problematic soil conditions.
OEC CE 04.5	Understand the various forces acting on earth retaining structures and design them accordingly.

Course Code:	PEC CE 03
Course Title:	Seminar
Course Outcomes:	
SEM CE 03.1	Identification and objective of the seminar topic, along with a literature review that includes recent technological trends.
SEM CE 03.2	In-depth analysis and interpretation of technical data related to the seminar topic, including case studies and practical implementation examples.



SEM CE 03.3	Preparation and delivery of the seminar presentation, including a question-and-answer session.
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Semester-VIII

Course Code:	PROJ/OJT CE 04
Course Title:	Engineering Project-III
Course Outcomes:	
PROJ/OJT 04.1	CE Engage in industry initiatives as part of the internship.
PROJ/OJT 04.2	CE Demonstrate how to use the sophisticated equipment and methods the used during their internship.
PROJ/OJT 04.3	CE Engage with employees of the industry while maintaining the discipline and engineering processes that are required
PROJ/OJT 04.4	CE Gain knowledge of appropriate workplace on duct and strength and their ability to cooperate in a team and with others.
PROJ/OJT 04.5	CE Create expert work report and presentations.



Department Cement Technology



B.Tech. Cement Technology

Semester-I

Course Code:	BSC 101/ BSC 101-L
Course Title:	Physics-I
Course Outcomes:	
BSC 101.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC 101.2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications.
BSC 101.3	Learn the basic concepts of dual nature of matter and wave packet and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC 101.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure.
BSC 101.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.

Course Code:	BSC 102
Course Title:	Mathematics-I
Course Outcomes:	
BSC 102.1	Define and understand the concept of limits, evaluate limits algebraically and graphically, Apply the basic rules of differentiation, including the power rule, product rule, quotient rule, and chain rule. Use linear approximation and differentials to estimate values of functions
BSC 102.2	Define and understand the basic concepts of matrices, differentiate between different types of matrices Perform basic matrix operations, use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics.
BSC 102.3	Define and compute partial derivatives of functions of several variables, Define and compute the gradient vector of a scalar function, Apply the chain rule to compute derivatives of composite functions involving multiple variables, Identify critical points of multivariable functions.
BSC 102.4	Understand the definition of a first-order ordinary differential equation, Solve separable differential equations using the separation of variables technique, Sketch direction fields to visualize the behavior of solutions, Apply first-order ODEs to model and analyze various phenomena
BSC 102.5	Understand and state the Fundamental Theorem of Calculus, both parts and apply the Fundamental Theorem to evaluate definite integrals. Apply integration techniques, including substitution, integration by parts, and partial fractions.



Course Code:	BSC104
Course Title:	Biology for Engineers
Course Outcomes:	
BSC104.1	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry
BSC104.2	To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted
BSC104.3	To convey that —Genetics is to biology what Newton_s laws are to Physical Sciences and understand the molecular basis of coding and decoding genetic information is universal
BSC104.4	To convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth.
BSC104.5	To convey the concept of microbes and their role in environment.

Course Code:	ESC 101 / ESC 101-L
Course Title:	Basic Electrical Engineering
Course Outcomes:	
ESC 101.1	Apply network theorems to solve electrical DC circuits.
ESC 101.2	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC 101.3	Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
ESC 101.4	Understand the basic operating principle, types, efficiency of Transformers
ESC 101.5	Understand the basic operating principle, types of machines.

Course Code:	ESC 102, ESC 102-L
Course Title:	Engineering Graphics & Design
Course Outcomes:	
ESC 102.1	Get introduced with Engineering Graphics and visual aspects of design.
ESC 102.2	Know and use common drafting tools with the knowledge of drafting standards.
ESC 102.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
ESC 102.4	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
ESC 102.5	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD



Course Code:	ESC103-L
Course Title:	Design Thinking & Idea Lab
Course Outcomes:	
ESC103-L	Identify the problems that fall under the purview of human centered design process for creative problem solving.
ESC103-L	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques.
ESC103-L	Build simple prototypes for problems using gathered user requirements.

Course Code:	PCC-CT 101
Course Title:	Introduction to Portland Cement
Course Outcomes:	
PCC-CT 101.1	Understand the character of ancient Cementations building materials and evolution of Portland cement.
PCC-CT 101.2	Acquired the knowledge of types of raw materials and fuel used in the production of Portland cement, along with its physical and chemical characteristics.
PCC-CT 101.3	Understanding of the various types of cement manufactured in India and their utilization in infrastructure development.
PCC-CT 101.4	Familiarize with a concise overview of the cement manufacturing process.
PCC-CT 101.5	Comprehend the functions of different regulatory bodies in India that oversee the production and quality of cement.

Course Code:	HSMC07
Course Title:	Indian Knowledge System
Course Outcomes:	
HSMC07.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
HSMC07.2	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashastra etc.
HSMC07.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
HSMC07.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
HSMC07.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.



Semester-II

Course Code:	BSC103, BSC103-L
Course Title:	Chemistry-I
Course Outcomes:	
BSC103.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC103.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
BSC103.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BSC103.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
BSC103.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.

Course Code:	BSC104
Course Title:	Mathematics-II
Course Outcomes:	
BSC104.1	Understand the importance of Laplace transform and elementary properties of Laplace transform
BSC104.2	To introduce effective mathematical tools for the solutions of ordinary differential equations and solutions with Bessel functions and Legendre functions
BSC104.3	Demonstrate an understanding of the Vector Calculus
BSC104.4	Define and recognize the method to solve Sequences and series
BSC104.5	Students will create the concept of a Partial Differential Equations

Course Code:	ESC 104, ESC 104-L
Course Title:	Programming for Problem Solving
Course Outcomes:	
ESC 104.1	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ESC 104.2	Acquire knowledge regarding the building blocks of programming language.
ESC 104.3	Apply python for solving basic programming solutions.
ESC 104.4	Create algorithms using learnt programming skills.
ESC 104.5	Understand real world problems and developing computer solutions for those.



Course Title:	Manufacturing Practice Workshop
Course Outcomes:	
ESC 105.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC 105.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques
ESC 105.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC 105.4	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.
ESC 105.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.

Course Code:	HSMC01
Course Title:	Communication Skills (English)
Course Outcomes:	
HSMC01.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC01.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
HSMC01.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
HSMC01.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
HSMC01.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	HSMC08
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC08.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC08.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC08.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC08.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.



HSMC08.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programmes and processes.
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Course Code:	HSMC09
Course Title:	Yoga
Course Outcomes:	
HSMC09.1	A makes the students understand the importance of Introduction of Yog.
HSMC09.2	To make the students understand the importance of Fundamentals of Yog.
HSMC09.3	To expose the students to a variety of physical and yogic activities aimed at stimulating their continued inquiry about Yoga, physical education, health and fitness.
HSMC09.4	To create a safe, progressive, methodical and efficient activity-based plan to enhance improvement and minimize risk of injury and Yoga & Lifestyle
HSMC09.5	To develop among students an appreciation of physical activity as a lifetime pursuit and a means to better health

Semester-III

Course Code:	PCC-CT 201
Course Title:	Process Calculation
Course Outcomes:	
PCC-CT 201.1	Understand the concepts of dimensional consistency and effective application of units and dimensions.
PCC-CT 201.2	Apply mole concept and ideal gas equation to express the composition of mixtures.
PCC-CT 201.3	Carry out material balance calculations of distillation, evaporator, crystallization and drying processes. Analyze the behavior of recycle processes, performing approximate material balances, Solve material balance problems with chemical reactions.
PCC-CT 201.4	Understand the concept of humidity and usage of psychometric chart.
PCC-CT 201.5	Understand general energy balance, simplify and apply to open and closed systems. Write material and energy balance for unsteady state how material and energy balances are formulated for equation.



Course Code:	BSC201
Course Title:	Engineering Mathematics -III
Course Outcomes:	
BSC201.1	By the end of the course students are expected to have deep understanding in complex analysis with a focus on Cauchy-Riemann equations, analytic functions, harmonic functions, and conformal mappings.
BSC201.2	By the end of the course students are expected to understand the concept of a contour integral in the complex plane, concept of zeros of analytic functions and behavior of functions near essential singularities.
BSC201.3	The course provides a comprehensive overview of the skills and understanding that students are expected to gain from a course in elementary probability theory and random variables.
BSC201.4	The course provides a comprehensive overview of the skills and understanding that students are expected to gain from a course covering measures of central tendency and measures of dispersion.
BSC201.5	The course provides a comprehensive overview of the skills and understanding that students are expected to gain from a course covering correlation and regression, rank correlation, curve fitting, and various tests of significance.

Course Code:	ESC201, ESC201-L
Course Title:	Basic Electronics Engineering
Course Outcomes:	
ESC201.1	Understanding the fundamental of diode, its characteristics and its various types.
ESC201.2	Understanding the various applications of diode.
ESC201.3	Design and analysis of bipolar junction transistor, its various configurations and applications.
ESC206.4	Design and analysis of junction field effect transistor and metal oxide semiconductor field effect transistor and its various configurations.
ESC201.5	Design and analysis of op-amp, its characteristics and various applications.

Course Code:	ESC 202
Course Title:	Engineering Mechanics
Course Outcomes:	
ESC 202.1	Understanding of term Mechanics and its classification.
ESC 202.2	Understanding Resolution and composition of force acting on the rigid body.
ESC 202.3	Compute the resultant of force for different system of force and study of different laws related to different force system.
ESC 202.4	Compute the different types of loads acting on different types of beams.
ESC 202.5	Compute the centroid, second moment of area, center of gravity, moment of inertia and mass moment of inertia.



Course Code:	PCC-CT202, PCC-CT202-L
Course Title:	Fluid Mechanics
Course Outcomes:	
PCC-CT202.1	The student will understand stress-strain relationship in fluids, classify their behavior and also establish force balance in static systems.
PCC-CT202.2	Understanding about kinematics, dynamics and application of mass, momentum and energy equation in fluid flow.
PCC-CT202.3	Students will be able to apply dimensional analysis of physical quantities and methods of dimensional analysis.
PCC-CT202.4	Students will compute loss of energy in pipes, frictional loss in pipe flow.
PCC-CT2025	Students will be able to describe function of flow metering devices and apply Bernoulli equation to determine the performance of flow-metering devices.

Course Code:	BSC106
Course Title:	Environment Science (Audit)
Course Outcomes:	
BSC106.1	Gain an understanding of the fundamental principles and components of environmental auditing.
BSC106.2	Train in conducting an environmental audit in any organization/ institution
BSC106.3	Implement critical thinking toward environmental problems and formulate local solutions for their Mitigation.
BSC106.4	Develop, Implement, maintain and Audit Environmental Management systems for Organizations.
BSC106.5	For environmental protection, social equity and sustainable development

Course Code:	HSMC-301
Course Title:	Universal Human Values
Course Outcomes:	
HSMC 101.1	To understanding Value Education
HSMC 101.2	Students will have the ability to learn about Harmony in the Human Being.
HSMC 101.3	Student will be able to gain knowledge on Harmony in the Family and Society.
HSMC 101.4	Understanding Harmony in the Nature/Existence.
HSMC 101.5	Student will able to understand about Implications of Holistic Understanding- A Look at Professional Ethics.

Semester-IV

Course Code:	PCC-CT204
Course Title:	Heat Transfer & Mass Transfer
Course Outcomes:	
PCC-CT204.1	Explain different modes of heat transfer and Calculate heat transfer for one-dimensional steady state conduction in solids.
PCC-CT204.2	Explain and solve heat transfer by forced and natural convection.
PCC-CT204.3	Discuss and solve heat transfer by radiation. Analyze the performance of heat exchange equipment.



PCC-CT204.4	Find the mass transfer coefficient and solve problems related to inter phase mass transfer.
PCC-CT204.5	To find time required for drying and to understand the operation of various types of drying equipment.

Course Code:	PCC-CT203, PCC-CT203-L
Course Title:	Thermodynamics
Course Outcomes:	
PCC-CT203.1	To understand the thermodynamic fundamentals before studying their application in applied thermodynamics.
PCC-CT203.2	To determine the thermodynamic efficiency of different energy related processes.
PCC-CT203.3	To learn the device a technically feasible refrigerator for wide applications.
PCC-CT203.4	To understand fundamental concepts related to vapor-liquid equilibrium including vapor pressure, boiling points and phase diagrams.
PCC-CT203.5	To apply concepts related to thermodynamic properties of solutions such as entropy, enthalpy, and Gibbs free energy.

Course Code:	PCC-CT205
Course Title:	Raw Mix Design & Cement Chemistry
Course Outcomes:	
PCC-CT205.1	Learn the Raw mix design prerequisites within the cement manufacturing process and perform calculations for different modulus values to ensure the production of quality clinker
PCC-CT205.2	Comprehend the principles of phase behaviour in the formation of clinker minerals, including their morphology, distribution, and phase relationships.
PCC-CT205.3	Determine the amount of clinker minerals from the Raw mix design and the formation of clinker phases. Additionally, grasp the thermo chemistry in formation of cement minerals.
PCC-CT205.4	Gain insight into the significance of fluxes and mineralisers in the manufacturing of Portland cement clinker, as well as their impact on the burn ability mechanism.
PCC-CT205.5	Understand the process of cement hydration and the contribution of clinker minerals to the development of strength in cement concrete.

Course Code:	PCC-CT206
Course Title:	Size Reduction & Commination Engineering
Course Outcomes:	
PCC-CT206.1	To understand the fundamental principles underlying size reduction processes in cement manufacturing.
PCC-CT206.2	To understand the principles and functionality of separators used in cement plants. Additionally, to understand and analyze various techniques for particle size analysis.
PCC-CT206.3	To learn how to select and apply tube mills, roller mills and raw grinding systems based on raw material characteristics and production requirements.
PCC-CT206.4	To learn various strategies for pre-blending raw materials, considering factors such as chemical composition, particle size distribution and physical properties.
PCC-CT206.5	To analyze various homogenization techniques and equipment used in cement plants such as silos, blending beds and automated systems.



Course Code:	PCC-CT 207
Course Title:	Geology and Mining of Limestone
Course Outcomes:	
PCC-CT 207.1	Acquire the basic knowledge of Mineralogy, Petrology and Stratigraphy for better understanding of genesis, nature and their distribution of cement raw materials.
PCC-CT 207.2	Apply the basic knowledge of geology and dynamic earth process to understanding the rock deformation in the earth's crust.
PCC-CT 207.3	Understanding of the various activities of geological prospecting and exploration for the evaluation of reserve and their categorization of limestone deposit.
PCC-CT 207.4	Familiarize with the mining activities for better planning of raw material for the production of quality cement.
PCC-CT 207.5	Role of environmental regulatory bodies for mining and understand the zone-wise distribution of cement grade of limestone in India.

Semester-V

Course Code:	PCC-CT304
Course Title:	Total Quality Management
Course Outcomes:	
PCC-CT304.1	Students will grasp the significance of product quality and the statistical techniques used for quality control.
PCC-CT304.2	Students will acquire skills to construct control charts for quality control, comprehend error types, and understand process capability.
PCC-CT304.3	Students will be educated on sampling methods and the implementation of quality control measures in the production of Portland cement.
PCC-CT304.4	Students will learn about the quality assurance system and the correlation between quality costs and sales.
PCC-CT304.5	Students will explore various quality system parameters relevant to the cement manufacturing process and operational practices in a cement plant.

Course Code:	PCC-CT301
Course Title:	Pyro processing & Clinker manufacture
Course Outcomes:	
PCC-CT301.1	Understand formation of Clinker mineral phases with respect to the temperature profile, property of each phase, Development of Clinkerisation process from initial stage of wet process to dry process
PCC-CT301.2	Further developments in dry process kiln. Calculation of most critical parameters for process development like Calciner residence time, parameters for Kiln Design & maximum potential capacity of a pyro-process.
PCC-CT301.3	Process fans and their vital importance in pyro-process. Capacity assessment for matching process capacity, flow measurement & fan efficiency determination. Fan curves & fan laws for capacity adjustments.
PCC-CT301.4	Understand Clinker cooling and its purpose, Gradual development of cooling technology along with the development of Pyro process, Calculation of Cooler heat recuperation efficiency



PCC-CT301.5	Learn Cement milling technologies, Comparative study of Cement milling technologies, Open & Closed-circuit ball mills, VRMs, Finish & semi-finish mode of grinding in Roller press, Recirculation factor, circulating load & Separator efficiency determination in closed circuit ball mills.
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Course Code:	PCC-CT303
Course Title:	Pollution Control in Cement Plant
Course Outcomes:	
PCC-CT 303.1	Pollution during manufacture of Portland cement and its impact on environment.
PCC-CT 303.2	Source of pollution in cement plant and its measurement.
PCC-CT 303.3	Various pollution control measures in cement plant for environmental improvement
PCC-CT 303.4	Pollution control measures of limestone mines of cement plant.
PCC-CT303.5	Environmental Management for pollution control in cement plant and Clean Development Mechanism.

Course Code:	PCC-CT 302
Course Title:	Fuel and Alternate Fuel & Raw Materials
Course Outcomes:	
PCC-CT 302.1	Fuel for Portland cement clinker manufacture and its impact of the manufacturing process and Quality of cement.
PCC-CT 302.2	Characteristic and preparation of conventional and alternate fuel for cement kiln and its safety measures.
PCC-CT 302.3	Combustion mechanism and control system in cement kiln.
PCC-CT 302.4	Coprocessing of Hazardous waste fuel of cement kiln and WHR system for thermal fuel efficiency
PCC-CT 302.5	Cement kiln burners and efficiency of burning system.

Course Code:	OE-CT01
Course Title:	Carbon Credit in Cement Manufacture
Course Outcomes:	
OE-CT01.1	Understand Carbon footprint in the industry and share of Cement sector. Key indicators in Cement industry.
OE-CT01.2	CO ₂ emission sources in unit process and quantification from each source. Calculation of total CO ₂ emission in the pyro process with breakups
OE-CT01.3	Primary measures to reduce Carbon footprint. Use of alternative materials & fuels, Technological advances & upgrades. Power generation through —Waste heat power recovery system
OE-CT01.4:	Blended cements and respective blending materials thus reducing the Carbon intensive & energy intensive Clinker usage for Cement grinding. Technological advances and upgrades in grinding technology.
OE-CT01.5	Sourcing renewable electrical energy substituting power usage from thermal power plants. Installing and implementing Carbon Capture and utilization technologies, CO ₂ separation technology for Carbon negative unit process.

Course Code:	OE-CT04
Course Title:	Concrete Technology
Course Outcomes:	



OE-CT04.1	Explore the characteristics of materials used in concrete production and their influence on concrete quality.
OE-CT04.2	Gain insight into the role of admixtures in the concrete manufacturing process.
OE-CT04.3	Acquire knowledge about the characteristics of both Fresh and Hardened concrete.
OE-CT04.4:	Delve into the intricacies of concrete mix design, production techniques, and quality control measures.
OE-CT04.5	Explore the manufacturing processes and unique properties of special concrete

Course Code:	HSMC- 302
Course Title:	Industrial Psychology
Course Outcomes:	
HSMC- 302.1	Understand key concepts, theoretical perspectives, and trends in industrial psychology.
HSMC- 302.2	Create a better work environment for better performance.
HSMC- 302.3	Understand customer behavior.
HSMC- 302.4	Apply different work methods to improve industrial efficiency.
HSMC- 302.5	Understand Criteria in evaluation of job-related factor

Course Code:	HSMC- 303
Course Title:	Operations Research
Course Outcomes:	
HSMC- 303.1	The student will demonstrate the process of problem solving in Operations Research.
HSMC- 303.2	The student will apply the linear programming problem method to solve the various business management problems quantitatively.
HSMC- 303.3	The student will use the transportation and assignment techniques to solve the transportation and assignment problems quantitatively.
HSMC- 303.4	The student will apply network analysis techniques like PERT and CPM to solve the scheduling of activities and resource allocation related problems.
HSMC- 303.5	The student will calculate the optimum value of game and optimum replacement period using game theory and replacement theory respectively.

Course Code:	PCC-CT305-L
Course Title:	Cement Tech Lab I (Raw Material and Fuel Testing)
Course Outcomes:	
PCC-CT305-L .1	Gain the knowledge and hands on training on chemical testing of limestone and determination of various chemical constituents.
PCC-CT305-L .2	Gain the knowledge and hands on training on physical testing of limestone and coal on determination of various chemical constituents.
PCC-CT305-L .3	Gain the knowledge and hands on training on proximate analysis of coal
PCC-CT305-L .4	Gain the knowledge and hands on training on ultimate analysis of coal and determination of gross and net calorific value of coal

Semester-VI

Course Code:	PCC-CT306
Course Title:	Instrumentation and Process Control
Course Outcomes:	
PCC-CT306.1	Demonstrate knowledge of process systems as well as the operating principles of common instruments.



PCC-CT306.2	Understand concepts of the mathematical modeling and develop transfer functions of open loop control systems and their responses with different forcing functions.
PCC-CT306.3	Analyze the stability of the control system with time and frequency domain analysis techniques.
PCC-CT306.4	Compare different advanced control schemes to various processes.
PCC-CT306.5	The students will be able to prepare a basic scheme for process unit such as Fuzzy logic rotary kiln and understand the programs for DDC/DCS/PLC and SCADA.

Course Code:	PCC-CT307
Course Title:	Maintenance Practices In Cement Plant
Course Outcomes:	
PCC-CT307.1	Understand the Basic Concepts of Reliability so that students can calculate Binomial distribution, discrete distribution, Mean time to failure, Mean time between failures etc.
PCC-CT307.2	Acquired the knowledge of System reliability models to understand system reliability assessment models Redundancy techniques in system design along with its Reliability quality and unreliability.
PCC-CT307.3	Understanding of the various concepts of maintenance management, objectives and functions of maintenance planning and scheduling of maintenance organization, and their utilization in Maintenance development.
PCC-CT307.4	Familiarize with a concise overview of the Condition based maintenance.
PCC-CT307.5	Comprehend the functions of Reliability centered Maintenance, Total Productive Maintenance regulatory bodies in India that oversee the Failure modes and effects analysis.

Course Code:	PCC-CT308
Course Title:	Optimization Technique
Course Outcomes:	
PCC-CT308.1	Acquiring the knowledge of fundamentals of process optimization.
PCC-CT308.2	Familiarize with technique of optimization of one-dimensional function
PCC-CT308.3	Gain an understanding of Multivariable Optimization
PCC-CT308.4	Familiarize with a Constrained Optimization
PCC-CT308.5	Comprehend the functions of different Linear and Quadratic Programming

Course Code:	PCC-CT309
Course Title:	Material Handling System, Safety and Occupational Health
Course Outcomes:	
PCC-CT309.1	Students will be able to understand the basic concepts of material handling equipment.
PCC-CT309.2	Select appropriate material handling system such as unit load concepts.
PCC-CT309.3	Explain and distinguish the various types of estimation illustrate the various specifications of material handling used in handling of raw materials or finished products.
PCC-CT309.4	Evaluate the various engineering works and their safety used in cement plants like safety equipment and safety management
PCC-CT309.5	Estimate the quantities of works and evaluate the occupational health and safety from industrial accidents.



Course Code:	PROJ-CT01
Course Title:	Engineering Project-1 (Literature Review)
Course Outcomes:	
PROJ-CT01.1	Able to Identify the area of interest/research topic or subject for study and collect the relevant literature.
PROJ-CT01.2	Able to critique the Literature.
PROJ-CT01.3	Able to review the Literature and publication.

Course Code:	HSMC-304
Course Title:	Project Management
Course Outcomes:	
HSMC-304.1	Students will demonstrate an understanding of fundamental project management principles, including project lifecycle, stakeholders, constraints, and success criteria.
HSMC-304.2	Students will be able to apply various project management methodologies.
HSMC-304.3	Students will develop comprehensive project plans that include scope definition, scheduling, resource allocation, budgeting, risk management, and communication strategies.
HSMC-304.4	Students will gain hands-on experience with project management tools and software.
HSMC-304.5	Students will assess project performance using key performance indicators (KPIs), metrics, and benchmarks, and make data-driven decisions to optimize project outcomes.

Course Code:	HSMC-305
Course Title:	Finance and Accounting
Course Outcomes:	
HSMC-305.1	Ability to understand and apply financial management principles in decision-making.
HSMC-305.2	Analyzing and determining optimal capital structures, assessing cost of capital.
HSMC-305.3	Proficiency in preparing financial statements and handling various aspects of company accounts.
HSMC-305.4	Competence in handling debenture-related transactions and accounting entries.
HSMC-305.5	Understanding and complying with accounting standards, including Ind AS, IFRS, and international reporting standards.

Course Code:	PCC-CT310-L
Course Title:	Cement Technology lab -II (Testing Cement & Concrete)
Course Outcomes:	
PCC-CT310-L.1	Able to analyze, determine and interpret the physical and chemical characteristics of Cement and Concrete
PCC-CT310-L.2	Able to analyze the chemical characteristics of Cement.
PCC-CT310-L.3	Able to determine mechanical properties of Concrete and its components.



Semester-VII

Course Code:	PEC - CT 01
Course Title:	Energy Audit in Cement plant
Course Outcomes:	
PEC-CT 01.1	Aim to equip students with the knowledge and skills needed to effectively manage and audit energy
PEC-CT 01.2	How to account for and balance the flow of materials and energy in cement plant
PEC-CT 01.3	Focuses on understanding the characteristics of fuels, combustion processes, and their applications
PEC-CT 01.4	Develop a fundamental understanding of electrical systems
PEC-CT 01.5	Develop a fundamental understanding of cogeneration principles

Course Code:	PEC-CT-02
Course Title:	Transport Phenomena
Course Outcomes:	
PEC-CT-02.1	Setup overall balances for conservation of momentum, energy and mass.
PEC-CT-02.2	Recognize and apply analogies among momentum, heat and mass transfer.
PEC-CT-02.3	Reduce and solve the appropriate equations of change to obtain desired profiles for velocity, temperature and concentration.
PEC-CT-02.4	Utilize information obtained from solutions of the balance equations to obtain Engineering
PEC-CT-02.5	Reduce and solve appropriate macroscopic balances for conservation of momentum, energy and mass.

Course Code:	PEC-CT-03
Course Title:	Special Cement
Course Outcomes:	
PEC-CT-03.1	Investigate the characteristics of different pozzolanic materials in the creation of special cements.
PEC-CT-03.2	Comprehend the chemical, mineralogical, and physical properties associated with various special cements.
PEC-CT-03.3	Analyze the application of cement in the production of concrete and mortar, assessing its performance.
PEC-CT-03.4	Develop an understanding of concrete chemistry and the production of long-lasting, durable concrete.
PEC-CT-03.5	Gain insight into the utilization of diverse admixtures for enhancing the properties of concrete.

Course Code:	PEC-CT-04
Course Title:	Design of Cement Plant
Course Outcomes:	
PEC-CT-04.1	To know the fundamental prerequisites for establishing a cement plant and identifying the machinery needed for the production of Portland cement.



PEC-CT-04.2	To study techno-economic studies related to establishing a cement plant and investigating the factors that dictate the size of the cement manufacturing factory
PEC-CT-04.3	Gaining insight into the civil design, electrical instrumentation, and layout of different sections within a cement plant.
PEC-CT-04.4	To comprehend the detailed engineering of the raw mill section, pyro-processing of clinker minerals, cement grinding, and packing, encompassing the layout of each respective section.
PEC-CT-04.5	To grasp the procurement process for plant machinery and create data sheets for inquiries, including the design aspect.

Course Code:	PEC-CT-05
Course Title:	Marketing of Cement
Course Outcomes:	
PEC-CT05.1	To identify the latest trends and developments in marketing, including digital marketing, sustainability and customer experience.
PEC-CT05.2	To learn how to identify and define target market segments based on demographics, psychographics, geographic and behavioral factors.
PEC-CT05.3	To learn about various promotional tools and techniques such as advertising, public relations, sales promotion, and personal selling.
PEC-CT05.4	To understand the alignment of distribution strategies with overall marketing and business strategies.
PEC-CT05.5	To understand the ethical considerations and responsible marketing practices in rural areas, including social responsibility and sustainability.

Course Code:	PEC-CT06
Course Title:	Refractory Engineering
Course Outcomes:	
PEC-CT06.1	Exploring Refractory Types and Raw Materials
PEC-CT06.2	Unveiling the Manufacturing Processes of Different Refractories
PEC-CT06.3	Analyzing the Chemical and Physical Properties of Refractories and Methods of Measurement
PEC-CT06.4	Navigating the Selection and Installation of Refractories in Cement Kilns
PEC-CT06.5	Efficient Refractory Management in Cement Plants, Emphasizing Safety in Installation in Cement Kilns

Course Code:	OE-CT02
Course Title:	EIA & EMP OF CEMENT PLANT
Course Outcomes:	
OE-CT02.1	Environmental Scenarios and Pollution due to cement manufacture
OE-CT02.2	Pollution Sources of Cement Plants and quality of environmental parameters
OE-CT02.3	Impact of Environmental Pollution due Cement manufacture on Air, Water, Fauna, and Flora surrounding cement plants.
OE-CT02.4	Various Acts, guideline and norms of State and central govt for Environmental Management to Prevent and Control Pollution.
OE-CT02.5	Guideline for preparation of Environmental Management Plan for Cement Plants.



Course Code:	OE-CT03
Course Title:	Industrial Economics
Course Outcomes:	
OE-CT03.1	Understand the foundational concepts and terminologies of Industrial Economics, including market structures, economies of scale, and industrial policy
OE-CT03.2	Analyze different market structures and their implications for firm behavior, pricing strategies, and market outcomes.
OE-CT03.3	Evaluate theories of industrial organization and apply them to analyze strategic interactions among firms, regulatory frameworks, and market dynamics.
OE-CT03.4	Critically assess the role of government policies and regulations in shaping industrial development, competition, and market efficiency.
OE-CT03.5	Apply theoretical frameworks and empirical evidence to analyze real-world industrial scenarios, including industrial clusters, technological innovation, globalization, and sustainability.

Course Code:	OE-CT05
Course Title:	Beneficiation of Low-Grade limestone for Cement Manufacture
Course Outcomes:	
OE-CT05.1	Examining the impact of physical, chemical, and mineralogical characteristics of low-grade limestone on the Portland cement production process and quality.
OE-CT05.2	Analyzing the composition and distribution patterns of limestone deposits in India.
OE-CT05.3	Limestone mining practices, the creation of mining rejects, and exploring their utilization in cement manufacture.
OE-CT05.4	Exploring potential beneficiation techniques aimed at enhancing the quality of limestone and its application in cement production.
OE-CT05.5	Exploring strategies for producing low-energy cement using low to marginal grade limestone.

Course Code:	OE-CT06
Course Title:	Reaction Engineering
Course Outcomes:	
OE-CT06.1	Develop a fundamental understanding of chemical reactions and reaction kinetics.
OE-CT06.2	Understanding of the principles of reaction rates, mechanisms, and their applications.
OE-CT06.3	Develop a fundamental understanding of homogeneous single reactions, including their importance in chemical processes.
OE-CT06.4	Understand the Principles of Multiple Reactions.
OE-CT06.5	Understanding the Impact of Temperature on Reaction Rates

Course Code:	PROJ-CT02
Course Title:	Engineering Project-II (Design & Analysis)
Course Outcomes:	
PROJ-CT02.1	Methodology for project design and project scheduling
PROJ-CT02.2	Methods of Data collection and data compilations
PROJ-CT02.3	Product development
PROJ-CT02.4	Data analysis and data interpretation
PROJ-CT02.5	Concluding remark and future work



Course Code:	PROJ-CT03
Course Title:	Seminar
Course Outcomes:	
PROJ-CT03.1	Identification and objective of the seminar topic, along with a literature review that includes recent technological trends.
PROJ-CT03.2	In-depth analysis and interpretation of technical data related to the seminar topic, including case studies and practical implementation examples.
PROJ-CT03.3	Preparation and delivery of the seminar presentation, including a question-and-answer session.

Semester-VIII

Course Code:	PROJ-CT04
Course Title:	Engineering Project-3 (Prototype & Testing)/ On job Plant Training
Course Outcomes:	
PROJ-CT04.1	Understand the organizational environment and recognize the requirement of the organization and cope with the organizational scenario.
PROJ-CT04.2	Identify career paths taking into account their individual strengths and aptitude and prepare a report about the work experience in the organization.
PROJ-CT04.3	Develop the employability skills and Start-Up skills to increase his/her ability to engage in life-long learning
PROJ-CT04.4	Develop individual confidence to handle various engineering assignments and acquire life skills to meet societal challenges.



Department
Computer Science and
Engineering



Ph.D (Computer Science and Engineering)

Semester-I

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Code:	151CAF02
Course Title:	Advances in Computer Application and Science
Course Outcomes:	
151CAF02.1	To impart the basic concepts of data structures and their applications
151CAF02.2	To understand the basic concepts of algorithms and to understand about writing algorithms and step by step approach in solving problems with the help of fundamental data structures
151CAF02.3	To understand the fundamental concepts and techniques of Operating Systems, to study the concepts in process management and concurrency control mechanisms, to understand the concepts in memory managements and deadlocks, to study on file management and storage structures
151CAF02.4	This course introduces the core principles and techniques required in the design and implementation of database systems
151CAF02.5	This will gain valuable skills in computer networks (switching, routing), system and network administration, computer and network security.

Course Code:	151PH02
Course Title:	Research and Publication Ethics (RPE)
Course Outcomes:	
151PH02.1	Students will be able to understand the ethics in conduct of scientific research.
151PH02.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH02.3	Identify research misconduct and predatory publications..
151PH02.4	Understand about the infer the ethical framework and principles
151PH02.5	Student will be able to explore plagiarism tools for a valid and ethical research report
151PH02.6	Develop a valid and ethical research report.



Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme:

M. Tech. (Computer Science and Engineering)

Semester-I

Course Code:	20CSE112
Course Title:	Advanced Data Structures
Course Outcomes:	
20CSE112.1	Understand the implementation of symbol table using hashing techniques.
20CSE112.2	Need of randomization Data Structures, Algorithms and skip lists.
20CSE112.3	Develop and analyze algorithms for red-black trees, B-trees and Splay trees.
20CSE112.4	Develop algorithms for text processing applications and Dynamic programming Applications.
20CSE112.5	Identify suitable data structures and develop algorithms for computational geometry Problems.

Course Code:	20CSE115-C
Course Title:	Machine Learning
Course Outcomes:	
20CSE115-C.1	Students should be familiar with various characteristics of the machine learning.
20CSE115-C.2	Learn how algorithm works for data processing and instance generation.
20CSE115-C.3	Create genome sequence by using machine learning algorithm.
20CSE115-C.4	Implement classification and regression process techniques for data processing.
120CSE115-C.5	Apply statistics in machine learning for probabilistic analysis.

Course Code:	20CSE115-A
Course Title:	Wireless Sensor Network
Course Outcomes:	
20CSE115-A.1	Analyze the complexity/performance of different algorithms.
20CSE115-A.2	Analyze different paradigms to solve graph problems.
20CSE115-A.3	Determine the appropriate data structure for solving a particular set of problems.
20CSE115-A.4	Categorize the different problems in various classes according to their complexity Students will have an insight of recent activities in the field of the advanced data structure.
20CSE115-A.5	Analyze the complexity/performance of different algorithms.



Course Code:	20CSE116-C
Course Title:	Advanced Wireless and Mobile Networks
Course Outcomes:	
20CSE116-C.1	Demonstrate knowledge of the fundamental principles of neural network.
20CSE116-C.2	Apply Fuzzy Logic.
20CSE116-C.3	Use various AI algorithms
20CSE116-C.4	Familiarize knowledge representation in intelligent system
20CSE116-C.5	Comprehend the use of learning system.

Course Code:	20RM113
Course Title:	Research Methodology and IPR
Course Outcomes:	
20RM113.1	Remember the foundational concepts of networking and wireless networking, including various types of wireless networks, standards, operations, and use cases.
20RM113.2	Understand the principles underlying the design of WLAN, WPAN, WWAN, and Cellular networks, based on their knowledge of propagation and performance analysis.
20RM113.3	Apply their knowledge of wireless network protocols by simulating wireless networks and troubleshooting network issues.
20RM113.4	Analyze and evaluate the trade-offs between wire line and wireless links when designing wireless networks, considering factors such as reliability, bandwidth, and cost.
20RM113.5	Create and develop mobile applications that address real-world problems by leveraging their knowledge of wireless networking and mobile technologies.

Course Code:	20RM114
Course Title:	English for Research Paper Writing
Course Outcomes:	
20RM114.1	Student will learn how to improve their writing skills, and level of readability
20RM114.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness CO3: Students will learn about what to write in each section of paper
20RM114.3	Students will learn about what to write in each section of paper
20RM114.4	Students will understand significance of each section of paper, and learn how to write it at the same time.
20RM114.5	Ensure the good quality of paper at very first-time submission



Semester-II

Course Code:	20CSE211
Course Title:	Advance Algorithms
Course Outcomes:	
20CSE211.1	Analyze the complexity/performance of different algorithms.
20CSE211.2	Analyze different paradigms to solve graph problems.
20CSE211.3	Determine the appropriate data structure for solving a particular set of problems.
20CSE211.4	Categorize the different problems in various classes according to their complexity
20CSE211.5	Students will have an insight of recent activities in the field of the advanced data structure.

Course Code:	20CSE212
Course Title:	Soft Computing
Course Outcomes:	
20CSE212.1	Student will Identify and describe soft computing techniques and their roles in building intelligent machines.
20CSE212.2	Student will apply fuzzy logic and reasoning to handle uncertainty and solve various engineering problems
20CSE212.3	Student will apply genetic algorithm to combine real optimization problems.
20CSE212.4	Student will Evaluate and compare solutions by various soft computing approaches for a given problem

Course Code:	20CSE214-B
Course Title:	Data Preparation and Analysis
Course Outcomes:	
20CSE214-B.1	Students will gain proficiency in handling various data formats, parsing techniques, and addressing scalability and real-time challenges in data processing.
20CSE214-B.2	Learners will acquire skills in identifying and resolving inconsistencies, handling heterogeneous and missing data, and performing effective data transformations and segmentation.
20CSE214-B.3	Participants will develop the ability to perform exploratory data analysis using descriptive and comparative statistics, clustering, association techniques, and hypothesis generation.
20CSE214-B.4	Learn to create visually compelling representations of data, including time series and , while exploring correlations, hierarchies, networks, and interactive elements for nication and insight extraction.



Course Code:	20CSE214-C
Course Title:	Data Storage Technologies and Networks
Course Outcomes:	
20CSE214-C.1	Remember the fundamentals of magnetic, optical and semiconductor media.
20CSE214-C.2	Understand the principles of hardware and software design for access data.
20CSE214-C.3	Apply their knowledge for exploring large storages devices.
20CSE214-C.4	Analyze and evaluate storage architecture and functionality.
20CSE214-C.5	Create and develop hardware and software components and architecture.

Course Code:	20CSE214-C
Course Title:	Cloud Computing
Course Outcomes:	
20CSE214-C.1	Student will be able to demonstrate knowledge of Online Social Networks and Applications.
20CSE214-C.2	Student will be able to apply Security in Cloud computing environments, CPU Virtualization.
20CSE214-C.3	Student will be able to use Infrastructure Security and Cloud Authorization Management,
20CSE214-C.4	Student will be able to Security Management in the Cloud an SaaS, PaaS and IaaS
20CSE214-C.5	Student will be able to Internal Policy Compliance, Governance, Risk, and Compliance (GRC).

Course Code:	20CSE215-B
Course Title:	Microprocessor and Computer architecture
Course Outcomes:	
2CSXX.1	Students will Recall the concepts of Instructions and addressing modes.
2CSXX.2	Students will analyze the concepts of Memory.
2CSXX.3	Students will understand I/O transfer and DMA Controller.
2CSXX.4	Students will Evaluate various design alternative of computer architecture based on CPU Performance, memory, I/O.
2CSXX.5	Students will have an insight into parallel processing, Microprocessors and Multiprocessing Systems.



Course Code:	20CSE215-C
Course Title:	Security in IoT Devices
Course Outcomes:	
20CSE215-C.1	Remember the foundational concepts of Internet of Things (IoT) technology.
20CSE215-C.2	Understand the principles of security concerns in IoT architecture.
20CSE215-C.3	Apply their knowledge for encrypting and decrypting information and commands in IoT.
20CSE215-C.4	Analyze and evaluate various authorization and authentication schemes.
20CSE214-C.5	Create and develop security for IoT based cloud services.

Course Code:	20AU213
Course Title:	Indian Constitution
Course Outcomes:	
20AU213.1	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
20AU213.2	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
20AU213.3	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognize the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
20AU213.4	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
20AU213.5	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.

Semester-III

Course Code:	20CSE301-A
Course Title:	Mobile Applications and Services
Course Outcomes:	
20CSE301-A.1	3CSXX.1 identify the target platform and users and be able to define and sketch a mobile application



20CSE301-A.2	3CSXX.2 understand the fundamentals, frameworks, and development lifecycle of mobile application platforms including iOS, Android, and Phone Gap
20CSE301-A.3	3CSXX.3 Design and develop a mobile application prototype in one of the platform (challenge project)

Course Code:	20CSE301-A
Course Title:	Cryptography And Network Security
Course Outcomes:	
20CSE301-A.1	To understand basics of Cryptography and Network Security.
20CSE301-A.2	To be able to secure a message over insecure channel by various means.
20CSE301-A.3	To learn about how to maintain the Confidentiality, Integrity and Availability of a data
20CSE301-A.4	To understand various protocols for network security to protect against the threats in the networks.

Course Code:	20OE302-A
Course Title:	Optimization Techniques
Course Outcomes:	
20OE302-A.1	Formulate optimization problems.
20OE302-A.2	Understand and apply the concept of Optimization Algorithms.
20OE302-A.3	Understand and apply the concept of optimality criteria for various types of optimization problems.
20OE302-A.4	Apply the methods of optimization in real life situation.
20OE302-A.5	Solve various constrained and unconstrained problems in Single variable as well as multivariable.

Course Code:	20OE302-A
Course Title:	Operation Research
Course Outcomes:	
20OE302-A.1	Remember the foundational concepts of optimization processes and modeling of tools.
20OE302-A.2	Understand the principles of duality theorem and simplex methods.
20OE302-A.3	Apply their knowledge for solving non-linear programming problems.
20OE302-A.4	Analyze and evaluate the deterministic models for sequencing and scheduling problems.
20OE302-A.5	Create and develop competitive models single and multi-channel problems.



Programme:

B.Tech. (Computer Science and Engineering)

Semester-I

Course Code:	BSC 102
Course Title:	Engineering Mathematics –I
Course Outcomes:	
BSC 102.1	CO1: Understand the concept of differentiation
BSC 102.2	CO2: Understand the basic concepts of matrices.
BSC 102.3	CO3: Understand the basic concepts of Limit, continuity and partial derivatives.
BSC 102.4	CO4: Understand the basic concepts of Exact differential equations.
BSC 102.5	CO5 Understand the basic concepts of definite and improper integrals

Course Code:	BSC 101
Course Title:	Chemistry-I
Course Outcomes:	
BSC 101.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BSC 101.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
BSC 101.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BSC 101.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
BSC 101.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.

Course Code:	ESC-104
Course Title:	Problem Solving and Programming
Course Outcomes:	
ESC-104.1	Understand the basic concept of Programming languages, software, algorithm and flowchart. ESC- CO 2: Acquire knowledge regarding the building blocks of programming language.
ESC-104.2	Apply python for solving basic programming solutions.
ESC-104.3	Create algorithms using learnt programming skills.
ESC-104.4	Understand real world problems and developing computer solutions for those.
ESC-104.5	Understand the basic concept of Programming languages, software, algorithm and flowchart. ESC- CO 2: Acquire knowledge regarding the building blocks of programming language.



Course Code:	ESC-105
Course Title:	Manufacturing Practice Workshop
Course Outcomes:	
ESC-105.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
ESC-105.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques.
ESC-105.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
ESC-105.4	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.
ESC-105.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.

Course Code:	HSMC-101
Course Title:	Communication Skills
Course Outcomes:	
HSMC-101.1	Speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC-101.2	Interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work
HSMC-101.3	Communicate effectively in Hindi and English languages without hindrances.
HSMC-101.4	Convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills
HSMC-101.5	Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers

Course Code:	HSMC-102
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC-102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC-102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC-102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.



HSMC-102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
HSMC-102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Course Code:	HSMC-103
Course Title:	Yoga and Meditation
Course Outcomes:	
HSMC-103.1	A students shall be able to describe the Brief Introduction of yoga and its practices
HSMC-103.2	A students shall be able to describe the pranayama with the practice of bandh, mudra. CO3: A students shall be able to describe the mediation.

Semester-II

Course Code:	BSC201
Course Title:	Engineering Mathematics -II
Course Outcomes:	
BSC201.1	Understand the importance of Laplace transforms and elementary properties of Laplace transform
BSC201.2	To introduce effective mathematical tools for the solutions of ordinary differential equations and solutions with Bessel functions and Legendre functions
BSC201.3	Demonstrate an understanding of the Vector Calculus
BSC201.4	Define and recognize the method to solve Sequences and series
BSC201.5	Students will create the concept of a Partial Differential Equations

Course Code:	BSC202
Course Title:	Physics-I
Course Outcomes:	
BSC202.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC20.2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications
BSC202.3	Learn the basic concepts of dual nature of matter, wave packet, and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC202.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure.
BSC202.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.



Course Code:	BSC202
Course Title:	Physics-I
Course Outcomes:	
BSC202.1	Find how to extend the basic concepts of motion of charged particles in electric magnetic fields to solve numerical problems and to relate to applications to electron optic device and CRO.
BSC202.2	Apply concepts in interference and diffraction to solve relevant numerical problems and to relate to relevant engineering applications
BSC202.3	Learn the basic concepts of dual nature of matter, wave packet, and apply them to analyze various relevant phenomenon and to solve related numerical problem.
BSC202.4	Recall the basic concepts of crystal structure and apply them in solving numerical problems based on them in relating to applications for determination of crystal structure
BSC202.5	Relate the basic idea of total internal reflection to the propagation of light in an optical fiber and make use of the fiber concepts to solve numerical problems and relate to applications in engineering.

Course Code:	BSC203
Course Title:	Biology for Engineers
Course Outcomes:	
BSC203.1	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry CO 2: To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.
BSC203.2	To convey that —Genetics is to biology what Newton_s laws are to Physical Sciences! and understand the molecular basis of coding and decoding genetic information is universal
BSC203.3	To convey that all forms of life have the same building blocks and yet the manifestations are as diverse as one can imagine. To convey that without catalysis life would not have existed on earth
BSC203.4	To convey the concept of microbes and their role in environment.
BSC203.5	To convey that Biology is as important a scientific discipline as Mathematics, Physics and Chemistry CO 2: To convey the classification of organism underlying criterion, such as morphological, biochemical or ecological be highlighted.

Course Code:	ESC101
Course Title:	Basic Electrical Engineering
Course Outcomes:	
ESC101.1	Apply network theorems to solve electrical DC circuits.
ESC101.2	Understand the concept of sinusoidal quantities and solve single phase AC circuits.
ESC101.3	Analyze the three phase AC circuits and solve series and parallel magnetic circuits.
ESC101.4	Understand the basic operating principle, types, efficiency of Transformers.
ESC101.5	Understand the basic operating principle, types of machines



Course Code:	ESC202
Course Title:	Engineering Graphics & Design
Course Outcomes:	
ESC202.1	Get introduced with Engineering Graphics and visual aspects of design.
ESC202.2	Know and use common drafting tools with the knowledge of drafting standards.
ESC202.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
ESC202.4	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
ESC202.5	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD.

Course Code:	ESC106
Course Title:	Basic Civil Engineering
Course Outcomes:	
ESC106.1	Impart the knowledge on importance of Civil Engineering in the infrastructural development of society
ESC106.2	Identify the types, uses and properties of various building materials.
ESC106.3	Identify the type of construction for different components of a building
ESC106.4	Establish an idea about the different types of masonry work
ESC106.5	Analyze various types of roofs and floors.

Course Code:	HSMC-201
Course Title:	Design Thinking & Idea Lab
Course Outcomes:	
HSMC-201.1	Identify the problems that fall under the purview of human centered design process for creative problem solving.
HSMC-201.2	Create empathy maps to visualize user attitudes and develop innovative products or services for a customer base using ideation techniques.
HSMC-201.3	Build simple prototypes for problems using gathered user requirements

Course Code:	HSMC-202
Course Title:	Indian Knowledge System
Course Outcomes:	
HSMC-202.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
HSMC-202.2	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
HSMC-202.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
HSMC-202.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.



HSMC-202.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.
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Semester-III

Course Code:	ESC-301
Course Title:	Analog Electronic Circuits
Course Outcomes:	
ESC-301.1	Understanding the fundamental of diode, its characteristics and its various types.
ESC-301.2	Understanding the various applications of diode.
ESC-301.3	Design and analysis of bipolar junction transistor, its various configurations and applications.
ESC-301.4	Design and analysis of junction field effect transistor and metal oxide semiconductor field effect transistor and its various configurations.
ESC-301.5	Design and analysis of op-amp, its characteristics and various applications.

Course Code:	PCC CS-301
Course Title:	Data structure and Algorithms
Course Outcomes:	
PCC CS-301.1	Understanding abstract specification of data-structures and their implementation.
PCC CS-301.2	Understanding time and space complexity of programs and data-structures.
PCC CS-301.3	Knowledge of basic data-structures, their applications and relative merits.
PCC CS-301.4	Ability to convert an algorithmic solution to a program using suitable data-structures and analyze the trade-offs involved in terms of time and space complexity.
PCC CS-301.5	Acquire basic knowledge of the graphs.

Course Code:	ESC-302
Course Title:	Digital Electronics
Course Outcomes:	
PCC CS-301.1	Understanding of numerical values in various number systems and perform number conversions between different number systems and understand the importance and need for verification, testing of digital logic and design for testability.
PCC CS-301.2	Able to design, simulate, built and debug complex combinational circuits based on an abstract functional specification.
PCC CS-301.3	Able to design, simulate, built and debug complex sequential circuits based on an abstract functional specification
PCC CS-301.4	Understand the concepts of Registers and Counters and their implementation.
PCC CS-301.5	Make aware of the role of digital components and circuits in computing and solving real- world problems.



Course Code:	PCC CS-302
Course Title:	IT Workshop (Sci Lab/MATLAB)
Course Outcomes:	
PCC CS-302.1	Write fundamental programs in MATLAB, creating variables and mathematical functions.
PCC CS-302.2	Understand how to program matrix operations, array operations and how to solve the system of linear equations.
PCC CS-302.3	Program the fundamentals concepts of basic Plotting consisting of simple and multiple data sets in one plot.
PCC CS-302.4	Understand how to program M-file scripts, M- file functions, Input –output Arguments and program control flow operators, loops, flow structures.
PCC CS-302.5	Use the debugging process and debugging M-files.

Course Code:	BSC-301
Course Title:	Mathematics-III (Differential Calculus)
Course Outcomes:	
BSC-301.1	CO1: Understand the concept of Calculus and linear Algebra
BSC-301.2	CO2: Understand the importance of Algebraic properties with regard to working within various number systems.
BSC-301.3	CO3: Students will Evaluate Rank and Determinant of Matrices.
BSC-301.4	CO4: Students will compute the Expansion of beta and Gamma functions
BSC-301.5	CO5: Understand the Matrices and vector spaces

Course Code:	HSMC-301
Course Title:	Universal Human Values
Course Outcomes:	
HSMC -301.1	To understanding Value Education
HSMC -301.2	Students will have the ability to learn about Harmony in the Human Being.
HSMC -301.3	Student will be able to gain knowledge on Harmony in the Family and Society.
HSMC -301.4	Understanding Harmony in the Nature/Existence.
HSMC -301.5	Student will able to understand about Implications of Holistic Understanding-



Semester-IV

Course Code:	PCC CS-401
Course Title:	Discrete Mathematics
Course Outcomes:	
PCC CS-401.1	Understand examples in Computer Science through mathematical terminology and notation.
PCC CS-401.2	Learn how to divide a problem, or a proof, into smaller cases.
PCC CS-401.3	Apply the knowledge of mathematics to solve real-world problems.
PCC CS-401.4	Formulate mathematical claims and be able to construct counterexamples.
PCC CS-401.5	Identify formal algebraic structures and probability in computer science.

Course Code:	PCC CS-402
Course Title:	Computer Organization & Architecture
Course Outcomes:	
PCC CS-402.1	Understand key components of a basic computer.
PCC CS-402.2	Understand key components of a CPU and how the instructions are executed.
PCC CS-402.3	Execution and time taken by instructions in a pipelined processor.
PCC CS-402.4	The need for memory hierarchy and efficiency achieved due to the use of cache.
PCC CS-402.5	How the data is stored and input-output is performed in computers.

Course Code:	PCC CS-404
Course Title:	Design and Analysis of Algorithms
Course Outcomes:	
PCC CS-404.1	Demonstrate knowledge of Graph and its applications
PCC CS-404.2	Apply greedy approach and Huffman coding.
PCC CS-404.3	Use various divide and conquer algorithm and recurrence relation
PCC CS-404.4	Familiarize with the dynamic programming approach
PCC CS-404.5	Comprehend the use of concept of computation and network flow.

Course Code:	PCC CS-405
Course Title:	Advanced Programming
Course Outcomes:	
PCC CS-405.1	Understanding the build system: IDE, tools for testing, debugging, profiling, and source code management.
PCC CS-405.2	Students can demonstrate proficiency in object-oriented programming
PCC CS-405.3	Identify and abstract the programming task involved for a given programming problem.
PCC CS-405.4	Learning and using language libraries for building large programs.
PCC CS-405.5	How the data is stored and input-output is performed in computers.



Course Code:	HSMC-401-A
Course Title:	Organizational Behavior
Course Outcomes:	
HSMC-401.1	Understand the effect of interpersonal behavior in an organizational work life.
HSMC-401.2	Understand Perspective in Diverse cultural Environment.
HSMC-401.3	Understand the principles of organizational human behavior with relevance to the Indian business context.
HSMC-401.4	Student understand Stress Management.
HSMC-401.5	CO.5: Understand the organizational structure and personnel management

Course Code:	HSMC-401-B
Course Title:	Management 1 (Finance & Accounting)
Course Outcomes:	
HSMC-401-B.1	Student will be able to apply fundamental accounting concepts, distinguish manual and computerized systems, and apply the golden rule effectively."
HSMC-401-B.2	Student will be able to prepare financial statements, including Trial balances, trading, profit and loss accounts, and balance sheets, addressing outstanding transactions."
HSMC-401-B.3	Student will operate Tally software, from introduction to voucher entries, and effectively manage accounting tasks such as purchase/sales orders and receipts, bills, and journals
HSMC-401-B.4	Student will be able to use GST tasks like creating masters, handling return of goods, managing exempt transactions, and generating reports for registered and composite dealers
HSMC-401-B.5	Student will be able to operate, covering Tally Vault, security controls, data import-export, audit procedures, and utilizing online support and help for advanced accounting functions

SEMESTER V

Course Code:	PCCCS-505
Course Title:	Introduction to Database Systems
Course Outcomes:	
PCCCS-505.1	Explain the features of database management systems and relational database
PCCCS-505.2	Design Conceptual Models Of A Database Using ER Modelling For Real Life Applications And Construct Queries In Relational Algebra
PCCCS-505.3	Create and Populate A RDBMS For A Real-Life Application, With Constraints And Keys, Using SQL
PCCCS-505.4	Retrieve Any Type Of Information From A Database By Formulating Complex Queries In SQL
PCCCS-505.5	Analyses The Existing Design Of A Database Schema And Apply Concepts Of Normalization To Design An Optimal Database



Course Code:	PCC CS-603
Course Title:	Machine Learning
Course Outcomes:	
PCC CS-405.1	Understanding the build system: IDE, tools for testing, debugging, profiling, and source code management.
PCC CS-405.2	Students can demonstrate proficiency in object-oriented programming
PCC CS-405.3	Identify and abstract the programming task involved for a given programming problem.
PCC CS-405.4	Learning and using language libraries for building large programs.
PCC CS-405.5	How the data is stored and input-output is performed in computers.

Course Code:	PCC CS-403
Course Title:	Operating Systems
Course Outcomes:	
PCC CS-403.1	At the end of this chapter, the student will recognize the structure and services of OS
PCC CS-403.2	At the end of this chapter, the student will use the concept of process
PCC CS-403.3	At the end of this chapter, the student will differentiate various threads and deadlocks
PCC CS-403.4	At the end of this chapter, the student will compare memory systems
PCC CS-403.5	At the end of this chapter, the student will select the appropriate storage system

Course Code:	PEC- Elective-I-A
Course Title:	Web Engineering
Course Outcomes:	
PEC- Elective-I-A.1	Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page
PEC- Elective-I-A.2	Develop skills to generate HTML and CSS page and have knowledge of JavaScript assisted style sheets (JSSS).
PEC- Elective-I-A.3	Have knowledge of PHP, PHP Syntax, Comments, Variables and Constants, Embedding PHP in HTML pre-defined and used defined.
PEC- Elective-I-A.4	Have knowledge of Angular JS, XML Fundamentals, J Query
PEC- Elective-I-A.5	Develop skills to generate Static and dynamic application designing, Googleform designing,



Course Code:	PEC- Elective-I-B
Course Title:	Project Management
Course Outcomes:	
PEC-Elective-I-B.1	Understanding the evolution and improvement of software economics
PEC-Elective-I-B.2	Learning the objectives, activities and evaluation criteria of the various phases of the life cycle of software management process.
PEC-Elective-I-B.3	Gaining knowledge about the various artifacts, workflows and checkpoints of the software management process
PEC-Elective-I-B.4	Organize Project schedule
PEC-Elective-I-B.5	Analyze Project Monitoring and Control

SEMESTER VI

Course Code:	PCC CS-601
Course Title:	Computer Networks
Course Outcomes:	
PCC CS-601.1	Understand the architecture principles that have enabled the orders of magnitude expansion of the Internet
PCC CS-601.2	Understand networked applications and their protocols, their installation, operation, and performance tuning
PCC CS-601.3	Understand layering as a means of tackling complexity, layering applied to the Internet
PCC CS-601.4	Understand protocols as a structured means of reliable communications
PCC CS-601.5	Be familiar with tools for configuring, monitoring, and tuning the Internet and Hosts.

Course Code:	PEC CS-601
Course Title:	Introduction to Cyber Security
Course Outcomes:	
PEC CS-601.1	Recall the basics of Cyber Security
PEC CS-601.2	Understand the cyber security threat landscape.
PEC CS-601.3	Develop a deeper understanding and familiarity with various types of cyber-attacks, Cyber-crimes
PEC CS-601.4	Analyse and evaluate existing legal framework and laws on cyber security.
PEC CS-601.5	Analyse and evaluate the digital payment system security and remedial measures against Digital Payment frauds

Course Code:	RC602
Course Title:	Research Methodology and IPR



Course Outcomes:	
RC602.1	Understand research problem formulation
RC602.2	Analyze research related information and Follow research ethics
RC602.3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
RC602.4	Understanding that when IPR would take such important place in growth of Individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering In particular
RC602.5	IPR protection incentivizes inventors to invest in R&D, leading to new and improved products, economic growth, and social benefits

Course Code:	PEC- Elective-II-A
Course Title:	Big Data Analytics
Course Outcomes:	
PEC- Elective-II-A.1	Understand and apply big data flow to actual projects as well as apply data Analytics life cycle to big data projects
PEC- Elective-II-A.2	Apply appropriate techniques and tools to solve big data problems.
PEC- Elective-II-A.3	Describe big data and use cases from selected business domains
PEC- Elective-II-A.4	Explain NoSQL big data management
PEC- Elective-II-A.5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data Analytics.

Course Code:	PCC CS-504
Course Title:	Theory of computation
Course Outcomes:	
PCC CS-504.1	Understand models and abstractions: automata as a basic model of computation.
PCC CS-504.2	Students will acquire to represent regular expression and Finite State Automata
PCC CS-504.3	Students will acquire to represent CFL and Pushdown Automata
PCC CS-504.4	Students will recall Turing machines and the concept of computability, including Decidability and un-decidability
PCC CS-504.5	Students will Link between languages, automata, and decision problems

Course Code:	PEC- Elective-II-B
Course Title:	Pattern Recognition & Visual Recognition
Course Outcomes:	
PEC- Elective-II-B.1	Understand basic mathematical and statistical techniques commonly used in pattern recognition



PEC- Elective-II-B.2	Apply a variety of pattern recognition algorithms.
PEC- Elective-II-B.3	Understand and apply various pre-processing algorithms
PEC- Elective-II-B.4	Apply various algorithms for image classification
PEC- Elective-II-B.5	Assess the use of FCM and soft-computing techniques in pattern recognition

SEMESTER VII

Course Code:	PCCCS-602
Course Title:	Compiler Design
Course Outcomes:	
PCCCS-602.1	To understand the role, functionality and structure of program translation and Interpretation in Software Development
PCCCS-602.2	To understand the difference between abstraction levels of a high level Language and a Machine language
PCCCS-602.3	To understand the role of a sequence of intermediate representations in Lowering the Level of abstractions in the process of language translation.
PCCCS-602.4	To get a first-hand experience of a practical application of elegant data structures, Algorithms, and Other core CS concepts such as automata theory
PCCCS-602.5	To make effective use of tools such as LEX and YACC

Course Code:	PEC- Elective-III-A
Course Title:	Computational Intelligence
Course Outcomes:	
PEC- Elective-III-A.1	Comprehensive Understanding and Application: Students will understand and apply various computational intelligence techniques effectively.
PEC- Elective-III-A.2	Strong Problem-Solving Skills: Graduates will develop adept problem-solving skills using computational intelligence methods.
PEC- Elective-III-A.3	Enhanced Critical Thinking and Analysis: Students will sharpen their critical thinking and analytical abilities through the study of computational intelligence concepts.
PEC- Elective-III-A.4	Proficiency in Design and Implementation: Graduates will be proficient in Designing and implementing intelligent systems using computational intelligence methods
PEC- Elective-III-A.5	Preparation for Research and Innovation: Students will be prepared to engage in research and innovation within the field of computational intelligence.

Course Code:	PEC- Elective-III-B
Course Title:	Wireless and Mobile Networks
Course Outcomes:	
PEC- Elective-III-B.1	Identify and choose wireless transmission standard, physical layer protocol and MAC layer Protocol on the basis of various network applications. .



PEC- Elective-III-B.2	Understand and explain mobile IP and data routing using it. Classify ad hoc network Protocols
PEC- Elective-III-B.3	Understand the TCP protocol for wireless networks and able to do congestion free Transmission Over wireless networks.
PEC- Elective-III-B.4	Understand the major concepts involved in wireless wide-area networks and its Architecture
PEC- Elective-III-B.5	Use knowledge of 4G technologies and analyze various smart antenna techniques, Modulation and coding techniques used in 4G technology

Course Code:	PEC-EIV - A
Course Title:	Java Programming
Course Outcomes:	
PEC-EIV – A.1	At the end of this chapter the student will explain the core concept of java programming.
PEC-EIV – A.2	At the end of this chapter the student will use Objects and Classes in programs
PEC-EIV – A.3	At the end of this chapter the student will describe the Exception Handling
PEC-EIV – A.4	At the end of this chapter the student will know AWT
PEC-EIV – A.5	At the end of this chapter the student will know.

Course Code:	PEC-EIV - B
Course Title:	Dot Net Programming with VB.Net & ASP.Net
Course Outcomes:	
PEC-EIV – B.1	Understanding of various features of .NET Framework
PEC-EIV – B.2	Design and develop event-driven GUI applications using VB.NET
PEC-EIV – B.3	Design and develop software using .net tools.
PEC-EIV – B.4	Web Forms with ASP.NET.
PEC-EIV – B.5	Develop dynamic Web applications using databases in .NET technology.

Course Code:	OEC-01-A
Course Title:	Data Ware housing and Data Mining
Course Outcomes:	
OEC-01-A.1	Student should understand the value of Historical data and data mining in solving real-world Problems
OEC-01-A.2	Student should become affluent with the basic Supervised and unsupervised learning Algorithms
OEC-01-A.3	Student develops the skill in using data mining for solving real-world problems
OEC-01-A.4	Understand the fundamental concepts of supervised learning and classification
OEC-01-A.5	Understand the foundational concepts of clustering and association rule mining.



Course Code:	OEC-01-B
Course Title:	Current trends and technology
Course Outcomes:	
OEC-01-B.1	Student should understand the value of Historical data and data mining in solving real-world Problems
OEC-01-B.2	Student should become affluent with the basic Supervised and unsupervised learning Algorithms
OEC-01-B.3	Student develops the skill in using data mining for solving real-world problems
OEC-01-B.4	Understand the fundamental concepts of supervised learning and classification
OEC-01-B.5	Understand the foundational concepts of clustering and association rule mining.

Course Code:	OEC - I
Course Title:	AI using Python
Course Outcomes:	
OEC – I.1	Understand the Fundamentals of Artificial Intelligence: Students will gain a solid understanding of fundamental concepts in artificial intelligence, including machine learning, deep learning, and neural networks, as well as the terminology and key principles underlying AI technologies.
OEC – I.2	Ability to Develop AI Projects: Students will be able to navigate the workflow of both machine learning and data science projects, from data acquisition and preprocessing to model training and evaluation, and apply this knowledge to develop projects using Python
OEC – I.3	Apply AI in Real-world Scenarios: Students will learn how to identify suitable AI projects, collaborate effectively in AI teams, process and visualize data, and utilize technical tools to solve real-world problems across various application domains.
OEC – I.4	Analyze AI Case Studies: Students will analyze case studies of AI applications such as smart speakers and self-driving cars, examining the roles of AI teams, common pitfalls, and major application areas to gain insights into real-world AI implementation.
OEC – I.5	Critically Evaluate AI's Societal Impacts: Students will critically evaluate the societal impacts of AI, including issues such as discrimination, bias, adversarial attacks, adverse uses, and the implications of AI on developing economies and job markets.

SEMESTER VIII

Course Code:	PEC-IV-A
Course Title:	Internet of Things
Course Outcomes:	
PEC-IV-A.1	Acquire the knowledge of IoT concept and its Architecture
PEC-IV-A.2	Acquire the basic concept of Software defined networking and Machine-to-Machine (M2M)



PEC-IV-A.3	Exposed to various web communication Protocols for connected devices & Message communication Protocols for connected devices
PEC-IV-A.4	Familiarize and understand the basic Sensor data Communication Protocols
PEC-IV-A.5	Develop the application skills regarding the Smart City Streetlights control & monitoring

Course Code:	PEC-IV-B
Course Title:	Introduction to Robotics
Course Outcomes:	
PEC-IV-B.1	At the end of this chapter the student will explain the Introduction to Robotics.
PEC-IV-B.2	At the end of this chapter the student will understand the Need of AI in Robotics
PEC-IV-B.3	At the end of this chapter the student will understand game playing in AI
PEC-IV-B.4	At the end of this chapter the student will understand Robotics fundamentals
PEC-IV-B.5	At the end of this chapter the student will use Robotics and Its Applications

Course Code:	OECII - A
Course Title:	Statistical Thinking for Data Science
Course Outcomes:	
OECII – A.1	At the end of this chapter the student will explain the Introduction to Robotics.
OECII – A.2	At the end of this chapter the student will understand the Need of AI in Robotics
OECII – A.3	At the end of this chapter the student will understand game playing in AI
OECII – A.4	At the end of this chapter the student will understand Robotics fundamentals
OECII – A.5	At the end of this chapter the student will use Robotics and Its Applications

Course Code:	OECII - B
Course Title:	Autonomous Systems
Course Outcomes:	
OECII – B.1	Complete understanding of autonomous systems
OECII – B.2	functional architecture in autonomous systems is a robust, scalable, flexible, and efficient System
OECII – B.3	Create a model of basic autonomous vehicle
OECII – B.4	Understand, design and implement an autonomous robot
OECII – B.5	Understand, design and implement an autonomous drone

Course Code:	OECIII - A
Course Title:	Cloud Computing
Course Outcomes:	
OECIII – A.1	Students should be familiar with various characteristics of the cloud platforms
OECIII – A.2	Learn how virtual platform works for application execution and storage.
OECIII – A.3	Create relational database and other cloud-based file system
OECIII – A.4	Understand the privacy issues and security strategies in cloud storage
OECIII – A.5	Implement real time application over various cloud-based platform



Course Code:	OECIII -B
Course Title:	English for Research Paper Writing
Course Outcomes:	
OECIII – B.1	Student will learn how to improve their writing skills, and level of readability
OECIII – B.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness
OECIII – B.3	Students will learn about what to write in each section of paper
OECIII – B.4	Students will understand significance of each section of paper, and learn how to write it at the same time.
OECIII – B.5	Ensure the good quality of paper at very first-time submission



Programme:

B.Tech. (Computer Science and Engineering - AI/DS)

Semester-I

Course Code:	HS-101
Course Title:	Communication Skills
Course Outcomes:	
HS101.1	CO1: Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HS101.2	CO2: Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
HS101.3	CO3: Students will be able to communicate effectively in Hindi and English languages without hindrances.
HS101.4	CO4: Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
HS101.5	CO5 The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	BS-102
Course Title:	Mathematics-I
Course Outcomes:	
BSC 102.1	Understand basic algebra.
BSC 102.2	Understand and apply calculus.
BSC 102.3	Understand and apply vector calculus.
BSC 102.4	Understand and apply differential equations.
BSC 102.5	Understand and apply multivariate calculus.

Course Code:	BS-101
Course Title:	Engineering Physics
Course Outcomes:	
BS-101.1	Through this chapter students are brought to learn about Simple Harmonic Motion and particles executing S.H.M. Types of vibrations are also studied
BS-101.2	Harmonic motion gives the knowledge of composition of two simple harmonic motion and the construction of Lissajous figures. It also gives the true knowledge of various types of oscillations.
BS-101.3	Interference chapter gives the concept of light wave and its equation, meaning of coherence, interference fringes, interference by Fresnel's biprism, Newton's rings, Michelson interferometer and its applications for determination etc.



BS-101.4	Diffraction section explains about various types of diffractions in details, knowledge of grating and its resolving power and Polarization section gives the knowledge of production and analyzing of different polarized light, specific rotation.
BS-101.5	To expose the students to the basic concepts of optical fibers and their properties also provide adequate knowledge about the Industrial applications of optical fibers, to expose the students to the Laser fundamentals, to provide adequate knowledge about Industrial application of lasers, to provide adequate knowledge about holography and medical applications of Laser.

Course Code:	ES-103
Course Title:	Mathematical Concepts for AI And DS
Course Outcomes:	
ES-103.1	Analyzing the graph of a function is a powerful way to understand its behavior, make predictions, and solve mathematical and real-world problems.
ES-103.2	Discuss of Derivatives and optimizations are closely related concepts in mathematics and have important applications in various fields, engineering, and machine learning.
ES-103.3	Use of operations involving vectors and matrices depend on the specific operations being performed.
ES-103.4	Use and apply hypothesis testing on different datasets.
ES-103.5	Use statistical methods to analyze and collect data.

Course Code:	BS-202
Course Title:	Chemistry
Course Outcomes:	
BS-202.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BS-202.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
BS-202.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BS-202.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
BS-202.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.

Course Code:	ES-101
Course Title:	Problem Solving and Programming
Course Outcomes:	
ES -101.1	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ES -101.2	Acquire knowledge regarding the building blocks of programming language.
ES -101.3	Apply python for solving basic programming solutions.
ES -101.4	Create algorithms using learnt programming skills.
ES -101.5	Understand real world problems and developing computer solutions for those.



Course Code:	AU-203
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
AU203-102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
AU203-102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
AU203-102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
AU203-102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
AU203-102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	BS-201
Course Title:	Mathematics -II
Course Outcomes:	
BS201.1	Students would be able to Understand the behavior of series and their applications.
BS201.2	Students would be able to Understand each series requires individual analysis and testing for convergence or divergence.
BS201.3	Understanding mathematical concepts, including logic, set theory, and proof techniques.
BS201.4	Students would be able to Understand number system and its applications.
BS201.5	Students would be able to Understand the concept of probability and statistics and apply in real life.

Course Code:	PC-202
Course Title:	Object Oriented Programming
Course Outcomes:	
PC-202.1	Understand the basic concepts of OOPs.
PC-202.2	Understand the concept of Polymorphism & Inheritance
PC-202.3	Apply different Python library to solve programming problems
PC-202.4	Understand the advanced concepts of python and apply for Accessing web data.
PC-202.5	Understand the advanced concepts of python and apply for Accessing database.



Course Code:	PC-203
Course Title:	Data Structures
Course Outcomes:	
PC-203.1	Understand the different types of data structure to be implemented using any programming language
PC-203.2	Choose the data structures that effectively model the information in a problem and an analysis the efficiency trade-offs (run time and memory usage) among alternative data structure implementation so combinations.
PC-203.3	Design, implement, test, and debug programs using a variety of data structures including stacks, queues, hash tables, binary and general tree structures, search trees, and graphs.
PC-203.4	Apply efficient data structure (linked lists, stacks and queues) to solve a particular problem.
PC-203.5	Apply Sorting and Searching

Course Code:	PC-204
Course Title:	Discrete Mathematical Structures
Course Outcomes:	
PC-204.1	Students would be able to Understand the concept of mathematical reasoning and their applications.
PC 204.2	Students would be able to Understand The concept of set theory and its properties.
PC 204.3	Understanding mathematical concepts, including logic, set theory, and proof techniques.
PC 204.4	Students would be able to Understand Graph theory and its application.
PC 204.5	Students would be able to Understand the concept of Groups, rings fields and discrete probability and apply in real life.

Course Code:	PC-205
Course Title:	Modern Computer Architecture
Course Outcomes:	
PC-205.1	Understand the organization of the Control unit, Arithmetic and Logical unit, Memory unit and the I/O unit.
PC-205.2	Analyze different computer architectures and their applications.
PC-205.3	Understand modern design structures of Pipelined and Multiprocessors systems.
PC-205.4	Understand distributed computing architecture and high-performance computing.
PC-205.5	Work on CUDA programming that enables them to harness the computational power of GPUs for general-purpose computing tasks.

Course Code:	HS102
Course Title:	Design Thinking
Course Outcomes:	
HS102.1	Demonstrate knowledge of An Insight to Learning
HS102.2	Apply Security in Remembering Memory.
HS102.3	Use Emotions: Experience & Expression
HS102.4	Basics of Design Thinking
HS102.5	Being Ingenious & Fixing Problem and Process of Product Design



Course Code:	HSMC(H-102)
Course Title:	Universal Human Values-II: Understanding Harmony and Ethical Human Conduct
Course Outcomes:	
HSMC(H-102).1	To understanding Value Education
HSMC(H-102).2	Students will have the ability to learn about Harmony in the Human Being.
HSMC(H-102).3	Student will be able to gain knowledge on Harmony in the Family and Society.
HSMC(H-102).4	Understanding Harmony in the Nature/Existence.
HSMC(H-102).5	Student will be able to understand about Implications of Holistic Understanding- A Look at Professional Ethics.

Course Code:	AU302
Course Title:	Indian Knowledge System
Course Outcomes:	
AU-302.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
AU-302.2	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
AU-302.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
AU-302.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
AU-302.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Semester-III

Course Code:	PC301
Course Title:	Algorithm Analysis and Design
Course Outcomes:	
PC-301.1	Demonstrate knowledge of Graph and its applications.
PC-301.2	Apply greedy approach and Huffman coding
PC-301.3	Use various divide and conquer algorithm and recurrence relation
PC-301.4	Familiarize with the dynamic programming approach
PC-301.5	Comprehend the use of concept of computation and network flow



Course Code:	PC302
Course Title:	Database Systems
Course Outcomes:	
PC302.1	Understand the basics of databases and data management.
PC302.2	Understand various theoretical and practical principles involved in the design and use of databases systems with the help of database.
PC302.3	Understand Transaction management.
PC302.4	Design and implement databases for various scenarios.
PC302.5	Design a database scenario for handling big data.

Course Code:	PC303
Course Title:	Computer Networks
Course Outcomes:	
PC303.1	Understand basic computer network technology
PC303.2	Understand the different types of network topologies and protocols
PC303.3	Analyze the different types of network devices and their functions within a network
PC303.4	Analyze the architecture and principles of today's computer networks
PC303.5	Understand the requirements for the future Internet and its impact on the computer network architecture.

Course Code:	PC304
Course Title:	Introduction to Machine Learning
Course Outcomes:	
PC304.1	Demonstrate knowledge of the fundamental principles of Machine Learning.
PC304.2	Applications of machine learning.
PC304.3	Use various supervised learning.
PC304.4	Familiarize knowledge of Unsupervised learning.
PC304.5	Introduction to Deep learning.

Course Code:	PC305
Course Title:	Artificial Intelligence
Course Outcomes:	
PC305.1	Understand the basic concepts and techniques of Artificial Intelligence.
PC305.2	Apply AI algorithms for solving practical problems
PC305.3	Describe human intelligence and AI
PC305.4	Explain how intelligent system works.
PC305.5	Apply basics of Fuzzy logic and neural networks



Course Code:	OE001
Course Title:	Internet of Things (IoT)
Course Outcomes:	
OE001.1	Acquire the knowledge of IoT concept and its Architecture
OE001.2	Acquire the basic concept of Software defined networking and Machine-to-Machine (M2M).
OE001.3	Exposed to various web communication Protocols for connected devices & Message communication Protocols for connected devices.
OE001.4	Familiarize and understand the basic Sensor data Communication Protocols.
OE001.5	Develop the application skills regarding the Smart City Streetlights control & monitoring.

Course Code:	PC305
Course Title:	Robotics
Course Outcomes:	
PC305.1	Understand basics of Robotics.
PC305.2	Understand the Need of AI in Robotics.
PC305.3	Apply game playing in AI.
PC305.4	Apply Robotics fundamentals.
PC305.5	Apply Robotics and Its applications

Semester-IV

Course Code:	PC401
Course Title:	Theory of Computation
Course Outcomes:	
PC-401.1	Understand models and abstractions: automata as a basic model of computation.
PC-401.2	Student will acquire to represent regular expression and Finite State Automata.
PC-401.3	Student will acquire to represent CFL and Pushdown Automata.
PC-401.4	Student will recall Turing machines and the concept of computability, including decidability and un-decidability.
PC-401.5	Students will Link between languages, automata, and decision problems.

Course Code:	PC402
Course Title:	Software Engineering
Course Outcomes:	
PC402.1	Students should be familiar with various phases of the software development process, including requirements analysis, design, implementation, testing, deployment, and maintenance.
PC402.2	Learn how to design software systems, considering factors such as modularity, scalability, and maintainability. Understand architectural patterns and their applications.
PC402.3	Develop strong programming skills in relevant languages and frameworks. This includes understanding data structures, algorithms, and design patterns.



PC402.4	Understand the challenges and strategies associated with maintaining and evolving software systems over time. Understand the importance of quality assurance in software development.
PC402.5	Acquire basic project management skills, including estimation, planning, and tracking progress.

Course Code:	PC403
Course Title:	Deep Learning
Course Outcomes:	
PC403.1	Students should be familiar with various characteristics of the deep learning.
PC403.2	Learn how activation function works with different parameters
PC403.3	Create Auto encoder/Decoder and understand the mechanism of regularization and normalization.
PC403.4	Develop convolutional neural network (CNN) and recurrent neural network (RNN).
PC403.5	Apply pattern recognition and classification using artificial neural network.

Course Code:	PC404
Course Title:	Operating System
Course Outcomes:	
PC404.1	Understand the basics of an operating systems and its major components
PC404.2	Create and/or modify concurrent programs
PC404.3	Understand Memory Management and Data Management
PC404.4	Apply security as well as recovery features in the design of algorithm
PC404.5	Understand and implement shell programming

Course Code:	HS401
Course Title:	Personality Development through Life Enlighten Skills
Course Outcomes:	
HS401.1	A student will be able to describe the Introduction to Holistic development of personality
HS401.2	A student will be able to discuss the introduction Approach to day-to-day work and duties
HS401.3	A student will be able to interpret Statements of basic knowledge.

Course Code:	AU202
Course Title:	Environmental Science
Course Outcomes:	
AU202.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropogenic era.
AU202.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
AU202.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.



Semester-V

Course Code:	PC501
Course Title:	Data and Visual Analytics in AI
Course Outcomes:	
PC-501.1	Understand the basics of graphics and data visualization.
PC-501.2	Understand graphics pipeline and graphical perception.
PC-501.3	Understand graphical designing.
PC-501.4	Design and implement multidimensional data.
PC-501.5	Design collaborative visual analytics.

Course Code:	PC503
Course Title:	Natural Language Processing
Course Outcomes:	
PC503.1	Understand language and the tools that are available to efficiently study and analyze large collections of text.
PC503.2	Analyze and discuss the effects of electronic communication on our language
PC503.3	Learn natural language processing with manual and automated approaches
PC503.4	Learn computational frameworks for natural language processing.
PC503.5	Learn Information retrieval and lexical resources

Course Code:	PC504
Course Title:	Advanced Machine Learning
Course Outcomes:	
PC504.1	To introduce advanced concepts and methods of machine learning.
PC504.2	To develop an understanding of the role of machine learning in massive scale automation.
PC504.3	To design and implement various machine learning algorithms in a range of real-world applications.
PC504.4	To understand the computational complexity.
PC504.5	Understand real world problems and developing computer solutions for those.

Course Code:	PC502
Course Title:	Optimization Techniques in Machine Learning
Course Outcomes:	
PC502.1	Demonstrate knowledge of the fundamental principles of Optimization
PC502.2	Apply Machine Learning Strategy.
PC502.3	Use of Machine Learning.
PC502.4	Familiarize machine learning in Production and planning.
PC502.5	Comprehend the use of care and feeding of Machine Learning.



Course Code:	AU301
Course Title:	Indian Constitution
Course Outcomes:	
AU301.1	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
AU301.2	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
AU301.3	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognize the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
AU301.4	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance
AU301.5	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.

Semester-VI

Course Code:	RC601
Course Title:	English for Research Paper Writing
Course Outcomes:	
RC601.1	Student will learn how to improve their writing skills, and level of readability
RC601.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness
RC601.3	Students will learn about what to write in each section of paper
RC601.4	Students will understand significance of each section of paper, and learn how to write it at the same time.
RC601.5	Ensure the good quality of paper at very first-time submission

Course Code:	RC602
Course Title:	Research Methodology and IPR
Course Outcomes:	
RC602.1	Understand research problem formulation.
RC602.2	Analyze research related information and Follow research ethics
RC602.3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.



RC602.4	Understanding that when IPR would take such important place in growth of Individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering In particular.
RC602.5	UnderstandthatIPRprotectionprovidesanincentivetoinventorsforfurtherresearch work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits.

Semester-VII

Course Code:	PC701
Course Title:	Soft Computing
Course Outcomes:	
PC-701.1	Understand, Identify and describe soft computing techniques and their roles in building intelligent machines.
PC-701.2	Apply a soft computing methodology for a particular problem.
PC-701.3	Analyze and compare solutions by various soft computing approaches for a given problem.
PC-701.4	Apply genetic algorithms to combinatorial optimization problems
PC-701.5	Evaluate and compare solutions by various soft computing approaches for a given problem

Course Code:	PC702
Course Title:	AI for Everyone
Course Outcomes:	
PC702.1	Understand the basic concepts of AI and machine learning.
PC702.2	Understand the working of self-driving systems.
PC702.3	Understand how to build different AI projects.
PC702.4	Evaluate the impact of AI on society.
PC702.5	Apply AI techniques to any application domain.

Course Code:	PE001
Course Title:	Statistical Thinking for Data Science
Course Outcomes:	
PE001.1	At the end of this chapter the student will Understand the statistical foundation for data science.
PE001.2	At the end of this chapter the student will Apply statistical thinking in collecting, modeling and analyzing data.
PE001.3	At the end of this chapter the student will visualize all types of data
PE001.4	At the end of this chapter the student will Understand how to use R for different types of data

Course Code:	PE002
Course Title:	Machine Learning for Data Science
Course Outcomes:	
PE002.1	Students should be familiar with various characteristics of the algorithm including various tools and techniques for analyzing algorithms complexity.



PE002.2	Learn how algorithm works for data processing and instance generation, such as graph, tree, mapping, and searching.
PE002.3	Create genome sequence by using machine learning algorithm along with various applications of machine learning and data science in genome sequencing.
PE002.4	Understand the advance machine learning concepts with respect to classification and regression process techniques for data processing.
PE002.5	Understand contribution of statistics in machine learning with special emphasis on probabilistic analysis.

Course Code:	PE004
Course Title:	Data Science & Visualization
Course Outcomes:	
PE004.1	Apply data visualizations in order to derive more meaning out of data.
PE004.2	Understand python visualization libraries.
PE004.3	Apply data visualization on different types of data.
PE004.4	Perceive hidden meanings from data using data visualization.
PE004.5	Apply data visualizations in order to derive more meaning out of data.

Course Code:	PE005
Course Title:	Big Data Analytics
Course Outcomes:	
PE005.1	Understand and apply big data flow to actual projects as well as apply data analytics lifecycle to big data projects.
PE005.2	Apply appropriate techniques and tools to solve big data problems.PE004.3.
PE005.3	Describe big data and use cases from selected business domains.
PE005.4	Explain NoSQL big data management.
PE005.5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics.

Semester-VIII

Course Code:	PE006
Course Title:	Pattern Recognition & Visual Recognition
Course Outcomes:	
PE006.1	Understand basic mathematical and statistical techniques commonly used in pattern recognition.
PE006.2	Apply a variety of pattern recognition algorithms.
PE006.3	Understand and apply various pre-processing algorithms.
PE006.4	Assess the use of FCM and soft-computing techniques in pattern recognition.
PE006.5	Assess the use of FCM and soft-computing techniques in pattern recognition.

Course Code:	PE007
Course Title:	Image and Video Processing
Course Outcomes:	
PE007.1	Understand the basics of Image representation and analysis
PE007.2	Learn how to use Image Segmentation.



PE007.3	Acquire skills in Object Motion and tracking. Explore Robotic localization
PE007.4	Explore Robotic localization
PE007.5	Learn how to use Image Restoration

Course Code:	PE009
Course Title:	Autonomous Systems
Course Outcomes:	
PE009.1	Complete understanding of autonomous systems.
PE009.2	functional architecture in autonomous systems is a robust, scalable, flexible, and efficient system
PE009.3	Create a model of basic autonomous vehicle
PE009.4	Understand, design and implement an autonomous robot.
PE009.5	Understand, design and implement an autonomous drone

Course Code:	PE017
Course Title:	Predictive Analytics
Course Outcomes:	
PE017.1	Understand the basics of Data Product.
PE017.2	Understand Processing Structured Data in Python
PE017.3	Understand Numpy, Introduction to Data Visualization.
PE017.4	Design and implement Training and Testing.
PE017.5	Design Classification Diagnostics.



Programme:

B.Tech. (Computer Science and Engineering- Cyber Security)

Semester-I

Course Code:	HS101
Course Title:	Communication Skills
Course Outcomes:	
HS101.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HS101.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
HS101.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
HS101.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
HS101.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	BS102
Course Title:	Mathematics-1
Course Outcomes:	
BS102.1	Understand basic algebra.
BS102.2	Understand and apply calculus.
BS102.3	Understand and apply vector calculus.
BS102.4	Understand and apply differential equations.
BS102.5	Understand and apply multivariate calculus.



Course Code:	BS-101
Course Title:	Engineering Physics
Course Outcomes:	
BS-101.1	Through this chapter students are brought to learn about Simple Harmonic Motion and particles executing S.H.M. Types of vibrations are also studied
BS-101.2	Harmonic motion gives the knowledge of composition of two simple harmonic motion and the construction of Lissajous figures. It also gives the true knowledge of various types of oscillations.
BS-101.3	Interference chapter gives the concept of light wave and its equation, meaning of coherence, interference fringes, and interference by Fresnel's baptism, Newton's rings, Michelson interferometer and its applications for determination etc.
BS-101.4	Diffraction section explains about various types of diffractions in details, knowledge of grating and its resolving power and Polarization section gives the knowledge of production and analyzing of different polarized light, specific rotation
BS-101.5	To expose the students to the basic concepts of optical fibers and their properties also provide adequate knowledge about the Industrial applications of optical fibers, to expose the students to the Laser fundamentals, to provide adequate knowledge about Industrial application of lasers, to provide adequate knowledge about holography and medical applications of Laser

Course Code:	ES-103
Course Title:	Mathematical Concept for AI And DS
Course Outcomes:	
ES-103.1	Analyzing the graph of a function is a powerful way to understand its behavior, make predictions, and solve mathematical and real-world problems.
ES-103.2	Discuss of Derivatives and optimization is closely related concepts in mathematics and has important applications in various fields, engineering, and machine learning.
ES-103.3	Use of operations involving vectors and matrices depend on the specific operations being performed.
ES-103.4	Use and apply hypothesis testing on different datasets.
ES-103.5	Use statistical methods to analyze and collect data.



Course Code:	BS202
Course Title:	Engineering Chemistry
Course Outcomes:	
BS202.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
BS202.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
BS202.3	Communicate effectively in Hindi and English languages without hindrances.
BS202.4	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
BS202.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques.

Course Code:	ES-101
Course Title:	Problem Solving and Programming
Course Outcomes:	
ES-101.1	Understand the basic concept of Programming languages, software, algorithm and flowchart.
ES-101.2	Acquire knowledge regarding the building blocks of programming language.
ES-101.3	Apply python for solving basic programming solutions.
ES-101.4	Create algorithms using learnt programming skills.
ES-101.5	Understand real world problems and developing computer solutions for those.

Course Code:	AU203
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
AU203.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
AU203.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
AU203.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
AU203.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
AU203.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmers and processes.

Semester-II



Course Code:	PC203
Course Title:	Data Structure
Course Outcomes:	
PC203.1	Understand the different types of data structure to be implemented using any programming language
PC203.2	Choose the data structures that effectively model the information in a problem and an analysis the efficiency trade-offs (run time and memory usage) among alternative data structure implementation so combinations.
PC203.3	Design, implement, test, and debug programs using a variety of data structures including stacks, queues, hash tables, binary and general tree structures, search trees, and graphs.
PC203.4	Apply efficient data structure (linked lists, stacks and queues) to solve a particular problem.
PC203.5	Apply Sorting and Searching

Course Code:	PC202
Course Title:	Object Oriented Programming
Course Outcomes:	
PC202.1	Understand the basic concepts of OOPs.
PC202.2	Understand the concept of Polymorphism & Inheritance
PC202.3	Apply different Python library to solve programming problems.
PC202.4	Apply different Python library to solve programming problems.
PC202.5	Understand the advanced concepts of python and apply for Accessing database.

Course Code:	PC 204
Course Title:	Discrete Mathematical structures.
Course Outcomes:	
PC 204.1	Students would be able to Understand the concept of mathematical reasoning and their applications.
PC 204.2	Students would be able to Understand The concept of set theory and its properties.
PC 204.3	Understanding mathematical concepts, including logic, set theory, and proof techniques.
PC 204.4	Students would be able to Understand Graph theory and its application.
PC 204.5	Students would be able to Understand the concept of Groups, rings fields and discrete probability and apply in real life.

Course Code:	PC205
Course Title:	Modern Computer Architecture
Course Outcomes:	

PC205.1	Understand the organization of the Control unit, Arithmetic and Logical unit, Memory unit and the I/O unit
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PC205.2	Analyze different computer architectures and their applications.
PC205.3	Understand modern design structures of Pipelined and Multiprocessors systems.
PC205.4	Understand distributed computing architecture and high-performance computing.
PC205.5	Work on CUDA programming that enables them to harness the computational power of GPUs for general-purpose computing tasks.

Course Code:	H102
Course Title:	Design Thinking
Course Outcomes:	
H102.1	Demonstrate knowledge of An Insight to Learning
H102.2	Apply Security in Remembering Memory.
H102.3	Use Emotions: Experience & Expression
H102.4	Basics of Design Thinking
H102.5	Being Ingenious & Fixing Problem and Process of Product Design

Course Code:	HSNC (H-102)
Course Title:	Universal Human Values
Course Outcomes:	
HSNC (H-102).1	To understanding Value Education
HSNC (H-102).2	Students will have the ability to learn about Harmony in the Human Being.
HSNC (H-102).3	Student will be able to gain knowledge on Harmony in the Family and Society.
HSNC (H-102).4	Understanding Harmony in the Nature/Existence.
HSNC (H-102).5	Student will able to understand about Implications of Holistic Understanding- A Look at Professional Ethics.

Course Code:	AU302
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes:	
AU302.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
AU302.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
AU302.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astronauts, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
AU302.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc



AU302.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites etc.
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Semester-III

Course Code:	PC302
Course Title:	Database Systems
Course Outcomes:	
PC302.1	Understand the basics of databases and data management.
PC302.2	Understand various theoretical and practical principles involved in the design and use of databases systems with the help of database.
PC302.3	Understand Transaction management.
PC302.4	Design and implement databases for various scenarios.
PC302.5	Design a database scenario for handling big data.

Course Code:	PC-303
Course Title:	Computer Networks
Course Outcomes:	
PCC CS-301.1	Understand basic computer network technology
PCC CS-301.2	Understand the different types of network topologies and protocols
PCC CS-301.3	Analyse the different types of network devices and their functions within a network
PCC CS-301.4	Analyse the architecture and principles of today's computer networks
PCC CS-301.5	Understand the requirements for the future Internet and its impact on the computer network architecture.

Course Code:	PC304
Course Title:	Cyber Security and Cyber Law
Course Outcomes:	
PC304.1	Identify Networking and its issues
PC304.2	Explain the concepts of Information security, Threats, Vulnerabilities and Impact
PC304.3	Evaluate different methods in cryptography
PC304.4	Discuss network security issues and Virtual Private Networks.
PC304.5	Understand cyber security and need cyber-Law.



Course Code:	PC305
Course Title:	Artificial Intelligence
Course Outcomes:	
PC305.1	Understand the basic concepts and techniques of Artificial Intelligence.
PC305.2	Apply AI algorithms for solving practical problems
PC305.3	Describe human intelligence and AI
PC305.4	Explain how intelligent system works.
PC305.5	Apply basics of Fuzzy logic and neural networks

Course Code:	OE001
Course Title:	Internet of Things
Course Outcomes:	
OE001.1	Acquire the knowledge of IoT concept and its Architecture.
OE001.2	Acquire the basic concept of Software defined networking and Machine-to-Machine (M2M).
OE001.3	Exposed to various web communication Protocols for connected devices & Message communication Protocols for connected devices.
OE001.4	Familiarize and understand the basic Sensor data Communication Protocols.
OE001.5	Develop the application skills regarding the Smart City Streetlights control & monitoring.

Semester-IV

Course Code:	PC403
Course Title:	Applied Cryptography
Course Outcomes:	
PC403.1	Students will have the knowledge and skills necessary to understand and apply cryptographic techniques, analyze encryption schemes with perfect secrecy.
PC403.2	Students will gain the knowledge and skills necessary to understand and apply advanced cryptographic principles.
PC403.3	Students will acquire the knowledge and skills necessary to understand advanced concepts in asymmetric encryption, analyze different encryption schemes
PC403.4	Students will be well-equipped to design, implement, and evaluate symmetric encryption solutions tailored to specific security requirements.
PC403.5	Students will possess advanced knowledge and skills in digital signatures, cryptographic protocols, and network security.

Course Code:	PC402
Course Title:	Software Engineering
Course Outcomes:	
PC402.1	Students should be familiar with various phases of the software development process, including requirements analysis, design, implementation, testing, deployment, and maintenance.



PC402.2	Learn how to design software systems, considering factors such as modularity, scalability, and maintainability. Understand architectural patterns and their applications.
PC402.3	Develop strong programming skills in relevant languages and frameworks. This includes understanding data structures, algorithms, and design patterns
PC402.4	Understand the challenges and strategies associated with maintaining and evolving software systems over time. Understand the importance of quality assurance in software development.
PC402.5	Acquire basic project management skills, including estimation, planning, and tracking progress.

Course Code:	PC404
Course Title:	Operating System
Course Outcomes:	
PC404.1	Understand the basics of an operating systems and its major components
PC404.2	Create and/or modify concurrent programs
PC404.3	Apply security as well as recovery features in the design of algorithm
PC404.4	Familiarize with the dynamic programming approach
PC404.5	Understand and implement shell programming

Course Code:	HS401
Course Title:	PERSONALITY DEVELOPMENT THROUGH LIFE ENLIGHTENMENT SKILLS
Course Outcomes:	
HS401.1	A student will be able to describe the Introduction to Holistic development of personality
HS401.2	A student will be able to discuss the introduction Approach to day-to-day work and duties
HS401.3	A student will be able to interpret Statements of basic knowledge.

Course Code:	AU202
Course Title:	Environmental Science
Course Outcomes:	
AU202.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropogenic era.
AU202.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
AU202.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
AU202.4	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropogenic era.
AU202.5	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.

Semester-V



Course Code:	PC501
Course Title:	Data and Visual Analytics in AI
Course Outcomes:	
PC501.1	Understand the basics of graphics and data visualization. PC501.2: Understand graphics pipeline and graphical perception. PC501.3: Understand graphical designing.
PC501.2	Design and implement multidimensional data
PC501.3	Understand graphical designing.
PC501.4	Design and implement multidimensional data.
PC501.5	Design collaborative visual analytics.

Course Code:	PC502
Course Title:	Identity and Access Management
Course Outcomes:	
PC402.1	Students will be well-equipped to manage and enhance identity and access management systems within any enterprise, ensuring robust security and efficient operations.
PC402.2	Comprehensive skills in navigating user interfaces, using CLI, managing access controls, and effectively utilizing LDAP for enterprise identity and access management.
PC402.3	Students will be equipped with the knowledge and skills necessary to effectively implement, manage, and secure Single Sign-On solutions.
PC402.4	Students will gain comprehensive knowledge and practical skills in implementing and managing federated identity solutions.
PC402.5	Students will acquire the knowledge and skills necessary to implement MFA solutions, manage identity lifecycles effectively.

Course Code:	PC503
Course Title:	Introduction to Cloud Security
Course Outcomes:	
PC503.1	Describe cloud security architectures from the perspectives of: providers, brokers, carriers, and auditors.
PC503.2	Describe a methodology for orchestrating a cloud ecosystem.
PC503.3	Understand how cloud computing changes the traditional enterprise security considerations compared to on premise.
PC503.4	Analyze the impact of multi-tenancy on cloud security and devise strategies for effectively isolating users and virtual machines to mitigate potential vulnerabilities.
PC503.5	Assess virtualization-specific attacks and deploy security technologies to safeguard virtualized environments, including server protection, sandboxing, and storage security measures.



Course Code:	EC504
Course Title:	Ethical Hacking
Course Outcomes:	
EC504.1	Understand the basic concepts of Ethical Hacking.
EC504.2	Understand the data collection.
EC504.3	Understand the concept of scanning.
EC504.4	Evaluate the impact of social Engineering.
EC504.5	Apply AI techniques to any application domain.

Course Code:	AU301
Course Title:	Indian Constitution
Course Outcomes:	
AU301.1	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
AU301.2	CO2: Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
AU301.3	CO3: Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognize the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
AU301.4	CO4: Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
AU301.5	CO5: Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.



Semester-VI

Course Code:	RC601
Course Title:	English for Research Paper Writing
Course Outcomes:	
RC601.1	Student will learn how to improve their writing skills, and level of readability
RC601.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness
RC601.3	Students will learn about what to write in each section of paper
RC601.4	Students will understand significance of each section of paper, and learn how to write it at the same time.
RC601.5	Ensure the good quality of paper at very first-time submission

Course Code:	RC602
Course Title:	Research Methodology and IPR
Course Outcomes:	
RC602.1	Student will learn how to improve their writing skills, and level of readability
RC602.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness
RC602.3	Students will learn about what to write in each section of paper
RC602.4	Students will understand significance of each section of paper, and learn how to write it at the same time
RC602.5	Ensure the good quality of paper at very first-time submission

Semester-VII

Course Code:	PC701
Course Title:	Soft Computing
Course Outcomes:	
PC701.1	Understand, Identify and describe soft computing techniques and their roles in building intelligent machines.
PC701.2	Apply a soft computing methodology for a particular problem.
PC701.3	Analyze and compare solutions by various soft computing approaches for a given problem.
PC701.4	Apply genetic algorithms to combinatorial optimization problems
PC701.5	Evaluate and compare solutions by various soft computing approaches for a given problem

Course Code:	PC702
Course Title:	AI for Everyone
Course Outcomes:	
PC702.1	Understand the basic concepts of AI and machine learning.
PC702.2	Understand the working of self-driving systems.
PC702.3	Understand how to build different AI projects.
PC702.4	Evaluate the impact of AI on society



PC702.5	Apply AI techniques to any application domain.
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Course Code:	PE001
Course Title:	Statistical Thinking for Data Science
Course Outcomes:	
PE001.1	At the end of this chapter the student will Understand the statistical foundation for data science
PE001.2	At the end of this chapter the student will Apply statistical thinking in collecting, modeling and analyzing data
PE001.3	At the end of this chapter the student will visualize all types of data
PE001.4	At the end of this chapter the student will Understand how to use R for different types of data.

Course Code:	PC402
Course Title:	Machine Learning for Data-Science
Course Outcomes:	
PC402.1	Students should be familiar with various characteristics of the algorithm including various tools and techniques for analyzing algorithms complexity.
PC402.2	Learn how algorithm works for data processing and instance generation, such as graph, tree, mapping, and searching.
PC402.3	Create genome sequence by using machine learning algorithm along with various applications of machine learning and data science in genome sequencing.
PC402.4	Understand the advance machine learning concepts with respect to classification and regression process techniques for data processing.
PC402.5	Understand contribution of statistics in machine learning with special emphasis on probabilistic analysis.

Course Code:	PE004
Course Title:	Data Visualization
Course Outcomes:	
PE004.1	Apply data visualizations in order to derive more meaning out of data.
PE004.2	Understand python visualization libraries.
PE004.3	Apply data visualization on different types of data.
PE004.4	Perceive hidden meanings from data using data visualization.

Course Code:	PE005
Course Title:	Big Data Analytics
Course Outcomes:	
PE005.1	Understand and apply big data flow to actual projects as well as apply data analytics life cycle to big data projects.



PE005.2	Apply appropriate techniques and tools to solve big data problems.
PE005.3	Describe big data and use cases from selected business domains.
PE005.4	Explain NoSQL big data management.
PE005.5	Use Hadoop related tools such as HBase, Cassandra, Pig, and Hive for big data analytics.

Semester-VIII

Course Code:	PE006
Course Title:	Pattern Recognition & Visual Recognition
Course Outcomes:	
PE006.1	Understand basic mathematical and statistical techniques commonly used in pattern recognition.
PE006.2	Apply a variety of pattern recognition algorithms.
PE006.3	Understand and apply various pre-processing algorithms.
PE006.4	Assess the use of FCM and soft-computing techniques in pattern recognition.
PE006.5	Assess the use of FCM and soft-computing techniques in pattern recognition.

Course Code:	PE007
Course Title:	IMAGE AND VIDEO PROCESSING
Course Outcomes:	
PE007.1	Understand the basics of Image representation and analysis
PE007.2	Learn how to use Image Segmentation.
PE007.3	Acquire skills in Object Motion and tracking
PE007.4	Explore Robotic localization
PE007.5	Learn how to use Image Restoration

Course Code:	PE009
Course Title:	Autonomous Systems
Course Outcomes:	
PE009.1	Complete understanding of autonomous systems.
PE009.2	functional architecture in autonomous systems is a robust, scalable, flexible, and efficient system
PE009.3	Create a model of basic autonomous vehicle
PE009.4	Understand, design and implement an autonomous robot.
PE009.5	Understand, design and implement an autonomous drone

Course Code:	PE017
Course Title:	Predictive Analytics
Course Outcomes:	
PE017.1	Understand the basics of Data Product.
PE017.2	Understand Processing Structured Data in Python
PE017.3	Understand Numpy, Introduction to Data Visualization.
PE017.4	Design and implement Training and Testing.
PE017.5	Design Classification Diagnostics.



Faculty of Management Studies



Department Business Administration



Programme: Ph.D.in Management

Course Work

Course Title:	Research Methodology
Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Title:	Advances in Management
Course Code:	151MT02
Course Title:	Advances in Management
Course Outcomes:	
151MT02.1	Students will be able to identify key concepts and terminology associated with contemporary business practices.
151MT02.2	Explain the cause-and-effect relationships between various trends and their impact on businesses.
151MT02.3	Evaluate the strengths and weaknesses of businesses in adapting to or leveraging these trends.
151MT02.4	Assess the effectiveness of strategies employed by businesses in response to recent trends
151MT02.5	Generate innovative solutions or strategies based on an understanding of recent trends



Course Title:	Research and Publication Ethics
Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
151PH03.6	Develop a valid and ethical research report.

Course Title:	Review of Literature
Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme: MBA (LSCM) Management Department

Semester-I

Course Title:	Strategic Supply Chain Management
Course Code:	32LSC101
Course Title:	Strategic Supply Chain Management
Course Outcomes:	
32LSC101.1	Discuss the concept and components of supply chain management.
32LSC101.2	Identify and describe different types and flows in a supply chain.
32LSC101.3	Analyze and make strategic decisions related to supply chain management
32LSC101.4	Identify key drivers and metrics of supply chain performance.
32LSC101.5	Design and implement global supply chain networks effectively

Course Title	Liner and Shipping Business
Course Code:	32LSC103
Course Title:	Liner and Shipping Business
Course Outcomes:	
32LSC103.1	Discuss the services offered by liners, such as round-the-world, hub and spoke, and end-to-end services.
32LSC103.2	Analyze factors that affect liner freight structure, including basic freight and surcharges.
32LSC103.3	Identify different types of containers and their features and applications.
32LSC103.4	Gain insights into cargo claims procedures and the role of parties involved, including the ISPS Code.
32LSC103.5	Explain the structure of the liner industry and the balancing of supply and demand.

Course Title:	Basics of Management Principles
Course Code:	32LSC104
Course Title:	Basics of Management Principles
Course Outcomes:	
32LSC104.1	Application of management and understanding the management school thought and role of managers.
32LSC104.2	Summarize the overview of planning and objective in management.
32LSC104.3	Write the role of strategies in management. 32LSC104.4 Illustrate the concept of organizing and staffing, 32LSC104.5 Analyze the organizational power and politics.

Course Title:	Logistics Management and Information System
Course Code:	32LSC106
Course Title:	Logistics Management and Information System
Course Outcomes:	
32LSC106.1	Describe the role and importance of logistics in supply chain management.



32LSC106.2	Analyze the various modes of freight transport and their advantages and disadvantages
32LSC106.3	Apply maritime transport and intermodal equipment to logistics and transportation planning.
32LSC106.4	Analyze the transportation network analysis to optimize logistics and transportation performance.
32LSC106.5	Utilize logistics and transportation IT solutions to enhance supply chain performance

Course Title:	Procurement and Inventory Management
Course Code:	32LSC107
Course Title:	Procurement and Inventory Management
Course Outcomes:	
32LSC107.1	Describe the process of purchasing in supply chain management.
32LSC107.2	Apply strategic sourcing and procurement principles to supply chain management.
32LSC107.3	Analyze pricing and revenue management strategies in procurement.
32LSC107.4	Implement effective inventory management techniques.
32LSC107.5	Use inventory control methods to optimize supply chain performance

Course Title:	Workshop on Commercial Geography
Course Code:	32LSC108
Course Title:	Workshop on Commercial Geography
Course Outcomes:	
32LSC108.1	Recognize the continents, countries, seas, and oceans and their role in transportation.
32LSC108.2	Describe the physical geographical features and their impact on commercial activities, particularly climate.
32LSC108.3	Identify major ocean routes, trade patterns, and the influence of waterways and canals on shipping.
32LSC108.4	Examine the commodities transported by sea, including raw materials, agricultural products, crude oil, and finished goods
32LSC108.5	Analyze the formation, objectives, and implications of trade blocs.

Course Title:	Workshop on Recent Trends in SCM
Course Code:	32LSC109
Course Title:	Workshop on Recent Trends in SCM
Course Outcomes:	
32LSC109.1	Gain knowledge and insights into the latest trends and developments in supply chain management, including emerging technologies, sustainability practices, and global market dynamics.
32LSC109.2	Develop the ability to analyze the impact of recent trends on supply chain management strategies, operations, and performance, and identify opportunities for improvement and innovation.
32LSC109.3	Acquire skills to design and implement sustainable supply chain practices, such as green logistics, and ethical sourcing, to enhance environmental and



	social responsibility.
32LSC109.4	Discuss the role of technology in modern supply chain management and explore how emerging technologies, such as blockchain, artificial intelligence, and IoT, can be leveraged to optimize supply chain processes and improve efficiency.
32LSC109.5	Develop a global mindset and the ability to adapt supply chain strategies to navigate changing market dynamics, including global trade policies, geopolitical factors, and customer demands in diverse international markets.

Course Title:	E-commerce
Course Code:	32LSC110
Course Title:	E-commerce
Course Outcomes:	
32LSC110.1	Discuss the role of e-commerce and its significance in modern business.
32LSC110.2	Analyze the impact of e-commerce on business models and strategies.
32LSC110.3	Describe the major types of e-commerce business models.
32LSC110.4	Identify the key security threats in the e-commerce environment.
32LSC110.5	Outline the e-commerce operations functions necessary to deliver orders and meet service levels.

Course Title:	Workshop on GST and Logistics Documentation
Course Code:	32LSC111
Course Title:	Workshop on GST and Logistics Documentation
Course Outcomes:	
32LSC111.1	Gain a comprehensive understanding of the Goods and Services Tax (GST) framework and its implications on logistics operations.
32LSC111.2	Discuss the necessary documentation and compliance procedures for GST in logistics, including invoices, e-way bills, and tax returns.
32LSC111.3	Develop skills in calculating GST and incorporating it into logistics costing and pricing strategies.
32LSC111.4	Explain the legal and regulatory requirements related to GST in logistics and ensure compliance with applicable laws.
32LSC111.5	Practice the best practices for managing logistics documentation, including recordkeeping, filing, and maintaining accurate and up-to-date documentation.

Course Title:	Account for Managers
Course Code:	32LSC112
Course Title:	Account for Managers
Course Outcomes:	
32LSC112.1	Define basic accounting terms and principles
32LSC112.2	Explain the purpose of financial statements and their interrelationships.
32LSC112.3	Apply accounting principles to solve practical business problems.



32LSC112.4	Analyze the impact of financial decisions on a company's overall performance
32LSC112.5	Assess the effectiveness of different accounting methods in specific business scenarios.

SEMESTER –II

Course Title:	Warehouse Management
Course Code:	32LSC201
Course Title:	Warehouse Management
Course Outcomes:	
32LSC201.1	Describe the concept of strategic warehousing in supply chain management
32LSC201.2	Evaluate storage and handling systems in warehousing operations
32LSC201.3	Implement cold chain supply chain management to enhance supply chain performance.
32LSC201.4	Analyze and apply warehousing operations and value-added services to enhance supply chain performance.
32LSC201.5	Utilize warehouse management systems to optimize warehouse operations.

Course Title:	Principles of Enterprise Resource Planning
Course Code:	32LSC202
Course Title:	Principles of Enterprise Resource Planning
Course Outcomes:	
32LSC202.1	Describe the development and evolutions of ERP systems
32LSC202.2	Analyze marketing information systems and sales order processes in ERP systems.
32LSC202.3	Evaluate production and supply chain management information systems in ERP
32LSC202.4	Discuss the accounting and human resources processes in ERP systems.
32LSC202.5	Implement company-wide ERP systems effectively

Course Title:	Managerial Economics
Course Code:	32LSC204
Course Title:	Managerial Economics
Course Outcomes:	
32LSC204.1	The student will define the concepts of Managerial Economics, Demand and Elasticity of Demand and will list the factors affecting demand and will do demand forecasting.
32LSC204.2	The student will demonstrate use of production function and cost function in short run as well as in long run and also the working of law of supply.
32LSC204.3	The student will illustrate the price determination under different market conditions.
32LSC204.4	Student will calculate GDP, GNP, NDP, NNP, Private Income, Personal Income and Per Capita Income by different methods.
32LSC204.5	The student will critically evaluate the different theories of Business Cycle.



Course Title:	Financial Management
Course Code:	32LSC205
Course Title:	Financial Management
Course Outcomes:	
32LSC205.1	The student will be able to understand the key concepts of Financial Management along with wealth and profit maximization.
32LSC205.2	The student will be able to explain in depth understanding of different avenue of financial system i.e. Capital market and Money market.
32LSC205.3	The student will be able to describe the importance of Financial Planning along with Capitalization.
32LSC205.4	The students will be able to analyze different types of Financial Statements along with their techniques
32LSC205.5	The student will evaluate the concept of Working Capital along with its components and sources of financing working capital

Course Title:	Global Trade and Operations
Course Code:	32LSC206
Course Title:	Global Trade and Operations
Course Outcomes:	
32LSC206.1	Discuss the principles of international business
32LSC206.2	Describe trade barriers and their impact on international supply chains.
32LSC206.3	Analyze EXIM and freight forwarding processes in international supply chain management.
32LSC206.4	Evaluate the role of international trade bodies in global supply chain management.
32LSC206.5	Identify and compare different international transport and service providers.

Course Title:	Production and Operations Management
Course Code:	32LSC207
Course Title:	Production and Operations Management
Course Outcomes:	
32LSC207.1	Define operations and supply strategy and their importance in achieving organizational goals.
32LSC207.2	Identify different types and characteristics of production systems.
32LSC207.3	Evaluate demand planning and collaborative forecasting approaches.
32LSC207.4	Explore Lean Six Sigma principles and the Define phase of Lean Six Sigma.
32LSC207.5	Manage resources effectively in project management.

Course Title:	Workshop on MS Excel
Course Code:	32LSC208



Course Title:	Workshop on MS Excel
Course Outcomes:	
32LSC208.1	Develop a strong foundation in using MS Excel, including navigating the interface, entering data, and basic formula and function usage.
32LSC208.2	Learn effective techniques for organizing, managing, and analyzing data using Excel's features such as sorting, filtering, and data manipulation.
32LSC208.3	Gain proficiency in using advanced functions and formulas in Excel to perform complex calculations, data transformations, and data validations.
32LSC208.4	Create visually appealing charts, graphs, and dashboards in Excel to effectively present data insights and generate reports.
32LSC208.5	Discover time-saving techniques, shortcuts, and automation features in Excel to improve workflow efficiency and productivity.

Course Title:	Logistics Sales Management
Course Code:	32LSC209
Course Title:	Logistics Sales Management
Course Outcomes:	
32LSC209.1	Gain a comprehensive understanding of different sales strategies used in logistics for B2B and B2C customers, and their unique challenges and opportunities.
32LSC209.2	Apply a range of logistics sales techniques, such as consultative selling, relationship selling, value selling, and solution selling, to different sales scenarios and customer needs.
32LSC209.3	Develop an effective prospecting and lead management plan, including identifying potential customers, qualifying leads, and prioritizing sales opportunities.
32LSC209.4	Develop persuasive sales proposals for logistics services based on customer needs and preferences, including pricing, service level agreements, and performance metrics.
32LSC209.5	Demonstrate proficiency in logistics sales and account management, including building and maintaining customer relationships, managing customer expectations, and resolving customer issues in a timely and professional manner.

Course Title:	Workshop on Business Communication
Course Code:	32LSC210
Course Title:	Workshop on Business Communication
Course Outcomes:	
32LSC210.1	Develop effective verbal and written communication skills to convey messages clearly, concisely, and with impact.



32LSC210.2	Enhance presentation skills to deliver engaging and persuasive presentations to various Stakeholders.
32LSC210.3	Develop active listening skills to understand others' perspectives and provide constructive feedback in a professional and respectful manner.
32LSC210.4	Build strong interpersonal communication skills to foster positive relationships and collaborate effectively with colleagues and clients.
32LSC210.5	Develop cultural sensitivity and adapt communication styles to effectively communicate and collaborate with individuals from diverse cultural backgrounds.

Course Title:	Workshop on SCM Analytics
Course Code:	32LSC211
Course Title:	Workshop on SCM Analytics
Course Outcomes:	
32LSC211.1	Gain a comprehensive understanding of supply chain analytics concepts, principles, and techniques.
32LSC211.2	Develop skills in collecting, analyzing, and interpreting supply chain data to derive Meaningful insights and make informed decisions.
32LSC211.3	Apply statistical forecasting methods and demand planning techniques to optimize inventory levels and meet customer demand.
32LSC211.4	Identify and utilize key performance indicators (KPIs) to assess and monitor supply chain performance effectively.
32LSC211.5	Apply optimization models and analytical tools to improve supply chain efficiency, reduce costs, and optimize decision-making processes.

Semester – III

SN	Category	Code	Course Title	L	T	P	Total Hour	Credit
1	PJT	32LSC351	OJT+ Major Project+ Viva	0	0	27	54	27
Total				0	0	27	54	27

Semester – IV

SN	Category	Code	Course Title	L	T	P	Total Hour	Credit
1	PJT	32LSC451	OJT+ Major Project+ Viva	0	0	27	54	27
Total				0	0	27	54	27



Programme: MBA (P & O)

Semester-I

Course Code:	31PO101
Course Title:	Basics of Management Principles
Course Outcomes:	
31PO101.1	Application of management and understanding the management school thought and role of managers
31PO101.2	Summarize the overview of planning and objective in management.
31PO101.3	Write the role of strategies in management
31PO101.4	Illustrate the concept of organizing and staffing
31PO101.5	Analyze the organizational power and politics.

Course de:	31PO102
Course Title:	Production and Operations Management
Course Outcomes:	
31PO102.1	Explain the significance and evolution of production and operations management and its role in modern business.
31PO102.2	Evaluate forecasting methods and capacity planning in operations management.
31PO102.3	Implement job design and work measurement methods to enhance operational efficiency

31PO102.4	Formulate project management schedules employing CPM and PERT techniques for efficient resource management.
31PO102.5	Distinguish between manufacturing and service operations and apply service quality management methods.



Course Code:	31PO103
Course Title:	Production Planning and Control
Course Outcomes:	
31PO103.1	Comprehend the fundamentals of production planning and control systems.
31PO103.2	Apply various production planning techniques to manage inventory levels and production schedules.
31PO103.3	Analyze the impact of various production control methods on the overall manufacturing process.
31PO103.4	Develop strategies for implementing Just-In-Time and Lean production systems.
31PO103.5	Evaluate the effectiveness of production planning and control systems in different manufacturing settings.

Course Code:	31PO104
Course Title:	Account for Managers
Course Outcomes:	
31PO104.1	Define basic accounting terms and principles.
31PO104.2	Explain the purpose of financial statements and their interrelationships.
31PO104.3	Apply accounting principles to solve practical business problems.
31PO104.4	Analyze the impact of financial decisions on a company's overall performance.
31PO104.5	Assess the effectiveness of different accounting methods in specific business scenarios.

Course Code:	31PO105
Course Title:	Quality Management and Six Sigma
Course Outcomes:	
31PO105.1	Discuss the principles and concepts of lean manufacturing.
31PO105.2	Apply lean tools and techniques to eliminate waste and improve process efficiency.
31PO105.3	Analyze the role of quality management in lean manufacturing systems
31PO105.4	Develop strategies for implementing lean manufacturing and continuous improvement initiatives.
31PO105.5	Evaluate the impact of lean manufacturing and quality management practices on organizational performance.

Course Code:	31PO106
Course Title:	Facility Location and Layout
Course Outcomes:	



31PO106.1	Discuss the factors influencing facility location and layout decisions.
31PO106.2	Apply various facility location and layout models to optimize resource allocation.
31PO106.3	Analyze the relationship between facility location, layout, and overall supply chain performance.
31PO106.4	Develop strategies for selecting and designing efficient facility locations and layouts
31PO106.5	Evaluate the effectiveness of facility location and layout decisions in different business scenarios.

Semester: II

Course Code:	31PO201
Course Title:	Managerial Economics
Course Outcomes:	
31PO201.1	The student will define the concepts of Managerial Economics, Demand and Elasticity of Demand and will list the factors affecting demand and will do demand forecasting.
31PO201.2	The student will demonstrate use of production function and cost function in short run as well as in long run and also the working of law of supply.
31PO201.3	The student will illustrate the price determination under different market conditions.
31PO201.4	Student will calculate GDP, GNP, NDP, NNP, Private Income, Personal Income and Per Capita Income by different methods
31PO201.5	The student will critically evaluate the different theories of Business Cycle.

Course Code:	31PO202
Course Title:	Financial Management
Course Outcomes:	
31PO202.1	The student will be able to understand the key concepts of Financial Management along with wealth and profit maximization.
31PO202.2	The student will be able to explain in depth understanding of different avenue of financial system i.e. Capital market and Money market.
31PO202.3	The student will be able to describe the importance of Financial Planning along with Capitalization.
31PO202.4	The students will be able to analyze different types of Financial Statements along with their techniques.
31PO202.5	The student will evaluate the concept of Working Capital along with its components and sources of financing working capital.



Course Code:	31PO203
Course Title:	Logistics and Supply Chain Management
Course Outcomes:	
31PO203.1	Discuss the components and importance of logistics and supply chain management in business.
31PO203.2	Apply various supply chain planning and strategy frameworks to optimize network design and collaboration.
31PO203.3	Analyze the impact of procurement, sourcing, and inventory management practices on supply chain performance.
31PO203.4	Develop strategies for optimizing transportation and distribution networks.
31PO203.5	Evaluate the effectiveness of emerging trends and technologies in supply chain management.

Course Code:	31PO204
Course Title:	Operations Strategy
Course Outcomes:	
31PO204.1	Describe the role and importance of operations strategy in achieving competitive advantage.
31PO204.2	Apply various operations strategy frameworks and models to real-world business situations.
31PO204.3	Analyze the relationship between operations strategy and other functional strategies.
31PO204.4	Develop an operations strategy that aligns with the overall business strategy.
31PO204.5	Evaluate the effectiveness of operations strategies in achieving desired business outcomes.

Course Code:	31PO205
Course Title:	Product Design and Development
Course Outcomes:	
31PO205.1	Describe the importance of product design and development in operations management.
31PO205.2	Apply various product design and development methodologies to create innovative products.
31PO205.3	Analyze the impact of design decisions on product functionality, manufacturability, and sustainability
31PO205.4	Develop strategies for managing the product design and development process from concept to market launch.
31PO205.5	Evaluate the effectiveness of product design and development practices in achieving business goals.



Course Code:	31PO206
Course Title:	Business Process Modelling and ERP
Course Outcomes:	
31PO206.1	Discuss the fundamentals of business process modeling and enterprise resource planning
31PO206.2	Apply various business process modeling techniques to map and improve organizational processes.
31PO206.3	Analyze the role of enterprise resource planning (ERP) systems in integrating business processes.
31PO206.4	Develop strategies for selecting and implementing ERP systems to support business process optimization.
31PO206.5	Evaluate the impact of business process modeling and ERP systems on organizational performance.

Course Code:	31PO207
Course Title:	Personality Development and Analytical Skills
Course Outcomes:	
31PO207.1	Students will learn Business Communication Skill.
31PO207.2	Students will acquire Leadership and Problem-Solving Skill.
31PO207.3	Students will understand various self-management skills
31PO207.4	Students will learn to make professional resume and LinkedIn profile.
31PO207.5	Students will learn and understand social and corporate etiquettes.



Programme: Masters of Business Administration

Semester-I

Course Code:	31MT101
Course Title:	Concept of management
Course Outcomes:	
31MT101.1	Define management and able to understand the management school thought
31MT101.2	Explain the overview of planning in management.
31MT101.3	Illustrate the concept of organizing, staffing, directing and controlling
31MT101.4	Analyze the significance of organizational behavior.
31MT101.5	Evaluate the organizational power and politics.

Course Code:	31MT103
Course Title:	Business Environment
Course Outcomes:	
31MT103.1	Implement the characters of businesses and its management.
31MT103.1	Test the knowledge of the types of elements affecting business environment nationally and globally.
31MT103.1	Detection of the various business policies and economic planning.
31MT103.1	Detection of the various business policies and economic planning.
31MT103.1	Review the functions of different regulatory bodies in India taking care of strategies for global trades.

Course Code:	31AC104
Course Title:	Accounting for Managers
Course Outcomes:	
31AC104.1	Students will define the accounting with their concepts and conventions, journal, ledger and trial balance.
31AC104.2	Students will analyze the final accounts with adjustment and depreciation.
31AC104.3	Students will evaluate the financial statement with different techniques like ratio analysis, fund flow statement and common analysis.
31AC104.4	Students will estimate the total cost of production, budget and standard cost with variances.
31AC104.5	Students will formulate the financial software for analyzing the accounting data.

Course Code:	31EC105
Course Title:	Managerial Economics
Course Outcomes:	



31EC105.1	The student will define the concepts of Managerial Economics, Demand and Elasticity of Demand and will list the factors affecting demand and will do demand forecasting.
31EC105.2	The student will demonstrate use of production function and cost function in short run as well as in long run and also the working of law of supply.
31EC105.3	The student will illustrate the price determination under different market conditions.
31EC105.4	Student will calculate GDP, GNP, NDP, NNP, Private Income, Personal Income and Per Capita Income by different methods.
31EC105.5	The student will critically evaluate the different theories of Business Cycle.

Course Code:	31MS106
Course Title:	Business Statistics
Course Outcomes:	
31 MS 106.1	student will understand importance and uses of statistics in business
31 MS 106.2	Student will determine calculate various statistical averages and dispersions.
31 MS 106.3	Student use the tools such as correlation and regression in estimating demand in highly competitive markets
31 MS 106.4	Student will solve the concepts of probability & Distribution.
31 MS 106.5	Student will validate the concepts of populations and samples also thy will arrange descriptive statistical tools for population and sample description

Course Code:	31CA107
Course Title:	Computer Application in Management
Course Outcomes:	
31CA107.1	Student will explain about the basic concept of computer, Input and output device Memory, hardware and software.
31CA107.2	Student will develop a strong foundation in using Microsoft Word, including creating editing, and formatting documents. Inserting and formatting tables, graphs, images. Acquire the basic and advance knowledge of MS Access and database system.
31CA107.3	Student will define the concept of features and functions of Microsoft Excel, including creating and formatting spreadsheets, inputting data, and basic calculations, how to create visually appealing slides by using themes, layouts, colours, fonts, and backgrounds effectively.
31CA107.4	Knowledge of World Wide Web (www) and internet, Merits and demerits of internet, Networking and data transmission
31CA107.5	Student will develop a website using HTML and CSS



Course Code:	31CA151
Course Title:	Computer Application in Management (LAB)
Course Outcomes:	
31CA151.1	Acquire the basic and advance knowledge of MS Word.
31CA151.2	Acquire the basic and advance knowledge of MS Access and database system.
31CA151.3	Student will develop a strong foundation in using Microsoft Excel, including creating and formatting spreadsheets, inputting data, basic calculations and creation of chart.
31CA151.4	Acquire the basic and advance knowledge of MS PowerPoint including visually appealing slides by using themes, layouts, colors, fonts, and backgrounds effectively.
31CA151.5	Student will develop a website using HTML and CSS

Semester-II

Course Code:	31FM201
Course Title:	Financial Management
Course Outcomes:	
31FM201.1	Students will define the financial management with profit and wealth maximization concepts.
31FM201.2	Students will explain the financial planning and capital structure.
31FM201.3	Students will determine leverage and cost of capital.
31FM201.4	Students will calculate the capital budgeting with the difference techniques like discounted and non-discounted of capital budgeting.
31FM201.5	Students will synthesize the dividend and dividend policy with their theories.



Course Code:	31MM202
Course Title:	Marketing Management
Course Outcomes:	
31MM202.1	Students will get to identify about marketing and their strategies
31MM202.2	Students will recognize the impact of industrialization and economic activities on environment.
31MM202.3	Apply basic knowledge about issues and dimensions of Consumer Behaviour.
31MM202.4	Students categorize about segmentation and various brand techniques.
31MM202.5	Validate and synthesize the growing importance of advertising and pricing concept Manage Ecommerce and M-commerce

Course Code:	31HR203
Course Title:	HUMAN RESOURCES MANAGEMENT
Course Outcomes:	
31HR 203.1	Students will discover the basics of human resources management with its branches and uses.
31HR 203.2	It will devise the execution of manpower planning in different sectors.
31HR 203.3	Gaps of training and effectiveness of training will be practically tested by the students.
31HR 203.4	Students will reframe various parts of pay packages and their implementation.
31HR 203.5	Students will design practical aspects of various jobs

Course Code:	31SO205
Course Title:	Research Methodology
Course Outcomes:	
31SO205.1	The student will define research, research problem, and hypothesis.
31SO205.2	The student will explain about the Research Design, Sampling Design and use of different sampling techniques.
31SO205.3	The student will illustrate the construction of scales, process of primary and secondary data collection with the help of, different data collection methods.
31SO205.4	The students will apply the descriptive statistics, z-test, t-test, f-test, chi square-test and ANOVA in the data analysis.
31SO205.5	Student will ethically prepare a research report



Course Code:	31MT209
Course Title:	Business Communication
Course Outcomes:	
31MT209.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
31MT209.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
31MT209.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
31MT209.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
31MT209.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Semester-III

Course Code:	31MT302
Course Title:	Operations Research
Course Outcomes:	
31MT302.1	The student will demonstrate the process of problem solving in Operations Research.
31MT302.2	The student will apply the linear programming problem method to solve the various business management problems quantitatively.
31MT302.3	The student will use the transportation and assignment techniques to solve the transportation and assignment problems quantitatively.
31MT302.4	The student will apply network analysis techniques like PERT and CPM to solve the scheduling of activities and resource allocation related problems.
1MT302.5	The student will calculate the optimum value of game and optimum replacement period using game theory and replacement theory respectively.



Course Code	31MT303
Course Title:	BUSINESS LEGISLATION
Course Outcomes:	
31MT303.1	Define key legal terms related to business and recall specific statutes and regulations relevant to business operations.
31MT303.2	Explain the basic principles of contract law and their application in business and interpret the legal implications of different business structures.
31MT303.3	Analyze real-world business scenarios to identify potential legal issues and apply legal concepts to draft basic business contracts.
31MT303.4	Evaluate the impact of business legislation on corporate decision-making and analyze legal cases to understand precedent and its implications for future situations.
31MT303.5	Assess the ethical and legal consequences of various business actions and critique the effectiveness of existing business laws in addressing contemporary challenges.

Course Code:	31EN304
Course Title:	MSMEs & Entrepreneurial Development
Course Outcomes:	
31EN304.1	Recall the key features and classifications of MSMEs, demonstrating understanding of basic concepts and terminology.
31EN304.2	Explain the significance of MSMEs in the economy, interpreting the challenges and opportunities they face.
31EN304.3	Collaborate with peers to solve real-world MSME challenges, fostering teamwork and collective problem-solving.
31EN304.4	Critically evaluate the societal and environmental impact of MSME activities, considering ethical and sustainable business practices.
31EN304.5	Assess the effectiveness of different technological solutions for MSMEs, considering factors like cost, efficiency, and scalability.



Semester III

Course Code:	31EN305
Course Title:	Human Resource Analytics
Course Outcomes:	
31MT305.1	Optimize the problems and issues in HR and the logic to use the HR analytics
31MT305.2	Apply the tools, methods and techniques of HR analytics
31MT305.3	Analyze the examples and uses of HR analytics in various HR sub-systems
31MT305.4	HR balanced score cards to be evaluated
31MT305.5	Post analytics to create a HR dashboard

Course Code:	31FM306
Course Title:	Corporate Taxation
Course Outcomes:	
31FM306 .1	Students will define the basic rules of income tax.
31FM306 .2	Students will calculate the income under different heads.
31FM306 .3	Students will estimate the total income and tax liability of companies.
31FM306 .4	Students will design the assessment procedure for taxation
31FM306 .5	Students will systematize the overall tax planning.

Course Code:	31MM307
Course Title:	Consumer Behavior
Course Outcomes:	
31MM307.1	Define the basic objective and understand about the consumer decision making process and its applications in marketing function of firms.
31MM307.2	Demonstrate a thorough understanding of fundamental concepts and theories related to consumer behavior.
31MM307.3	Explore and analyze the psychological factors that influence consumer choices, including perception, motivation, and learning.
31MM307.4	Develop skills in conducting market research to gather and analyze data relevant to consumer behavior.
31MM307.5	Understand the concept of market segmentation and its application in targeting specific consumer groups.



Course Code:	31HR308
Course Title:	Organizational Development
Course Outcomes:	
31HR308.1	Identify the historical framework of organizational development.
31HR308.1	Describe change management and diagnosis process of organization.
31HR308.1	Analyze interventions designed for organizational development.
31HR308.1	Choose action research as a process and approach of organization development.
31HR308.1	Choose action research as a process and approach of organization development.

Course Code	31BI309
Course Title:	Introduction to Banking & System
Course Outcomes:	
31BI309.1	The student will describe the Indian banking system.
31BI309.2	The student will explain about the functions of RBI, debtor-customer relationships and money laundering and anti-money laundering.
31BI309.3	The student will explain about different types of accounts and account opening process of these accounts, Cheques, DD and different types of Loans.
31BI309.4	The student will define the contract of insurance and different principles of insurance.
31BI309.5	The student will explain about different types of Life Insurance Plans like Term Life, Whole Life, Endowment, ULIP, Annuity and Bank assurance.

Course Code:	31IT310
Course Title:	Database Management System
Course Outcomes:	
31IT310.1	Acquire the basic knowledge of database management system
31IT310.2	Student will define the various data models.
31IT310.3	Student will define the relational and physical database design and normalization.
31IT310.4	Acquire the basic knowledge of data warehouse and data mining.
31IT310.5	Apply the concept of transaction and construct advance SQL queries on data and apply procedural abilities through SQL.



Semester-IV

Course Code:	31MT401
Course Title:	Strategic Management
Course Outcomes:	
31MT401.1	Students will identify various concepts of strategic management
31MT401.2	The strategic climate and its practical concepts will be determined by the students
31MT401.3	The students will relate various matrices and will pave paths to frame strategies
31MT401.4	Students will find the correlations between finance and organizational strategies
31MT401.5	IT needs and technology needs will be evaluated and costing will be estimated too

Course Code:	31MT402
Course Title:	Management Information System
Course Outcomes:	
31MT402.1	The student will explain about the concept of Management, Information, System and their needs and also about MIS, its components and system view of business
31MT402.2	The student will restate the MIS structure based on management activities and organizational functions and also student will relate the information required at particular level of the organization for decision making.
31MT402.3	The student will explain about different types of information systems like FAIS, HRIS, MKIS, TPS, ES, EIS and Office Automation System.
31MT402.4	The student will use DSS, Classical and Administrative decision making models to take appropriate decision.
31MT402.5	The student will explain about the emerging concepts of information system like ERP, SCM, CRM, Data Warehousing and Data Mining.

Course Code:	31MT404
Course Title:	Security Analysis & Portfolio Management
Course Outcomes:	
31FM404.1	Define Capital Market, Its Functions and types of securities.
31FM404.2	Explain about different aspect of Risk and Return like-systematic and Unsystematic risk.
31FM404.3	To Illustrate and Understand various types of Security Analysis.



31FM404.4	Analyze the importance of Portfolio Analysis and Selection.
31FM404.5	Analyze and Understand Portfolio Investment Process.

Course Code:	31FM406
Course Title:	Financial Services
Course Outcomes:	
31FM406.1	The student will define knowledge regarding the components of Indian Financial System.
31FM406.2	The student will be able to explain in depth understanding of different avenue of financial system i.e. mutual funds and venture capital financing.
31FM406.3	The student will generalize and discuss various financial services such as Leasing and Hire Purchase service and critically differentiate between leasing & hire purchase.
31FM406.4	Student will analyze different types of financial products, and the growing popularity of Credit Rating.
31FM406.5	The student will appraise the concept of Factoring & Forfeiting and critically differentiate between factoring & forfeiting

Course Code:	31FM4065
Course Title:	INTREGATED MARKETING COMMUNICATION
Course Outcomes:	
31MM405.1	Define and explain the concept of Integrated Marketing Communication.
31MM405.2	Analyze target audiences and develop strategies to effectively communicate with them.
31MM405.3	Understand how to allocate budgets across different media platforms for maximum impact
31MM405.4	Explore ethical issues related to marketing communication.
31MM405.5	Develop skills in media planning and buying.



Course Code:	31MM415
Course Title:	International Marketing
Course Outcomes:	
31MM415.1	Articulate the definition and basic concepts of international marketing, including terms such as global marketing, internationalization, and market entry strategies.
31MM415.2	Understand the impact of cultural differences on international marketing strategies, including consumer behaviour, communication, and market segmentation.
31MM415.3	Apply market research techniques to analyze international markets, identify opportunities, and assess potential risks.
31MM415.4	Analyze the competitive landscape in international markets, examining the strategies of global competitors and identifying competitive advantages
31MM415.5	Synthesize knowledge from various aspects of international marketing, integrating concepts such as market segmentation, global branding, and entry mode selection.

Course Code:	31HR407
Course Title:	Strategic Human Resource Management
Course Outcomes:	
31HR407.1	The student will be able to understand the key concepts of Strategic Human Resource Management along with emerging trends.
31HR407.2	The student will be able to explain in depth understanding of HRD Audit and Assessment.
31HR407.3	The student will be able to evaluate the concept of International HRM along with cross cultural issues.
31HR407.4	The Students will be able to analyze different types of business strategic alliances i.e. Mergers and Acquisitions.
31HR407.5	The student will apply the practical knowledge of concept of Human Resource Outsourcing along with outstanding issues in HRM.



Course Code:	31HR416
Course Title:	Industrial Law
Course Outcomes:	
31HR416.1	Students will get to identify about Industrial relation and role trade union in the industrial setup.
31HR416.2	Students will recognize the impact of Collective bargaining and negotiation process.
31HR416.3	Apply basic knowledge about labour legislation.
31HR416.4	Students categorize about Protective Legislations and Wage Legislation.
31HR416.5	Validate and synthesize the Social Security Legislations.

Course Code:	31BI409
Course Title:	Insurance Management
Course Outcomes:	
31BI409.1	Student will recall the concept and need of insurance, role of insurance in social security and economic development.
31BI409.2	The student will describe the concepts of life insurance like nomination, assignment, claim settlement, revival of the lapsed policies and surrender value.
31BI409.3	The student will explain about the general insurance and different types of general insurance.
31BI409.4	The student will illustrate the functioning of IRDA and Insurance Ombudsman.
31BI409.5	The student will distinguish different risks and calculate insurance premium.

Course Code:	31BI410
Course Title:	Banking Management
Course Outcomes:	
31BI410.1	Students will list the recommendations of Narasimham committee & Basel norms.
31BI410.1	Students will interpret the concept of NPA & ALM
31BI410.1	Students will evaluate the performance of banks.
31BI410.1	Students will judge the high-tech electronic banking system.
31BI410.1	Students will develop the marketing strategy for banks and concept of demonetization



Course Code:	31IT411
Course Title:	E-COMMERCE
Course Outcomes:	
31IT411.1	Acquire the knowledge of the E-commerce, Evolution of e-commerce, Role of e-commerce and framework.
31IT411.2	Acquire the basic and advances knowledge of evolution of internet, How to internet work and Internet services, Concept of www.
31IT411.3	Acquire the basic and advances knowledge of Introduction to EPS (Electronic Payment system), EFS (Electronic fund system), SET (Secure Electronic System), SITA and SWIFT.
31IT411.4	Acquire the basic and advances knowledge of Introduction E-Governance, E-governance model G2B, G2C and C2G
31IT411.5	Acquire the basic and advances knowledge of Firewalls, Types of security, Security tools and network security.

Course Code:	31IT412
Course Title:	CYBER SECURITY AND LAWS
Course Outcomes:	
31IT412.1	Student will understand Computer security concepts and IT ACT2000
31IT412.2	Student will understand secure system planning
31IT412.3	Student will Understand Information security policies and procedures
31IT412.4	Student will Understand the Functions of Information security
31IT412.5	Student will Understand Ethical Issues in intellectual property right.



Programme: MBA (Tourism & Hospitality)

Semester-I

Course Code:	31THM101
Course Title:	Conceptual Framework of Domestic & International Tourism
Course Outcomes:	
31THM 101.1	Discuss about the conceptual meaning, history of tourism and growth around the World.
31THM 101.2	Understand the role of tourism organization -national & international level
31THM 101.3	Apply the knowledge about types of tourism and frontier formalities, travel motivator Etc.
31THM 101.4	Develop ongoing professional development strategies and plans to enhance industry Knowledge and leadership skills for tourism industry sectors
31THM 101.5	Evaluate about the different stakeholders and relevant agencies in the tourism Industry and how these stakeholders play their functions

Course Code:	31THM102
Course Title:	Developing Tourism Products
Course Outcomes:	
31THM102.1	Define the conceptual meaning of tourism products, Characteristics and typology.
31THM102.2	To understand the tourism elements in detail like attractions, accommodations and Transportation etc.
31THM102.3	To identify the various types of accommodation & their role in hospitality sectors.
31THM102.4	To relate the basic knowledge of various modes of transportation and different Organizations in the field of tourism.
31THM102.5	To develop knowledge about the shopping facilities in different states.

Course Code:	31THM103
Course Title:	Managerial Process and Organizational Behavior
Course Outcomes:	
31THM103.1	Define management with different forms of business and able to understand the Evaluation of management school thought.
31THM103.2	Explain the overview of Functions of management with different organizational Structure.
31THM103.3	Analyze and understand the significance of organizational behavior in various aspects.
31THM103.4	Determine and analyze the importance of individual behavior in an organization.



31THM103.5	Analyze the significance and importance of groups and teams with inter personal Behavior
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Course Code:	31THM104
Course Title:	ECO-TOURISM : TRENDS & PROSPECTS
Course Outcomes:	
31THM 104.1	Define the concept, emergence & growth of Eco tourism
31THM 104.2	To develop knowledge about environment and negative impact of tourism on it.
31THM 104.3	To develop knowledge about various eco-tourism resources.
31THM 104.4	To introduce the concept of sustainable development.
31THM 104.5	Identify the role of locals in eco- tourism

Course Code:	31THM105
Course Title:	COMPUTER APPLICATION
Course Outcomes:	
31THM 105.1	Understand the basic components and functions of a computer system
31THM 105.2	Demonstrate basic IT skills for effective use of technology
31THM 105.3	Apply styles, templates, and document formatting features
31THM 105.4	Develop and format spreadsheets in Microsoft Excel
31THM 105.5	Design and create effective presentations using Microsoft PowerPoint

Course Code:	31THM106
Course Title:	Indian Society and Culture : A Tourism Perspectives
Course Outcomes:	
31THM106.1	Understand history of India & its cultural heritages
31THM106.2	Explain the structure of Indian society, origin of caste system and ashram vyavastha
31THM106.3	To develop knowledge about different religions and tribes of India.
31THM106.4	Develop deep insight of Indian philosophy
31THM106.5	Develop good understanding of Indian rituals and spirit of Indian culture

Course Code:	31THM107
Course Title:	Public Relations, Communication Skills & Personality



	Development
Course Outcomes:	
31THM 107.1	Understand the basics of communication skills and will know about the barriers of Communication
31THM 107.2	They will distinguish between different gestures, postures, facial expressions and Learn to understand various non –verbal cues which are the most important part of Communication
31THM 107.3	Prepare, organize and deliver engaging oral presentations
31THM 107.4	They will have a deep insight to plan and construct technical reports to present a Solution to the quest or to submit a proposal to a client
31THM 107.5	It will help them to develop grooming, dressing sense, how to behave with male and Female client which will give them a competitive edge

Course Code:	31THM201
Course Title:	Financial Management
Course Outcomes:	
31THM201.1	Define key financial management terms and concepts
31THM201.2	Explain the importance of time value of money in financial decision-making
31THM201.3	Apply financial analysis techniques to evaluate a company's performance
31THM201.4	Analyze the impact of various financial decisions on a company's profitability
31THM201.5	Assess the ethical implications of financial decisions

Semester-II

Course Code:	31THM202
Course Title:	Marketing Management-I
Course Outcomes:	
31THM202.1	Define and explain key marketing concepts, including the marketing mix (product, Price, place, and promotion) and the importance of customer value.
31THM202.2	Understanding the marketing research and marketing environment.
31THM202.3	Analyze the factors influencing market demand, including economic, social, and Cultural factors and identify different bases for market segmentation.
31THM202.4	Understand how product, pricing, and distribution strategies align with market Segmentation
31THM202.5	Create an ability to integrate product, pricing, and distribution strategies to design a comprehensive marketing mix for a specific product



Course Code:	31THM203
Course Title:	Business Research and Quantitative Techniques
Course Outcomes:	
31THM 203.1	Understanding of the basic framework of research process.
31THM 203.2	Understanding of various research designs and techniques and various sources of Information for literature review and data collection.
31THM 203.3	Validating the knowledge of hypothesis testing for large and small samples.
31THM 203.4	Evaluate basic knowledge of analyzing data using various statistical and mathematical techniques for business decisions.
31THM 203.5	Solving tools such as correlation and regression in estimating demand in highly competitive markets.

Course Code:	31THM204
Course Title:	Madhya Pradesh Tourism
Course Outcomes:	
31THM 204.1	Students learn about Geography and geology, climate and weather condition to Understand the climate of the state, these key elements are very important to prepare an itinerary of M.P.
31THM 204.2	Understand about THE GLORIOUS history of M.P.in all three stages, Ancient, Medieval and modern.
31THM 204.3	Identify Tourist inflow and outflows the important key factors for any state, so they Can understand the tourist arrivals and departure in the state
31THM 204.4	Develop the knowledge about the promotion policy made by the State government ,Policy planners and role of government for the betterment of tourism in state.
31THM 204.5	Assess the social and economic impact from tourism industry for their future Opportunities.

Course Code:	31THM205
Course Title:	Computing & Information System in Tourism
Course Outcomes:	
31THM 205.1	Gain insights into the use of Management Information Systems for Customer Relationship Management in the tourism industry.
31THM 205.2	Gain hands-on experience and technical proficiency in using popular CRS software platforms.
31THM 205.3	Develop technical skills in programming languages, database management, and other relevant technologies to implement and manage computing solutions in a tourism context.
31THM 205.4	Prepare students for roles in the travel and hospitality industry that involve the use of Computer Reservation Systems.



31THM 205.5	Create knowledge of how PNRs and flight availability information are managed With in Global Distribution System.
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Course Code:	31THM206
Course Title:	Travel Agency and Tour Operations
Course Outcomes:	
31THM 206.1	Understanding of the travel and tourism industry, including its historical development, current trends, and future projections.
31THM 206.2	Describe the functions and operations of travel agencies, including the roles of travel Agents, reservation systems, and customer service practices.
31THM 206.3	Apply a comprehensive understanding of the structure, functions, and components of the travel and tourism industry.
31THM 206.4	Develop knowledge about the legal and ethical considerations in the travel industry, Including licensing requirements, contractual obligations, and compliance with Consumer protection laws.
31THM 206.5	Create the ability to plan and design travel itineraries, taking into account factors such as client preferences, budget constraints, and the availability of attractions.

Course Code:	31THM301
Course Title:	Management of Human Resources
Course Outcomes:	
31THM 301.1	Students will understand the concept of Human Resource Management along with the various challenges.
31THM 301.2	Students will develop knowledge about different kind of needs & behaviour of employees in organization.
31THM 301.3	Students will understand the concept of Job Evaluation along with the various Incentives.
31THM 301.4	Students will analyze the importance of Human Relations along with welfare of Employees.
31THM 301.5	Students will apply knowledge about employee grievances and handling procedure.

Semester-III

Course Code:	31THM302
Course Title:	Tourism Marketing & Consumer Behaviour-II
Course Outcomes:	
31THM302.1	Students will understand the concept of Tourism Marketing and its need in tourism industry.
31THM302.2	Students will develop knowledge about Marketing Information System and Marketing Research.



31THM302.3	Students will apply the practical knowledge of marketing strategies in Tourism Marketing.
31THM302.4	Students will analyze the importance and Globalization of Destination Marketing in Tourism Industry.
31THM302.5	Students will be able to evaluate the principles of Consumer Behaviour in real world scenarios.

Course Code:	31THM303
Course Title:	Tourism Planning, Policy and Development
Course Outcomes:	
31THM 303.1	Understand key concepts in tourism policy and planning from social, ethical and global perspectives.
31THM 303.2	Demonstrate the application of tourism policy and planning to achieve sustainable tourism management best practice.
31THM 303.3	Analyze tourism policy and planning challenges and develop feasible thoughtful recommendations.
31THM 303.4	Explain and analyze key concepts in tourism policy and planning.
31THM 303.5	Evaluate creative, thoughtful feasible solutions for aviation international safety, health and hygiene.

Course Code:	31THM304
Course Title:	Basic Cargo Rating & Documentations
Course Outcomes:	
31THM 304.1	Understand the air cargo terms and expressions.
31THM 304.2	Analyze the industry regulations, functions of ICAO, IATA and DGCA.
31THM 304.3	Apply the knowledge about aircraft structure, characteristics and loading limitations and special loads in cargo.
31THM 304.4	Develop knowledge about the operations of import and export consignments.
31THM 304.5	Evaluate creative, thoughtful feasible solutions for aviation international safety, health and hygiene.



Course Code:	31THM305 (B)
Course Title:	Foreign Language (English)
Course Outcomes:	
31THM305(B). 1	Need of English communication skill for a manager.
31THM305(B). 2	Students will learn formal writing skills.
31THM305(B). 3	Significance of communication ethics.
31THM305(B). 4	Understand different type_s business letters.
31THM305(B). 5	Public speaking skills and personality grooming.

Course Code:	31THM306
Course Title:	Meetings, Incentives, Conferences and Exhibitions
Course Outcomes:	
31THM 306.1	Understand about the Meetings, Incentives, conferences and Exhibition.
31THM 306.2	Analyze about the advancement of science and technology in event & conference business.
31THM 306.3	Apply the knowledge about community participation and its various impacts on their lives
31THM 306.4	Develop knowledge about the strategies for planning, promotion, implementation, and Evaluation of special event.
31THM 306.5	Exhibit their descriptive skills for the emerging dimensions of convention business.



Semester-IV

Course Code:	31THM401
Course Title:	Adventure Tourism Operations
Course Outcomes:	
31THM 401.1	Gain knowledge of the adventure tourism industry, including its history, trends, and the economic impact on local and global levels.
31THM 401.2	Understanding of the ecosystems within wildlife sanctuaries and national parks, including the flora and fauna, and the interactions that sustain biodiversity.
31THM 401.3	Apply to develop proficiency in technical skills such as rock climbing, ice climbing, rope work, and other mountaineering-specific techniques.
31THM 401.4	Conduct thorough risk assessments for each adventure sport and develop effective risk management strategies.
31THM 401.5	Create the ability to Develop skills in emergency response and wildlife rescue operations to address situations such as natural disasters, poaching incidents, or wildlife health emergencies.

Course Code:	31THM402
Course Title:	Business Policy
Course Outcomes:	
31THM402.1	Students will understand the practical applicability about the concept of Business Policy.
31THM402.2	Students will be able to create an understanding on the outline of Strategic Management.
31THM402.3	Students will be able to recognize the concept of Strategy Formulation, Environment Appraisal and Scanning.
31THM402.4	Students will be able to critically analyse the concept of Strategic Implementation.
31THM402.5	Students will be able to demonstrate knowledge about Strategic Evaluation and Strategic Control.



Course Code:	31THM405
Course Title:	Attraction Management
Course Outcomes:	
31THM 405.1	Understanding of the various types of attractions in the tourism and hospitality industry, including natural, cultural, historical, and recreational attractions.
31THM 405.2	Recognize and classify various types of attractions, including natural, cultural, historical, and recreational attractions.
31THM 405.3	Gain knowledge and skills related to planning and executing events within the context of attraction management.
31THM 405.4	Develop effective verbal and non-verbal communication skills for clear and engaging interactions with participants.
31THM 405.5	Acquire customer service skills to meet the needs of participants, address inquiries, and ensure a high level of participant satisfaction.

Course Code:	31THM403
Course Title:	Tourism Impacts
Course Outcomes:	
31THM 403.1	Define and explain key concepts related to tourism, including types of tourism, tourism stakeholders, and the components of the tourism industry.
31THM 403.2	Demonstrate an understanding of the environmental implications of tourism activities and identify strategies for sustainable tourism development.
31THM 403.3	Analyze the economic impact of tourism on destinations, including revenue Generation, job creation, and the multiplier effect.
31THM 403.4	Develop critical thinking skills to evaluate the positive and negative aspects of tourism impacts and propose solutions for sustainable tourism development.
31THM 403.5	Assess the social and cultural impacts of tourism on local communities, including changes in lifestyle, traditions, and cultural heritage.



Programme: BBA (Hon's)

Semester-I

Course Code:	01MT101
Course Title:	Management and Organizational Behavior
Course Outcomes:	
01MT101.1	Define management with different forms of business and able to understand the evaluation of management school though.
01MT101.2	Explain the overview of Functions of management with different organizational structure.
01MT101.3	Analyze and understand the significance of organizational behavior in various aspects.
01MT101.4	Analyze the significance and importance of groups and teams with interpersonal behavior.
01MT101.5	Evaluate the organizational power and politics and correlate it with management.

Course Code:	02MT111
Course Title:	Business Statistics
Course Outcomes:	
02MT111.1	Student will define the concept of measure of central tendency.
02MT111.2	Student will define the relationship between two or more variables.
02MT111.3	Student will examine a time series is a series without obvious trend or seasonal components.
02MT111.4	Student will analysis and outcomes is a possible result of an experiment or trial.
02MT111.5	Student will analyze a hypothesis testing.

Course Code:	03MT121
Course Title:	Ethics and corporate social responsibility
Course Outcomes:	
03MT121.1	Understand the concept of business ethics along with its practical implications.
03MT121.2	Identify the need of corporate governance in the present scenario.
03MT121.3	Describe the significance of SEBI and Board of directors in corporate governance.
03MT121.4	Discuss the role, duties and Responsibilities of Auditors in corporate governance.
03MT121.5	To develop various corporate social responsibility and practice in their professional life.



Course Code:	03MT122
Course Title:	India's Diversity and Business
Course Outcomes:	
03MT122.1	Gain insights into the diverse cultural nuances that exist across different states and regions in India
03MT122.2	Explain the various dimensions of social diversity, including but not limited to race, ethnicity, gender, age, socioeconomic status, religion, sexual orientation, and ability.
03MT122.3	Explore the wide range of occupations and professions existing in different sectors, including agriculture, industry, services, and the informal economy.
03MT122.4	Analyze the resilience and adaptive strategies for communities facing ongoing or emerging social challenges.
03MT122.5	Create range of knowledge, skills, and attitudes to navigate the diverse cultural, social, and economic landscape of India.

Course Code:	0SSD02
Course Title:	Communication Skill
Course Outcomes:	
0SSD02.1	Building up of confidence and presentation skill.
0SSD02.2	Students will be able to exhibit group discussion and interview skills.
0SSD02.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
0SSD02.4	Students will be able to understand the concept of basic grammar.
0SSD02.5	The study of Dramas and Poems written by Indian Writers.

Course Code:	0SDG01
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
0SDG01.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development
0SDG01.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
0SDG01.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
0SDG01.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of



	sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
0SDG01.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programmes and processes.

Semester-II

Course Code:	01MT201
Course Title:	Business Accounting
Course Outcomes:	
01MT201.1	Define basic accounting terms and principles..
01MT201.2	Explain the purpose of financial statements and their interrelationships.
01MT201.3	Apply accounting principles to solve practical business problems.
01MT201.4	Analyze the impact of financial decisions on a company's overall performance.
01MT201.5	Assess the effectiveness of different accounting methods in specific business scenarios.

Course Code:	02MT211
Course Title:	Entrepreneurship Development & Start - Ups
Course Outcomes:	
01MT101.1	Students will recognize the concept of Entrepreneurship, Forms of Ownership, Process of creating new business, Team Building.
01MT101.2	Students will be able to describe the role of Creativity and Innovation in Entrepreneurial Start – ups..
01MT101.3	Students will illustrate the concept of Social Innovation and Social Entrepreneurship along with Non – Profit Organization.
01MT101.4	Students will be able to determine the concept of Family Business – structure, types, culture values.
01MT101.5	Students will be able to assess the issues and practices of Financing Entrepreneurial Businesses. Demonstrate the knowledge of Start-up.

Course Code:	03MT221
Course Title:	Human Resource Management
Course Outcomes:	
03MT221.1	Understanding the role and importance of human resource management in organizations, including its functions and contributions to organizational success.



03MT221.2	Developing the ability to design and implement effective recruitment and selection processes to attract and retain qualified employees.
03MT221.3	Understanding the principles of performance management, including goal setting, feedback, and performance appraisal, to optimize employee performance.
03MT221.4	Familiarize with the use of technology and information systems in HRM, including HRIS (Human Resource Information Systems), to streamline HR processes and enhance decision-making.
03MT221.5	Gain insights into labor relations, including the negotiation and management of collective bargaining agreements and the resolution of labor disputes.

Course Code:	0EVS03
Course Title:	Environmental Studies
Course Outcomes:	
0EVS03.1	Understand and evaluate the global scale of environmental problem.
0EVS03.2	To outline the resources, ecosystem, and diversity and explain the conservation and its significations.
0EVS03.3	To identify the environmental issues, types of pollutions and their impact.
0EVS03.4	Develop critical thinking for shaping strategies.
0EVS03.5	For environmental protection, social equity and sustainable development

Course Code:	03MT222
Course Title:	Human Resource Analytics
Course Outcomes:	
03MT222.1	Optimize the problems and issues in HR and the logic to use the HR analytics.
03MT222.2	Apply the tools, methods and techniques of HR analytics.
03MT222.3	Analyze the examples and uses of HR analytics in various HR sub-systems.
03MT222.4	HR balanced score cards to be evaluated.
03MT222.5	Post analytics to create a HR dashboard.



Course Code:	0IKS04
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes:	
0IKS04.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0IKS04.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc..
0IKS04.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0IKS04.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0IKS04.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda andYoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Semester-III

Course Code:	01MT301
Course Title:	Management Accounting
Course Outcomes:	
01MT301.1	Students will define management accounting with cost and financial accounting.
01MT301.2	Students will determine the total cost of production..
01MT301.3	Students will calculate the profit volume ratio, margin of safety, breakeven point and relevant cost.
01MT301.4	Students will evaluate the budget and responsibility accounting.
01MT301.5	Students will design the reason behind variances in material, labor, overhead and sales.

Course Code:	02MT311
Course Title:	Taxation
Course Outcomes:	
02MT311.1	Define key tax terminology.
02MT311.2	Explain the basic principles of taxation.
02MT311.3	Apply tax planning strategies to minimize tax liability.
02MT311.4	Analyze the tax implications of different financial decisions.
02MT311.5	Evaluate the impact of changes in tax laws on financial decisions.



Course Code:	03EC322
Course Title:	Macro Economics
Course Outcomes:	
03EC322.1	Students will identify the concept of macro-economic variables.
03EC322.2	Macro-Economic principle can be interpreted and executed by the students.
03EC322.3	Relations among fiscal policy, monetary policy and economy will be understood by the students.
03EC322.4	Practical aspects of money in different forms will be deduced in the grass root levels by the students.
03EC322.5	The role of open economy will be predicted and synthesized.

Course Code:	03EC321
Course Title:	Managerial Economics
Course Outcomes:	
03EC321.1	Learners will identify about demand and supply at firm level.
03EC321.2	The part of consumer_s behavior and their roles in economics will be interpreted by the learners.
03EC321.3	Short and long run production implications and uses will be demonstrated.
03EC321.4	Forms of market structures will evaluated by the students.
03EC321.5	Factor market and its analysis will be predicted.

Course Code:	0IT302
Course Title:	IT Tools for Business
Course Outcomes:	
0IT302.1	Student will define the concept of features and functions of Microsoft Excel, including creating and formatting spreadsheets, inputting data, and basic calculations, sorting, filtering, pivot tables, and data visualization using charts and graphs.
0IT302.2	Student will develop a strong foundation in using Microsoft Word, including creating, editing, and formatting documents. Inserting and formatting tables, graphs, images. How to create and customize headers and footers, add page numbers, and insert elements like logos or document titles.
0IT302.3	Student will learn and implement how to create visually appealing slides by using themes, layouts, colors, fonts, and backgrounds effectively. How to insert and format various content elements, such as text, images, charts, graphs, videos, and audio.
0IT302.4	Student will design and create a database from scratch, including defining tables, fields, data types, and relationships between tables.



01T302.5	Student will create queries to retrieve specific data from the database using filtering, sorting, and calculated fields. How to create complex reports with grouping, sub reports, and interactive elements.
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Semester-IV

Course Code:	01MT401
Course Title:	Principle of Marketing
Course Outcomes:	
01MT401.1	To analyze the various concepts in marketing.
01MT401.2	To understand the various based of segmenting the markets.
01MT401.3	To acquire knowledge on the PLC theory, and the various methods of brand management and pricing the products.
01MT401.4	To examine the various types of promotion mix, to understand the various types of intermediaries.
01MT401.5	To examine the various marketing of services..

Course Code:	02MT411
Course Title:	Financial Management
Course Outcomes:	
02MT411.1	Student will define the concept of finance, financial management, time value of money and risk and return.
02MT411.2	Student will illustrate the capital budgeting and evaluation of investment proposals by different capital budgeting methods and will also illustrate the calculation of cost of capital.
02MT411.3	Student will examine the impact of leverage and dividend policy on capital structure decision..
02MT411.4	Student will analyze the debtors outstanding and credit policy and develop cash budget.
02MT411.5	Student will analyze the inventory with the help of ABC and EOQ techniques.

Course Code:	03EC421
Course Title:	Indian Economy
Course Outcomes:	
03EC421.1	Analyze the trends and sectoral composition of national income and demographic features.
03EC421.2	To explain green revolution and new technology in agriculture.
03EC421.3	To explain in detail about MSME, start-up India, and make in India.
03EC421.4	They will able to know about NITI AAYOG and Indian economic problem.
03EC421.5	They will also able to know about Madhya Pradesh economy.



Course Code:	03EC422
Course Title:	International Economics
Course Outcomes:	
03EC422.1	Upon completing this course, Students will be able to define and identify the distinct features of international trade and international economics. Students will also be able to explain the classical, neo-classical and modern theories of international trade.
03EC422.2	Upon completing this course, students will be able to define and identify the terms of trade, and the factors affecting them. They will recall and explain the differences between free trade and protection. Students will recognize and discuss about tariffs, Quota, dumping, and anti-dumping measures and their implications on international trade.
03EC422.3	Students will be able to understand the fundamental concepts and mechanisms of exchange rates, including theories of foreign exchange rate determination, to explain how these influence international trade and investment decisions. Further the knowledge of exchange control policies and measures, volatility of exchange rate, appreciation and depreciation of currency will help the students to analyze their impact on a country's economic stability and foreign exchange reserves.
03EC422.4	Students will be able to understand the components and significance of the Balance of Payments and Balance of Trade to explain their roles in national and global economic contexts and also students will be able to apply the knowledge of balance of payment and balance of trade to analyze the effect of balance of payment and balance of trade on international trade and take policy measures to achieve equilibrium in balance of payment and balance of trade.
03EC422.5	Upon completing this course, students will be able to analyze the directions and trends in India's foreign trade, and examine the roles and functions of IMF, World Bank and WTO.

Course Code:	0MT401
Course Title:	Business and Marketing Research
Course Outcomes:	
0MT401.1	Define fundamental terms and concepts related to business and marketing research, such as sampling, data collection, and hypothesis.
0MT401.2	Understanding of the sequential steps involved in conducting business and marketing research, from problem definition to report writing.
0MT401.3	Apply their knowledge by developing a comprehensive research proposal, including research questions, methodology, and data collection plans.
0MT401.4	Analyze and critique existing business and marketing research studies, evaluating their methodologies, findings, and implications.
0MT401.5	Synthesize information gathered from research to create innovative and effective marketing strategies for a given business or product.



Semester-V

Course Code:	01MT501
Course Title:	Legal Aspects of Business
Course Outcomes:	
01MT501.1	Students will recall various definitions and would be able to evaluate the provisions of Indian Contract Act, 1872.
01MT501.2	Students would be able to understand various provisions of Sale of Goods Act, 1930.
01MT501.3	Students will be familiar with Companies Act, 2013 and its various provisions and various documents which are required to be prepared under Companies Act..
01MT501.4	Students will remember the Consumer Protection Act and various rights of consumers under the Act.
01MT501.5	Students will be able to apply and examine RTI Act, 2005.

Course Code:	02MT503
Course Title:	Digital Marketing
Course Outcomes:	
02MT503.1	Define Digital Marketing along with Its Functions, types and approaches.
02MT503.2	Explain about different Marketing automation tools like CRM, Sales force etc.
02MT503.3	To Illustrate and Understand digital marketing mix and types in detail.
02MT503.4	Analyze the importance of E-Mail marketing and Mobile marketing.
02MT503.5	Understand and Analyze Blog and its importance in digital marketing.

Course Code:	04FM511
Course Title:	Investment Banking and Financial Services
Course Outcomes:	
04FM511.1	Define key terms related to the Indian Financial System.
04FM511.2	Describe the role of various financial instruments, such as stocks, bonds, and derivatives.
04FM511.3	Apply knowledge of financial markets to analyze investment opportunities.
04FM511.4	Assess the impact of global economic trends on the Indian Financial System.
04FM511.5	Evaluate the role of financial innovation in shaping the Indian Financial System.



Course Code:	04MM511
Course Title:	Consumer Behavior
Course Outcomes:	
04MM511.1	Define fundamental terms related to consumer behaviour, such as perception, motivation, and attitude.
04MM511.2	Understand and interpret the findings of consumer research studies, recognizing different methodologies and their implications.
04MM511.3	Apply knowledge of consumer behaviour to segment and analyze target markets based on demographics, psychographics, and behaviour.
04MM511.4	Analyze the impact of advertisements on consumer behaviour, considering cognitive, affective, and behavioural responses.
04MM511.5	Assess ethical issues related to consumer behaviour and marketing practices, exploring the impact on consumer trust and brand image.

Course Code:	04HR511
Course Title:	Management of Industrial Relations
Course Outcomes:	
04HR511.1	Define key terms related to industrial relations..
04HR511.2	Explain the purpose and significance of industrial relations in the workplace.
04HR511.3	Apply knowledge of labor laws to analyze and solve workplace scenarios.
04HR511.4	Analyze the causes and consequences of workplace conflicts.
04HR511.5	Evaluate the effectiveness of different conflict resolution strategies.

Course Code:	05MT551
Course Title:	Internship
Course Outcomes:	
05MT551.1	Apply academic knowledge to real-world business tasks and challenges.
05MT551.2	Demonstrate the ability to analyze and propose solutions to business problems.
05MT551.3	Display professional behavior and ethical decision-making in a business setting.
05MT551.4	Communicate business information clearly and effectively in both written and oral forms.
05MT551.5	Collaborate with team members to achieve business objectives.



Semester-VI

Course Code:	01MT601
Course Title:	Quantitative Techniques for Management
Course Outcomes:	
01MT601.1	Identify linear programming problems using appropriate techniques.
01MT601.2	Apply various transportation and assignment methods.
01MT601.3	Students will solve CPM and PERT techniques and formulate Network models for service and manufacturing systems.
01MT601.4	Students will assess to take best decisions from various alternatives and optimize the barriers decision theory.
01MT601.5	Formulate competitive real-world phenomena using concepts from game theory, markovchain and mante carlo method

Course Code:	04FM611
Course Title:	Corporate Tax
Course Outcomes:	
04FM611.1	Define key terms and concepts in corporate taxation.
04FM611.2	Explain the principles and laws governing corporate taxation.
04FM611.3	Apply advanced tax rules and regulations to determine the tax liability of corporations in complex scenarios.
04FM611.4	Analyze GST Implications on Business Operations.
04FM611.5	Analyze the impact of customs duties on pricing and competitiveness of imported goods.

Course Code:	04HR611
Course Title:	Talent and Knowledge Management
Course Outcomes:	
04HR611.1	Identify the purpose of developing a talent management information strategy and the role of leaders in talent management.
04HR611.2	Discuss the characteristics, types of valid competency model and talent management information system.
04HR611.3	Analyze the nature of knowledge management alternative views of knowledge, types of knowledge and concept.
04HR611.4	Validate the knowledge management solutions, mechanisms, systems and knowledge management infrastructure.
04HR611.5	Synthesize effective application of knowledge to diagnose and solve organizational problems and develop optimal managerial decisions.

Course Code:	04MM611
Course Title:	Integrated Marketing Communication
Course Outcomes:	
04MM611.1	Define and explain the concept of Integrated Marketing Communication.



04MM611.2	Analyze target audiences and develop strategies to effectively communicate with them.
04MM611.3	Understand how to allocate budgets across different media platforms for maximum impact.
04MM611.4	Explore ethical issues related to marketing communication.
04MM611.5	Develop skills in media planning and buying.

Course Code:	04FM612
Course Title:	Investment Analysis and Portfolio Management
Course Outcomes:	
04FM612.1	Student will explain the concept of risk and return and their calculation, Valuation of Bond and Fundamental analysis-EIC framework
04FM612.2	Student will illustrate the share valuation by different dividend discount models. Student will also illustrate different charts and patterns in technical analysis
04FM612.3	Student will calculate risk and return of a portfolio by Markowitz model. Student will also use active and passive investment strategies.
04FM612.4	Student will analyze the assets pricing with the help of capital asset pricing model, characteristic line, capital market line and security market line and will also analyze the overvalued and undervalued assets.
04FM612.5	Student will calculate NAV of a fund and will appraise funds_ performance by Sharpe_s, Treynor_s and Jensen_s performance evaluation models of mutual fund

Course Code:	04HR612
Course Title:	Performance And Compensation Management
Course Outcomes:	
04HR612.1	Students will recognize the concept of Performance Management System, Performance appraisal and Development.
04HR612.2	Students will be able to describe the various types of Reward System along with Performance System Trends.
04HR612.3	Students will understand the concept and significance of Job Evaluation along with concept of wage as form of Compensation.
04HR612.4	Students will be able to determine the concept of Incentive Plans for employees along with various benefits provided at workplace.
04HR612.5	Students will be able to assess the key concept of Wages along with its regulation and concept of Wage Policy.



Course Code:	04MM612
Course Title:	Ad and Brand Management
Course Outcomes:	
04MM612.1	Identify key aspects of advertising.
04MM612.2	Select communications for print, social media, film video and broadcast.
04MM612.3	Utilize effective advertising and brand strategies for consumer and business goods and services
04MM612.4	Students will develop sales concept and sales promotion strategies.
04MM612.5	Systematize the brand image, brand awareness, brand decision, brand personality and also the benefits of brand.

Course Code:	05MT651
Course Title:	Field Project
Course Outcomes:	
05MT651.1	Apply academic knowledge to real-world business tasks and challenges.
05MT651.2	Demonstrate the ability to analyze and propose solutions to business problems.
05MT651.3	Display professional behavior and ethical decision-making in a business setting.
05MT651.4	Communicate business information clearly and effectively in both written and oral forms
05MT651.5	Collaborate with team members to achieve business objectives.

Semester-VII

Course Code:	01MT701
Course Title:	Business policy and Strategy
Course Outcomes:	
01MT701.1	Define Business Policy, strategy, mission and vision statements.
01MT701.2	Explain about different aspect of Environment Analysis and diagnosis.
01MT701.3	Analyze and understand the formulation of competitive strategy.
01MT701.4	Analyze the importance of Growth strategies.
01MT701.5	Create and Evaluate the Strategic Framework.

Course Code:	02RM702
Course Title:	Research Methodology
Course Outcomes:	
02RM702.1	The student will define research, research problem, and hypothesis.
02RM702.2	The student will explain about the Research Design, Sampling Design and use of different sampling techniques.
02RM702.3	The student will illustrate the construction of scales, process of primary and secondary data collection with the help of, different



	data collection methods.
02RM702.4	The students will apply the descriptive statistics, z-test, t-test, f-test and chi square- test in the data analysis.
02RM702.5	Student will ethically prepare a research report.

Course Code:	04FM711
Course Title:	International Finance
Course Outcomes:	
04FM711.1	Students will define the international trade, international business and international finance, BOP, exchange rate mechanisms, IMF and World Bank.
04FM711.2	Students will describe the trading in Forex market, purchasing power parity and interest rate parity.
04FM711.3	Students will analyze the foreign exchange exposure, financial statement in international business
04FM711.4	Students will assess the international investment management and international project appraisal.
04FM711.5	Students will plan the multinational working capital management.

Course Code:	04MM711
Course Title:	International Marketing
Course Outcomes:	
04MM711.1	Articulate the definition and basic concepts of international marketing, including terms such as global marketing, internationalization, and market entry strategies.
04MM711.2	Understand the impact of cultural differences on international marketing strategies, including consumer behaviour, communication, and market segmentation.
04MM711.3	Apply market research techniques to analyze international markets, identify opportunities, and assess potential risks.
04MM711.4	Analyze the competitive landscape in international markets, examining the strategies of global competitors and identifying competitive advantages.
04MM711.5	Synthesize knowledge from various aspects of international marketing, integrating concepts such as market segmentation, global branding, and entry mode selection.



Course Code:	04HR711
Course Title:	Strategic Human Resource Management
Course Outcomes:	
04HR711.1	The student will be able to understand the key concepts of Strategic Human Resource Management along with emerging trends.
04HR711.2	The student will be able to explain in depth understanding of HRD Audit and Assessment.
04HR711.3	The student will be able to evaluate the concept of International HRM along with cross cultural issues.
04HR711.4	Students will be able to analyze different types of business strategic alliances i.e. Mergers and Acquisitions.
04HR711.5	The student will apply the practical knowledge of concept of Human Resource Outsourcing along with outstanding issues in HRM.

Course Code:	05MT751
Course Title:	Minor Research Project
Course Outcomes:	
05MT751.1	Apply academic knowledge to real-world business tasks and challenges.
05MT751.2	Demonstrate the ability to analyze and propose solutions to business problems.
05MT751.3	Display professional behavior and ethical decision-making in a business setting.
05MT751.4	Communicate business information clearly and effectively in both written and oral forms.
05MT751.5	Collaborate with team members to achieve business objectives.

Semester-VIII

Course Code:	01MT801
Course Title:	Financial Institutions and Markets
Course Outcomes:	
01MT801.1	Define key financial terms and concepts related to institutions and markets.
01MT801.2	Understand the regulatory framework governing financial institutions.
01MT801.3	Apply financial models to analyze the performance of different investment options.
01MT801.4	Analyze the factors influencing stock prices and market trends
01MT801.5	Assess the ethical considerations in financial decision-making.



Course Code:	02MT811
Course Title:	Strategic Management
Course Outcomes:	
02MT811.1	Students will identify various concepts of strategic management.
02MT811.2	The strategic climate and its practical concepts will be determined by the students.
02MT811.3	The students will relate various matrices and will pave paths to frame strategies.
02MT811.4	Students will find the correlations between finance and organizational strategies.
02MT811.5	IT needs and technology needs will be evaluated and costing will be estimated too.

Course Code:	05MT851
Course Title:	Major Research Project
Course Outcomes:	
05MT851.1	Apply academic knowledge to real-world business tasks and challenges.
05MT851.2	Demonstrate the ability to analyze and propose solutions to business problems.
05MT851.3	Display professional behavior and ethical decision-making in a business setting.
05MT851.4	Communicate business information clearly and effectively in both written and oral forms.
05MT851.5	Collaborate with team members to achieve business objectives.



Faculty of Computer Application & Information Technology and Sciences



Department of Computer Science & Technology



Programme:

Ph.D (Computer Science and Application)

Semester-I

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Code:	151CAF02
Course Title:	Advances in Computer Application and Science
Course Outcomes:	
151CAF02.1	To impart the basic concepts of data structures and their applications
151CAF02.2	To understand the basic concepts of algorithms and to understand about writing algorithms and step by step approach in solving problems with the help of fundamental data structures
151CAF02.3	To understand the fundamental concepts and techniques of Operating Systems, to study the concepts in process management and concurrency control mechanisms, to understand the concepts in memory managements and deadlocks, to study on file management and storage structures
151CAF02.4	This course introduces the core principles and techniques required in the design and implementation of database systems
151CAF02.5	This will gain valuable skills in computer networks (switching, routing), system and network administration, computer and network security.

Course Code:	151PH02
Course Title:	Research and Publication Ethics (RPE)
Course Outcomes:	
151PH02.1	Students will be able to understand the ethics in conduct of scientific research.
151PH02.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH02.3	Identify research misconduct and predatory publications..
151PH02.4	Understand about the infer the ethical framework and principles
151PH02.5	Student will be able to explore plagiarism tools for a valid and ethical research report
151PH02.6	Develop a valid and ethical research report.



Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



MCA (Master in Computer Application) Program

Semester-1

Course Code:	TMCA01
Course Title	DISCRETE MATHEMATICS
Course Outcomes:	
TMCA01.1:-	The student will acquire knowledge of set theory has shaped the way mathematicians think about the foundations of their subject.
TMCA01.2:-	The student will acquire knowledge of combinatorial principles and techniques for counting and analyzing arrangements, permutations, combinations
3. TMCA01.3:-	The student will apply propositional and predicate logic in Computer Science.
TMCA0.4:-	Student will understand the basic concepts and properties of graphs.
TMCA0.5:-	Understand the importance of algebraic properties with regard to working within various number systems.

Course Code:	TMCA02
Course Title:	Computer Organization
Course Outcomes:	
1.TMCA02.1:-	The student will define the basic components of computer system and its operations.
2.TMCA02.2:-	The student will describe the building blocks of computer system
3.TMCA02.3:-	Student will execute Instruction code and use addressing modes
4.TMCA02.4:-	The student will differentiate various types of memory
5.TMCA02.5:-	The student will compare various microprocessors and select DMA in computer system

Course Code:	TMCA03
Course Title:	Operating System
Course Outcomes:	
1.TMCA03.1:-	At the end of this chapter the student will recognize the structure and services of OS
2.TMCA03.2:-	At the end of this chapter the student will use the concept of process
3.TMCA03.3:-	At the end of this chapter the student will differentiate various threads and deadlocks
4.TMCA03.4:-	At the end of this chapter the student will compare memory systems
5.TMCA03.5:-	At the end of this chapter the student will select the appropriate storage system



Course Code:	TMCA04
Course Title:	COMPUTER NETWORK
Course Outcomes:	
1.TMCA04.1:-	At the end of this chapter the student will explain the core concept of Computer Network
2.TMCA04 .2:-	At the end of this chapter the student will use the services of data link layer
3.TMCA04 .3:-	At the end of this chapter the student will organize Internetworking
4.TMCA04 4:-	At the end of this chapter the student will recognize services of transport layer
5.TMCA04 5:-	At the end of this chapter the student will solve the develop the script by implementing the application layer

Course Code:	TMCA05
Course Title:	PROGRAMMING IN C
Course Outcomes:	
1.TMCA05.1:-	At the end of this chapter the student will explain the core concept of C programming.
2.TMCA05.2:-	At the end of this chapter the student will use Array and Function in programs.
3.TMCA05.3:-	At the end of this chapter the student will describe the pointers and DMA.
4.TMCA05.4:-	At the end of this chapter the student will design macro and programs.
5.TMCA05.5:-	Comprehend the functions of different regulatory bodies in India that oversee the production and quality of cement

Course Code:	TMCA06
Course Title:	WEB TECHNOLOGY
Course Outcomes:	
1.TMCA06.1:-	At the end of this chapter the student will explain the principles of Web development
2.TMCA06.2:-	At the end of this chapter the student will use CSS and Java script
3.TMCA06.3:-	At the end of this chapter the student will compare HTML and XML
4.TMCA06.4:-	At the end of this chapter the student will execute PHP programs
5.TMCA06.5:-	At the end of this chapter the student will develop Web sites by using PHP and MySql

Course Code:	TMCA07
Course Title:	Object-Oriented Programming using C++
Course Outcomes:	
1.TMCA07.1:-	Understand the core concept of C++ programming
2.TMCA07.2:-	Apply Function CO.3: Use constructors
3.TMCA07.3:-	Apply Inheritance
4.TMCA07.4:-	Apply File Handling



Semester-2

Course Code:	TMCA08
Course Title:	Database Management Systems
Course Outcomes:	
1.TMCA08.1:-	Explain The Features Of Database Management Systems And Relational Database.
2.TMCA08.2:-	Design Conceptual Models Of A Database Using ER Modelling For Real Life Applications And Construct Queries
3.TMCA08.3:-	In Relational Algebra Create And Populate A RDBMS For A Real-Life Application, With Constraints And Keys, Using SQL
4.TMCA08.4:-	Retrieve Any Type Of Information From A Database By Formulating Complex Queries In SQL.
5.TMCA08.5:-	Analyses The Existing Design Of A Database Schema And Apply Concepts Of Normalization To Design An Optimal Database.

Course Code:	TMCA09
Course Title:	Data Structure
Course Outcomes:	
1.TMCA09.1:-	Apply knowledge of data structures to solve programming problems and implement algorithms effectively.
2.TMCA09.2:-	Apply and implement algorithms for common operations and functionalities associated with different data structures.
3.TMCA09.3:-	Compare and analyze different data structures and assess their suitability for specific problem-solving scenarios.
4.TMCA09.4:-	Evaluate the strengths and weaknesses of different data structures based on their characteristics, performance, and memory usage.
5.TMCA09.5:-	Apply knowledge of data structures to solve programming problems and implement algorithms effectively.

Course Code:	TMCA10
Course Title:	.NET TECHNOLOGIES
Course Outcomes:	
1.TMCA10.1:-	Understand .NET framework, C# basics, and advanced OOP concepts.
2.TMCA10.2:-	Master ASP.NET Core for web application development.
3.TMCA10.3:-	Build dynamic web applications using controllers, views, and helpers.
4.TMCA10.4:-	Implement data validation, state management, and security features.
5.TMCA10.5:-	Gain proficiency in Entity Framework Core for database interactions and routing.

Course Code:	PE002
Course Title:	Cloud Computing
Course Outcomes:	
1.PE002.1:-	Students should be familiar with various characteristics of the cloud platforms.
2.PE002.2:-	Create relational database and other cloud-based file system.
3.PE002.3:-	Understand the privacy issues and security strategies in cloud storage.
4.PE002.4:-	Implement real time application over various cloud-based platform.



Course Code:	TMCA01
Course Title:	Linux Administration
Course Outcomes:	
1.TMCA01.1:-	Student will understand the basic concepts of Linux OS.
2.TMCA01.2:-	Student will learn how to install and configure Linux on physical or virtual machines.
3.TMCA01.3:-	Student will acquire proficiency in using the Linux command-line interface.
4.TMCA101.4:-	Student will learn how to manage user accounts and groups on a Linux system.
5.TMCA01.5:-	Student will understand Linux security mechanisms Student will understand the basic concepts of Linux OS.

Course Code:	TMCA12B
Course Title:	Data Science and Visualization
Course Outcomes:	
1.TMCA12B.1:-	Student will understand the fundamentals of data science.
2.TMCA12B.2:-	Student will learn techniques to explore and preprocess data.
3.TMCA12B.3:-	Student will understand the fundamentals of R Language.
4.TMCA12B.4:-	Student will understand the fundamentals of Python Language.
5.TMCA12B.5:-	Student will acquire various techniques of Data Analytics.

Semester- 3

Course Code:	TMCA13
Course Title:	Introduction to Java Programming
Course Outcomes:	
1.TMCA13.1:-	Student will apply OOP principles.
2.TMCA13.2:-	Student will acquire skills in creating classes and objects.
3.TMCA13.3:-	Student will learn how to handle exceptions.
4.TMCA13.4:-	Student will acquire knowledge of AWT controls to develop graphical user interfaces.
5.TMCA13.5:-	Student will learn how to connect Java applications to databases using JDBC.

Course Code:	TMCA14A
Course Title:	PYTHON AND R PROGRAMMING
Course Outcomes:	
1.TMCA14A.1:-	The student will recall variables and data types.
2.TMCA14A.2:-	Do research in the emerging areas of Python and R programming.
3.TMCA14A.3:-	Implement conditional and looping statements to solve computational problem.
4.TMCA14A.4:-	Implement Python libraries to create complex programs.
5.TMCA14A.5:-	Provide data visualization and statistics using R for exploratory analysis.



Course Code:	TMCA14B
Course Title:	Mobile Application Development
Course Outcomes:	
1.TMCA14B.1:-	Student will understand the basics of Mobile App Development.
2.TMCA14B.2:-	Student will learn how to use Android Virtual device.
3.TMCA14B.3:-	Student will acquire skills in designing and creating user interfaces
4.TMCA14B.4:-	Student will explore database-based services in Android.
5.TMCA14B.5:-	Student will learn how to use API in Mobile Application Development.

Course Code:	TMCA16
Course Title:	Theory of Computation & Compiler Design
Course Outcomes:	
1.TMCA16.1:-	Students will understand the fundamentals of Computational Science.
2 .TMCA16.:-	Student will acquire to represent regular expression and Finite State
3.TMCA16.:-	Students will acquire to represent CFL and Pushdown Automata.
4.TMCA16.:-	Student will recall Turing machines and the concept of computability, including
5.TMCA16.:-	Decidability and un-decidability.

Course Code:	TMCA17
Course Title:	Software Engineering
Course Outcomes:	
1.TMCA17.1:-	Student will identify and decompose the given problem into analysis, designing Implementation, testing and maintenance phase.
2.TMCA17.2:-	Student will compare various process models in the software industry according To give circumstances.
3.TMCA17.3:-	Student will design solutions for complex engineering problems related to Computer Science and engineering that meet the specified needs.
4.TMCA17.4:-	Students will evaluate various functional and non-functional software testing approach.
5.TMCA17.5:-	Student will identify various software quality assurance approach to ensure production of a good quality software.

Course Code:	TMCA18
Course Title:	CRYPTOGRAPHY AND NETWORK SECURITY
Course Outcomes:	
1.TMCA18.1:-	The Student will recall types of security attacks.
2.TMCA18.2:-	Do research in the emerging areas of cryptography and network security.
3.TMCA18.3:-	Implement Confidentiality, Integrity and Availability of data throughout various networking protocols.
4.TMCA18.3:-	Protect any network from the threats in the world.
5.TMCA18.4:-	Provide security of the data over the network.



Programme

B.Sc. IT

(Bachelor of Science -Information Technology)

Semester-I

Course Code:	0SDG01
Course Title:	Sustainable Development Goals(SDGs)
Course Outcomes:	
0SDG01.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
0SDG01.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
0SDG01.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
0SDG01.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
0SDG01.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programs and processes.

Course Code:	011T101
Course Title:	Introduction to Information Technology and ICT
Course Outcomes:	
011T101.1	Students will learn about various formats to represent different types of data..
011T101.2	Students learn about basic computer organization and its peripherals.
011T101.3	Students make use of word processor, spreadsheet and slide presentation software or effective Information us age.
011T101.4	Students will learn about various cutting-edge technologies used in managing Information.
011T101.5	Students will learn about various network technologies



Course Code:	02CA121
Course Title:	Programming In C
Course Outcomes:	
02CA121.1	At the end of this chapter the student will explain the core concept of C programming Algorithms and Flowcharts.
02CA121.2	At the end of this chapter the student will use various input output operations and control statements.
02CA121.3	At the end of this chapter the student will use Array and Function in programs
02CA121.4	At the end of this chapter the student will describe the pointers and use of structure and union
02CA121.5	At the end of this chapter the student will use File handling Programs.

Course Code:	03CA172
Course Title:	Accounting and Tally
Course Outcomes:	
03CA172.1	Student will be able to apply fundamental accounting concepts, distinguish manual and computerized systems, and apply the golden rule effectively.
03CA172.2	Student will be able to prepare financial statements, including trial balances, trading, profit and loss accounts, and balance sheets, addressing outstanding transactions.
03CA172.3	Student will operate Tally software, from introduction to voucher entries, and effectively manage accounting tasks such as purchase/sales orders and receipts, bills, and journals.
03CA172.4	Student will be able to use GST tasks like creating masters, handling return of goods, managing exempt transactions, and generating reports for registered and composite dealers.
03CA172.5	Student will be able to operate, covering Tally Vault, security controls, data import-export, audit procedures, and utilizing online support and help for advanced accounting functions.

Course Code:	0EVS03
Course Title:	Environmental Education
Course Outcomes:	
0EVS03.1	To understand various aspects of life forms, ecological, processes, and the impacts on them by the human during Anthropogenic era.
0EVS03.2	To understand various aspects of life forms, ecological, processes, and the impacts on them by the human during Anthropogenic era.
0EVS03.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.



Semester-II

Course Code:	0SSD02
Course Title:	English Communication
Course Outcomes:	
0SSD02.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving Speaking skills and developing self confidence amongst them.
0SSD02.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
0SSD02.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
0SSD02.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
0SSD02.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	0IKS04
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes:	
0IKS04.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Pinch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0IKS04.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0IKS04.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astronauts, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0IKS04.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0IKS04.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	01CA212
Course Title:	Problem Solving using Python Programming
Course Outcomes:	
01CA212.1	Write simple Python Program using common data structures
01CA212.2	Use files for data input and output
01CA212.3	Make use of sequences and standard libraries in Programming
01CA212.4	Apply object Oriented Programming concepts in problem solving.
01CA212.5	Application development in python programming



Course Code:	02CA221
Course Title:	Operating System
Course Outcomes:	
02CA221.1	Specify objectives of modern operating systems and describe how operating systems have evolved over time.
02CA221.2	Understand various process management concepts and can compare various scheduling techniques, synchronization, and deadlocks. Also identify the best suited process management technique for any process.
02CA221.3	Understand the concepts of memory management techniques and file management.
02CA221.4	Understand the concepts of disk management. Understand and identify potential threats to Operating systems and the security features to guard against them.
02CA221.5	Understand and operate the Linux system as well as the contribution of Indians in the field.

Course Code:	03CA232
Course Title:	Multimedia and Animation
Course Outcomes:	
03CA232.1	Demonstrate knowledge of the fundamental principles of multimedia.
03CA232.2	Apply Fonts and image fundamentals.
03CA232.3	Fundamentals of Audio and Video
03CA232.4	Familiarize knowledge representation in Animation.
03CA232.5	Comprehend the use of 2D and 3D Animation.

Semester-III

Course Code:	03CA301
Course Title:	Data Analytics & Visualization through Spread Sheet
Course Outcomes:	
03CA301.1	Students should be familiar with various characteristics of the spreadsheet.
03CA301.2	Learn how to format spreadsheet, and viewing its appearance before printing .
03CA301.3	Importing/Exporting Access Data and Text Files. Securing worksheet and workbook.
03CA301.4	Calculate values and process data through various formula, and using data validation formula
03CA301.5	Visualize data values through various types of charts.

Course Code:	01CA312
Course Title:	Object Oriented Programming Using C++
Course Outcomes:	
01CA312.1	OOP Mastery: Students will grasp key Object-Oriented Programming principles, applying encapsulation, inheritance, and polymorphism for effective problem-solving.
01CA312.2	Attain mastery in C++ programming, from fundamental constructs to advanced topics like operator overloading and dynamic memory management.
01CA312.3	Modular Design Skills: Develop expertise in modular design, utilizing functions, classes, and object-oriented principles to create scalable and maintainable software solutions.



01CA312.4	Data Persistence Proficiency: Acquire skills in file and stream operations, enabling efficient data reading/writing and ensuring effective management of data persistence in C++ applications.
01CA312.5	Advanced Concept Application: Apply advanced concepts like multiple inheritance, virtual functions, and memory management to solve complex programming challenges and contribute effectively to software development projects.

Course Code:	02CA322
Course Title:	Data Structures
Course Outcomes:	
02CA322.1	Understand the different types of data structure to be implemented using any programming language
02CA322.2	Choose the data structures that effectively model the information in a problem and an analysis the efficiency trade-offs (run time and memory usage) among alternative data structure implementation so combinations.
02CA322.3	Design, implement, test, and debug programs using a variety of data structures including stacks, queues, hash tables, binary and general tree structures, search trees, and graphs.
02CA322.4	Apply efficient data structure (linked lists, stacks and queues) to solve a particular problem.
02CA322.5	Apply Sorting and Searching

Course Code:	03CA333
Course Title:	Internet of Things
Course Outcomes:	
03CA333.1	Learn the basics of IoT and IoT Architectural view.
03CA333.2	Understand various theoretical and practical principles involved in the design of Data Storage in IoT and use of Software defined networking.
03CA333.3	Learn the Web communication Protocols for connected devices and Message communication Protocols for connected devices.
03CA333.4	Design and implement Sensor Technology and Participatory Sensing
03CA333.5	Design an IoT Privacy and security solutions.

Course Code:	03CA332
Course Title:	Optimization Techniques
Course Outcomes:	
03CA332.1	Formulate real life problems into linear programming problem.
03CA332.2	Apply the simplex method to find an optimal vector for the standard linear programming problem and the corresponding dual problem.
03CA332.3	Find optimal solution of transportation.
03CA332.4	Formulate and solve linear programming model of two-person zero sum game
03CA332.5	Solve nonlinear programming problems using Kuhn Tucker conditions.



Semester-IV

Course Code:	0EN401
Course Title:	Entrepreneurship Development
Course Outcomes:	
0EN401.1	student will Advance their skills in customer development, customer validation, competitive Analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world Problems and projects.
0EN 401.2	Mobilize people and resources
0EN 401.3	Increase their awareness and deliberately practice the skills and disciplines necessary to increase confidence and agency.
0EN 401.4	Demonstrate knowledge of current information, theories and models, and techniques and practices in all of the major business disciplines including the general areas of Accounting and Finance, Information Technologies, Management, Marketing, and Quantitative Analysis

Course Code:	02CA421
Course Title:	Internet Applications using Java Programming
Course Outcomes:	
02CA421.1	Able to use an integrated development environment to write, compile, run, and test simple object-oriented Java programs
02CA421.2	Understand and apply the concepts of Inheritance and Interfaces.
02CA421.3	Learn and apply applet programming to create basic web pages.
02CA421.4	Understand the Java event handling model and apply to create interactive web pages.
02CA421.5	Able to implement I/O operations and connect to database to solve real world problems.

Course Code:	01CA411
Course Title:	Database Management Systems Using PL/SQL
Course Outcomes:	
01CA411.1	Explain The Features Of Database Management Systems And Relational Database.
01CA411.2	Design Conceptual Models Of A Database Using ER Modelling For Real Life Applications And Construct Queries In Relational Algebra.
01CA411.3	Use various divide and conquer algorithm and recurrence relation Create and Populate A RDBMS for A Real-Life Application, With Constraints And Keys, Using SQL
01CA411.4	Familiarize with the dynamic programming approach Retrieve Any Type Of Information From A Database By Formulating Complex Queries In SQL.
01CA411.5	Analyses The Existing Design Of A Database Schema And Apply Concepts Of Normalization To Design An Optimal Database..



Course Code:	03CA431A
Course Title:	E-Commerce
Course Outcomes:	
03CA431A.1	To learn the fundamentals of E — Commerce and its process..
03CA431A.2	To understand the role of E- commerce in the present scenario along with the concepts of security and its applications
03CA431A.3	To gain knowledge of e-commerce business needs and resources and match to technology considering human factors and budget constraints.
03CA431A.4	To apply knowledge of changing technology on traditional business models and strategy.
03CA431A.5	To have skills to communicate effectively and ethically using electronic communication.

Course Code:	03CA431B
Course Title:	Computer Maintenance & Troubleshooting
Course Outcomes:	
03CA431B.1	Identify and understand the hardware components in the computer system.
03CA431B.2	Install, configure and update Operating Systems, device drivers and software_s.
03CA431B.3	Install, configure and maintain various components in computer system and peripheral devices.
03CA431B.4	Diagnose faults, repair and maintain computer system and its peripherals.
03CA431B.5	Do preventive maintenance of computer system and its peripherals.

Semester-V

Course Code:	01CA512
Course Title:	Web Application Development
Course Outcomes:	
01CA512.1	Understand basics of Internet, World Wide Web(WWW), Client-server Computing and have information of various Protocols.
01CA512.2	Have Knowledge of various web browsers, familiarize with Java scripting, Client side scripting language, Web server Architecture, Database connectivity (DBC) and ODBC
01CA512.3	Have knowledge of HTML, it's essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page.
01CA512.4	Develop skills to generate HTML and DHTML page and have knowledge of Java Script assisted style sheets (JSSS)
01CA512.5	Have knowledge of Objects, Methods, Events and Functions and various types of text, styles and be able to relate JavaScript to DHTML.



Course Code:	05CA522
Course Title:	Design and Analysis of Algorithms
Course Outcomes:	
05CA522.1	Demonstrate knowledge of Graph and its applications.
05CA522.2	Apply greedy approach and Huffman coding.
05CA522.3	Use various divide and conquer algorithm and recurrence relation
05CA522.4	Familiarize with the dynamic programming approach
05CA522.5	Comprehend the use of concept of computation and network flow.

Course Code:	01CA612
Course Title:	Linux Operating System
Course Outcomes:	
01CA612.1	Student will understand the basic concepts of Linux OS
01CA612.2	Student will learn how to install and configure Linux on physical or virtual machines
01CA612.3	Student will acquire proficiency in using the Linux command-line interface
01CA612.4	Student will learn how to manage user accounts and groups on a Linux system
01CA612.5	Student will understand Linux security mechanisms

Course Code:	05CA623-A
Course Title:	Software Engineering
Course Outcomes:	
05CA623-A.1	Student will understand the basic concepts of Linux OS Students should be familiar with various phases of the software development process, including requirements analysis, design, implementation, testing, deployment, and maintenance.
05CA623-A.2	Learn how to design software systems, considering factors such as modularity, scalability, and maintainability. Understand architectural patterns and their applications.
05CA623-A.3	Student will acquire proficiency in using the Linux command-line interface Develop strong programming skills in relevant languages and frameworks. This includes understanding data structures, algorithms, and design patterns.
05CA623-A.4	Understand the challenges and strategies associated with maintaining and evolving software systems over time. Understand the importance of quality assurance in software development.
05CA623-A.5	Acquire basic project management skills, including estimation, planning, and tracking progress.



Course Code:	05CA623-B
Course Title:	Mobile App Development
Course Outcomes:	
05CA623-B.1	Able to use an integrated development environment to write, compile, run, and test simple Object-oriented Android programs.
05CA623-B.2	Understand and apply the concepts of Inheritance and Interfaces.
05CA623-B.3	Learn and apply applet programming to create basic web pages.
05CA623-B.4	Understand the Android event handling model and apply it to create interactive web pages..
05CA623-B.5	Able to implement I/O operations and connect to database to solve real-world problems.

Course Code:	05CA621-A
Course Title:	AI and Data science
Course Outcomes:	
05CA621-A.1	Demonstrate knowledge of the fundamental principles of Artificial Intelligence
05CA621-A.2	Apply different searching techniques
05CA621-A.3	Demonstrate knowledge of Data Science.
05CA621-A.4	Familiarize knowledge representation in Data science.
05CA621-A.5	Comprehend the use of Python

Course Code:	05CA622-A
Course Title:	Computer Graphics
Course Outcomes:	
05CA622-A.1	Demonstrate knowledge of the fundamental principles of Computer graphics.
05CA622-A.2	Apply scan Conversion algorithms
05CA622-A.3	Use various filled area primitives..
05CA622-A.4	Familiarize knowledge of clipping.
05CA622-A.5	Comprehend the use of animation



Programme: BCA

Semester-I

Course Code:	0SDG01
Course Title:	Sustainable Development Goals
Course Outcomes:	
0SDG01.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
0SDG01.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
0SDG01.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
0SDG01.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
0SDG01.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programs and processes.

Course Code:	0EVS03
Course Title:	Environmental Education
Course Outcomes:	
0EVS03.1	To understand various aspects of life forms, ecological, processes, and the impacts on them by the human during Anthropogenic era.
0EVS03.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
0EVS03.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation



Course Code:	01CA112
Course Title:	Computer Fundamentals, Organization and Architecture
Course Outcomes:	
01CA112.1	Understand the basic structure, operation and characteristics of digital computer
01CA112.2	Design simple combinational digital circuits based on given parameters.
01CA112.3	Understand the working of arithmetic and logic unit.
01CA112.4	Know about hierarchical memory system including cache memories and virtual memory.
01CA112.5	Know the contributions of Indians in the field of Indians in the field of computer architecture and related technologies.

Course Code:	03MS173
Course Title:	Discrete Mathematics
Course Outcomes:	
03MS173.1	Understand concepts of relation & lattices
03MS173.2	Apply the Boolean algebra switching circuits and their application.
03MS173.3	Graph, their types and its application in study of shortest
03MS173.4	Apply the tree & matrix in problem
03MS173.5	Understand the discrete numeric function generating functions and Recurrence relation.

Course Code:	02CA121
Course Title:	Programming in C Language
Course Outcomes:	
02CA12.1	Explain the core concept of C programming Algorithms and Flowcharts.
02CA12.2	Use various input output operations and control statements.
02CA12.3	Use Array and Function in programs.
02CA12.4	Describe the pointers and use of structure and union
02CA12.5	Use File handling Programs.

Semester II

Course Code:	OSSD02
Course Title:	English Communication
Course Outcomes:	
OSSD02.1	Speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
OSSD02.2	Interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work.
OSSD02.3	Communicate effectively in Hindi and English languages without hindrances.
OSSD02.4	Convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
OSSD02.5	Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.



Course Code:	0IKS04
Course Title:	Indian Knowledge System
Course Outcomes:	
0IKS04.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0IKS04.2	Have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0IKS04.3	To gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0IKS04.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0IKS04.5	Understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	01CA211
Course Title:	Programming methodology and data structure
Course Outcomes:	
01CA211.1	Develop simple algorithms and flow charts to solve a problem with Programming using top down design principles
01CA211.2	Writing efficient and well-structured computer algorithms/Programs. Learn to formulate iterative solutions and array processing algorithms for problems.
01CA211.3	Implement and know the applications of algorithms searching and sorting
01CA211.4	Use recursive techniques, pointers and searching methods in Programming
01CA211.5	Know the contributions of Indians in the field of Programming and data structures.

Course Code:	03MS231
Course Title:	Numerical Methods
Course Outcomes:	
03MS231.1	Understand numerical methods to find the solution of a system of linear equations.
03MS231.2	Compute interpolation value for real data.
03MS231.3	Find quadrature by using various numerical methods.
03MS231.4	Solve system of linear equations by using various numerical techniques.
03MS231.5	Obtain solutions of ordinary differential equations by using numerical methods.



Course Code:	02CA221
Course Title:	Operating System
Course Outcomes:	
02CA221.1	Specify objectives of modern operating systems and describe how operating systems have evolved overtime.
02CA221.2	Understand various process management concepts and can compare various scheduling techniques, synchronization, and deadlocks. Also identify the best suited process management technique for any process.
02CA221.3	Understand the concepts of memory management techniques and file management.
02CA221.4	Understand the concepts of disk management. Understand and identify potential threats to Operating systems and the security features to guard against them.
02CA221.5	Understand and operate the Linux system as well as the contribution of Indians in the field.

Semester-III

Course Code:	0CA 301
Course Title:	Data analytics and visualization through spreadsheet
Course Outcomes:	
0CA 301.1	Students should be familiar with various characteristics of the spreadsheet.
0CA 301.2	Learn how to format spreadsheet, and viewing its appearance before printing.
0CA 301.3	Importing/Exporting Access Data and Text Files. Securing worksheet and workbook.
0CA 301.4	Calculate values and process data through various formula, and using data validation formula.
0CA 301.5	Visualize data values through various types of charts.

Course Code:	0CA302
Course Title:	DTP
Course Outcomes:	
0CA302.1	Understand basics of computer and its related terminology.
0CA302.2	Write, Edit & Print documents using PageMaker.
0CA302.3	Understand various Photoshop tools used for Desktop Publishing and would be able to edit an image.
0CA302.4	Apply different CorelDraw tools and options to create a poster, Monogram, Visiting card etc.
0CA302.5	Understand Color concept in Printing.



Course Code:	01CA311
Course Title:	Programming with C#
Course Outcomes:	
01CA311.1	Knowledge of the structure and model of the programming language C #.
01CA311.2	Determine logical alternatives with C# decision structures utilizing iteration, class methods, fields, and properties.
01CA311.3	Using the programming language C # for various programming technologies (understanding) 4. Develop software in C #.
01CA311.4	Evaluate user requirements for software functionality required to decide whether the programming language C # can meet user requirements.
01CA311.5	Use of certain technologies by implementing them in the C # programming language to solve the given problem.

Course Code:	02CA321
Course Title:	Internet of things
Course Outcomes:	
02CA321.1	Learn the basics of IoT and IoT Architectural view.
02CA321.2	Understand various theoretical and practical principles involved in the design of Data Storage in IoT and use of Software defined networking.
02CA321.3	Learn the Web communication Protocols for connected devices and Message communication Protocols for connected devices.
02CA321.4	Design and implement Sensor Technology and Participatory Sensing.
02CA321.5	Design an IoT Privacy and security solutions.

Course Code:	03CA331
Course Title:	Data Communication and Computer Network
Course Outcomes:	
03CA331.1	Demonstrate the Basic Concepts of Networking and network topology
03CA331.2	Demonstrate the Significance, Purpose and application of transmission media, switching and multiplexing.
03CA331.3	Describe types of networks, their working and network standards.
03CA331.4	Understand OSI Model and its layers.
03CA331.5	Compare networking devices and use routing protocols.

Course Code:	03CA332
Course Title:	Optimization Techniques
Course Outcomes:	
03CA332.1	Formulate real life problems into linear programming problem.
03CA332.2	Apply the simplex method to find an optimal vector for the standard linear programming problem and the corresponding dual problem.
03CA332.3	Find optimal solution of transportation.
03CA332.4	Formulate and solve linear programming model of two-person zero sum game.
03CA332.5	Solve nonlinear programming problems using Kuhn Tucker conditions.



Semester-IV

Course Code:	0EN401
Course Title:	Entrepreneurship Development
Course Outcomes:	
0EN401.1	student will Advance their skills in customer development, customer validation, competitive
0EN401.2	Analysis, and iteration while utilizing design thinking and process tools to evaluate in real-world Problems and projects.
0EN401.3	Mobilize people and resources
0EN401.4	Increase their awareness and deliberately practice the skills and disciplines necessary to Increase confidence and agency.

Course Code:	02CA421
Course Title:	Internet Applications Using Java Programming
Course Outcomes:	
02CA421.1	Able to use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
02CA421.2	Understand and apply the concepts of Inheritance and Interfaces.
02CA421.3	Learn and apply applet programming to create basic web pages.
02CA421.4	Understand the Java event handling model and apply to create interactive web pages
02CA421.5	Able to implement I/O operations and connect to database to solve real world problems.

Course Code:	01CA411
Course Title:	Database management System using PL/SQL
Course Outcomes:	
01CA411.1	Explain the features of database management systems and relational database.
01CA411.2	Design Conceptual Models Of A Database Using ER Modelling For Real Life Applications And Construct Queries In Relational Algebra.
01CA411.3	Create and Populate A RDBMS for A Real-Life Application, With Constraints and Keys, Using SQL
01CA411.4	Retrieve Any Type Of Information From A Database By Formulating Complex Queries In SQL.
01CA411.5	Analyses The Existing Design Of A Database Schema And Apply Concepts Of Normalization To Design An Optimal Database.



Course Code:	03CA431
Course Title:	E-Commerce
Course Outcomes:	
03CA431.1	To learn the fundamentals of E— Commerce and its process.
03CA431.2	To understand the role of E- commerce in the present scenario along with the concepts of security and its applications.
03CA431.3	To gain knowledge of e-commerce business needs and resources and match to technology considering human factors and budget constraints.
03CA431.4	To apply knowledge of changing technology on traditional business models and strategy.
03CA431.5	To have skills to Communicate effectively and ethically using electronic communication.

Course Code:	03CA432
Course Title:	Computer Maintenance and Troubleshooting
Course Outcomes:	
03CA432.1	Understand the basic concepts of CPU organization and architecture
03CA432.2	Apply Laptop maintenance
03CA432.3	Apply Peripheral maintenance
03CA432.4	Apply Network peripherals
03CA432.5	Apply various Tools and Technique

Semester-V

Course Code:	01CA511
Course Title:	Python Programming
Course Outcomes:	
01CA511.1	Develop and execute simple Python programs
01CA511.2	Structure a Python program into functions
01CA511.3	Using Python lists, tuples to represent compound data
01CA511.4	Develop Python Programs for file processing
01CA511.5	Implement error handling

Course Code:	0CA504
Course Title:	Cyber security
Course Outcomes:	
0CA504.1	Understand the cyber security threat landscape.
0CA504.2	Develop a deeper understanding and familiarity with various types of cyber attacks, cybercrimes, vulnerabilities and remedies thereto.
0CA504.3	Analyze and evaluate existing legal framework and laws on cyber security.
0CA504.4	Analyze and evaluate the digital payment system security and remedial measures against digital payment frauds.
0CA504.5	Students will adeptly comprehend, apply, and utilize digital device security principles, tools, and technologies to mitigate cyber threats effectively.



Course Code:	05CA521-A
Course Title:	Multimedia and animation
Course Outcomes:	
05CA521-A.1	Demonstrate knowledge of the fundamental principles of multimedia.
05CA521-A.2	Apply Fonts and image fundamentals.
05CA521-A.3	Fundamentals of Audio and Video
05CA521-A.4	Familiarize knowledge representation in Animation.
05CA521-A.5	Comprehend the use of 2D and 3D Animation.

Course Code:	05CA521-B
Course Title:	Design analysis of algorithms
Course Outcomes:	
05CA521-B.1	Demonstrate knowledge of Graph and its applications.
05CA521-B.2	Apply greedy approach and Huffman coding.
05CA521-B.3	Use various divide and conquer algorithm and recurrence relation
05CA521-B.4	Familiarize with the dynamic programming approach
05CA521-B.5	Comprehend the use of concept of computation and network flow.

Semester-VI

Course Code:	01CA611
Course Title:	Web Technology
Course Outcomes:	
01CA611.1	Have knowledge of HTML, its essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page.
01CA611.2	Develop skills to generate HTML and CSS page and have knowledge of Java Script assisted style sheets (JSSS).
01CA611.3	Have knowledge of PHP, PHP Syntax, Comments, Variables and Constants, Embedding PHP in HTML pre-defined and used defined, Have knowledge of Angular JS, XML Fundamentals, J Query
01CA611.4	Develop skills to generate Static and dynamic application designing, Google form designing, Django

Course Code:	05CA621-A
Course Title:	AI and Data Science
Course Outcomes:	
05CA621-A	Demonstrate knowledge of the fundamental principles of Artificial Intelligence.
05CA621-A	Apply different searching techniques.
05CA621-A	Demonstrate knowledge of Data Science.
05CA621-A	Familiarize knowledge representation in Data science.
05CA621-A	Comprehend the use of Python



Course Code:	05CA621-B
Course Title:	Data Warehouse and Mining
Course Outcomes:	
05CA621-B.1	Students should be familiar with various characteristics of the data warehouse.
05CA621-B.2	Learn how data can be stored in data warehouse into its specified architecture
05CA621-B.3	Understand data mining from basic to advance, including various useful tools and techniques
05CA621-B.4	Implement data classification and clustering using various algorithms.
05CA621-B.5	Implement advance mining techniques with association rules.

Course Code:	05CA622-A
Course Title:	Computer Graphics
Course Outcomes:	
05CA622-A.1	Demonstrate knowledge of the fundamental principles of Computer graphics.
05CA622-A.2	Apply scan Conversion algorithms
05CA622-A.3	Use various filled area primitives.
05CA622-A.4	Familiarize knowledge of clipping.
05CA622-A.5	Comprehend the use of animation.

Course Code:	05CA622-B
Course Title:	Cloud Computing
Course Outcomes:	
05CA622-B.1	Students should be familiar with various characteristics of the cloud platforms.
05CA622-B.2	Learn how virtual platform works for application execution and storage.
05CA622-B.3	Create relational database and other cloud-based file system.
05CA622-B.4	Understand the privacy issues and security strategies in cloud storage.
05CA622-B.5	Implement real time application over various cloud-based platform.

Semester-VII

Course Code:	06RM701
Course Title:	Research Methodology
Course Outcomes:	
06RM701.1	Understand research problem formulation.
06RM701.2	Analyze research related information and Follow research ethics
06RM701.3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
06RM701.4	Understanding that when IPR would take such important place in growth of Individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering In particular.
06RM701.5	IPR protection incentivizes inventors to invest in R&D, leading to new and improved products, economic growth, and social benefits.



Course Code:	05CA721-A
Course Title:	Theory of Computation
Course Outcomes:	
05CA721-A.1	Understand models and abstractions: automata as a basic model of computation.
05CA721-A.2	Students will acquire to represent regular expression and Finite State Automata.
05CA721-A.3	Students will acquire to represent CFL and Pushdown Automata.
05CA721-A.4	Students will recall Turing machines and the concept of computability, including Decidability and un-decidability.
05CA721-A.5	Students will Link between languages, automata, and decision problems.

Course Code:	01CA711
Course Title:	Current Trends & Technology
Course Outcomes:	
01CA711.1	Understand Concepts of Block chain, basic crypto currency, crypto currency benefits and Cryptographic use in crypto currency.
01CA711.2	Use of JavaScript knowledge to learn different types of new Frameworks available in a market that are also current industry need.
01CA711.3	Develop client-server connectivity with the use of Node JS and use of Express frameworks
01CA711.4	Develop algorithms for text processing applications and Dynamic programming applications.
01CA711.5	Design Web applications using Mongo DB database with NodeJS Technology in Backend.

Course Code:	05CA721-B
Course Title:	Compiler Design
Course Outcomes:	
05CA721-B.1	To understand the role, functionality and structure of program translation and Interpretation in Software Development
05CA721-B.2	To understand the difference between abstraction levels of a high levelLanguage and a Machine language
05CA721-B.3	To understand the role of a sequence of intermediate representations in Lowering the Level of abstractions in the process of language translation.
05CA721-B.4	To get a first-hand experience of a practical application of elegant data structures, Algorithms, and Other core CS concepts such as automata theory
05CA721-B.5	To make effective use of tools such as LEX and YACC



Semester-VIII

Course Code:	06RM801
Course Title:	English for Research Writing
Course Outcomes:	
06RM801.1	Student will learn how to improve their writing skills, and level of readability
06RM801.2	Students will learn about what to write in each section of paper
06RM801.3	Students will understand significance of each section of paper, and learn how to write it at the same time.
06RM801.4	Ensure the good quality of paper at very first-time submission
06RM801.5	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness

Course Code:	01CA811
Course Title:	Statistical Thinking for Data Science
Course Outcomes:	
01CA811.1	Understand the statistical foundation for data science
01CA811.2	Apply statistical thinking in collecting, modeling and analyzing data
01CA811.3	Apply statistical thinking in collecting, modeling and analyzing data
01CA811.4	Ability to visualize all types of data
01CA811.5	Understand how to use R for different types of data

Course Code:	06CA851
Course Title:	Research Project/Thesis Submission
Course Outcomes:	
PCC CS-301.1	Apply new ideas in research.



Programme:
P.G.D.C.A.
**(Post Graduate Diploma in Computer
Application)**

Semester-I

Course Code:	91CA106
Course Title:	PC Packages (Word, Excel, PowerPoint)
Course Outcomes:	
91CA106.1	Analyze the working information/practical performance on Operating System, Accessories & Internet.
91CA106.2	Analyze different working paradigms to word processors (MS-Word).
91CA106.3	Determine the appropriate advance working paradigms & graphics to word processors (MS-Word).
91CA106.4	Analyze different working paradigms (formatting, charts, and datasets) to spreadsheet (MS-Excel).
91CA106.5	Analyze different working paradigms (transition, customization, and slide) to presentation software (MS-PowerPoint) and Outlook Express.

Course Code:	91CA105
Course Title:	Fundamentals of Computers and Information Technology
Course Outcomes:	
91CA105.1	Analyzing information that works on computer systems and various storage devices.
91CA105.2	Analyzing various Work Patterns for Input Output Devices
91CA105.3	Determining software and its functions and types along with appropriate information for computer coding systems..
91CA105.4	Analyzing Communication Process and uses of Communication & IT, Communication Channels and types of Networks.
91CA105.5	Analyzing different task-patterns in DOS and Linux.

Course Code:	91CA107-B
Course Title:	Database Using MS-Access
Course Outcomes:	
91CA107-B.1	Examine database concepts and explore the Microsoft Office Access environment.
91CA107-B.2	Designing and building database with related tables in datasheet view or by using the table Wizard.
91CA107-B.3	Understand what queries are and their importance in MS-Access



91CA107-B.4	Designing Forms Build complex forms in design view using different form elements. Build forms of the type: Main/Sub form and query-based.
91CA107-B.5	Generating Reports and creating report-based application

Course Code:	91CA108-A
Course Title:	FUNDAMENTALS OF MULTIMEDIA
Course Outcomes:	
91CA108-A.1	Analyze the information/practical performance on Multimedia Concepts, Application and Text Editing/Formatting..
91CA108-A.2	Analyze the information/ Concepts, Application, features over Sound..
91CA108-A.3	Analyze the information/ Concepts, Application, features, devices for images.
91CA108-A.4	Analyze the information/ Concepts, Application, features, devices for video and different working paradigms (transition, customization) to Animation
91CA108-A.5	Use statistical methods to analyze and collect data. Analyze Future of Multimedia different working paradigms of VR

Semester-II

Course Code:	91CA205
Course Title:	IT Trends and Technologies
Course Outcomes:	
91CA205.1	Understand how technology enables government services but also presents security risks in the digital space.
91CA205.2	Explore fundamental aspects of e-commerce and electronic payment systems, touching upon their concepts, technologies, methods, and impacts.
91CA205.3	Discuss about wireless communication, covering technologies, generations, components and related concepts.
91CA205.4	Describe concepts of AI & Expert Systems, cloud computing, briefly touches on IoT and Big data. Its applications, and uses.
91CA205.5	Explain the fundamentals of MIS, the SDLC, and considerations and techniques involved in system development.

Course Code:	91CA206
Course Title:	Internet and Web Designing
Course Outcomes:	
91CA206.1	Describe the concepts of WWW including browser and http protocol.
91CA206.2	Understand the concept of Polymorphism & Inheritance List the various HTML tags and use them to develop the user friendly web pages.
91CA206.3	Define the CSS with its types and use them to provide the styles to the web pages at various levels.
91CA206.4	Develop the modern web pages using the html and CSS features with different layouts as per need of applications
91CA206.5	Gaining knowledge about the Domain Name Registration and Web Hosting.



Course Code:	91CA207-B
Course Title:	Financial Accounting With Tally
Course Outcomes:	
91CA207-B.1	Analyze the Basic Concept of Accounting, Accounting Software and working with Company and Various Configurations
91CA207-B.2	Analyze/Examine the basic terminologies - Groups and Ledgers, Vouchers, Bank Reconciliation, Interest, Budget etc
91CA207-B.3	Analyze various Accounting reports and Account Books.
91CA207-B.4	Analyze/Examine Inventory and Working with Inventory and Exceptional reports
91CA207-B.5	Analyze/ Prepare and print financial statements, Tally Audit, Security control etc. in Tally Accounting software

Course Code:	91CA208-A
Course Title:	Multimedia with Corel Draw ,Premier And Sound Forge
Course Outcomes:	
91CA208-A.1	Understanding the Introduction and Application of Corel Draw.
91CA208-A.2	Working with the help of Tools in Corel Draw .
91CA208-A.3	Working with Grid and Ruler in Corel Draw
91CA208-A.4	Basic introduction and working with Adobe premier.
91CA208-A.5	Basic introduction and working with Sound Forge.



Faculty of Basic Science

Department of Mathematics



Programme: Ph.D. (Mathematics)

Semester-I

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
CO1-151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
CO 2-151PH01.1	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
CO 3-151PH01.1	Develop insights about the statistical analysis tools and techniques for better research outcomes.
CO 4-151PH01.1	To explain the art of interpretation and the art of writing research reports
CO 5-151PH01.1	Evaluate the role and functioning of computer in research

Course Code:	151MATH02
Course Title:	Advances In Mathematics
Course Outcomes:	
CO1-151MATH02.1	Understand the concept of tensors and their transformation laws.
CO2-151MATH02.2	Newtonian approximation of relativistic equations of motion in generalrelativity.
CO3-151MATH02.3	Understand the Principle of Equivalence and its implications in generalrelativity.
CO4-151MATH02.4	Apply the Newtonian approximation of Einstein's Field Equations.
CO5-151MATH02.5	Understand Friedmann

Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
CO1-151PH03.1	Students will be able to understand the ethics in conduct of scientific research.
CO2--151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
CO3--151PH03.3	Identify research misconduct and predatory publications.
CO 4--151PH03.4	Understand about the infer the ethical framework and principles.
CO 5--151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.



Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
CO1-151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme: M.Sc. (Mathematics)

Semester-I

Course Code:	78MS101
Course Title:	Advanced Abstract Algebra-I
Course Outcomes:	
CO1-78MS101.1	Understand the importance of algebraic properties with regard to working within various number systems.
CO2-78MS101.2.	Students will determine whether a given binary operation on the given set gives a group structure by applying the axioms.
CO3-78MS101.3.	Students will determine whether a given binary operation on the given set gives algebraic structure by applying the axioms of Ring.
CO4-78MS101.4	Connecting ring theory to other areas of mathematics or applications in computerscience, physics, or cryptography.
CO5-78MS101.5	Students will create the concept of a group action to real life problems such as Counting.

Course Code:	78MS102
Course Title:	Real Analysis-I
Course Outcomes:	
CO1-78MS102.1	Understand the importance of properties of Riemann-Stieltjes integrals.
CO2-78MS102.2	Determine the Rearrangements of terms of a series.
CO3-78MS102.3	Demonstrate an understanding of the theory of sequence and Students will be able to describe all elements in Uniform Convergence of Sequence.
CO4-78MS102.4	Define and recognize the series and Students will compute the expression of Linear transformations.
CO5-78MS102.5	Students will create the concept of a Differential forms, Stoke_s theorem to sequences, and series.

Course Code:	78MS103
Course Title:	Topology
Course Outcomes:	
CO1-78MS103.1	Define and understand the concept of sets, theorems based on countable and uncountable sets, algebraically hypothesis of continuum, topological space. Apply to know the interior, exterior and boundary point, limit points. Continuous functions and homeomorphism.



CO2- 78MS103.2	Define and understand the basic concepts of countable spaces I and II, lintel off theorem, separable space compactness and finite intersection property sequentially and countable compact set, logical compactness. connectors on real line component and locally connectors paces
CO3- - 78MS103.3	Define and computer separations axioms T_0, T_1, T_2, T_3, T_4 and their characteristics and basic properties .lemma of orisons and tied Extension.
CO4- - 78MS103.4	Understand the definition of product compact space, connected space, and path connectedness, path component. Tychn off product space in terms of subspace and its characterization projection map.
CO5- - 78MS103.5	Understand and state the embedding and metrication. Embedding lemma and tychn off embedding. the uryshonsmetrization theorem . nets and filters. topology convergence of nets, hausdroffness and nets . Compactness and nets filters and their convergence. Canonical way of converting nets and filters and vice versa. Ultra filter and compactness.

Course Code:	78MS104
Course Title:	Complex Analysis-I
Course Outcomes:	
CO1-78MS104.1	Understand the importance of algebra of complex numbers with regard to working within various number systems.
CO2-78MS104.2.	Students will determine a given function which is on the closed contour and the value of integration of this function.
CO3-78MS104.3.	Students will Calculate Residues in some special cases by using Residue theorem.
CO4-78MS104.4	Students will compute the Expansion of Analytic function as power series by using Taylor and Laurent theorem.
CO5-78MS104.5 .	Students will create the concept of a Mapping or Transformation and their representation.

Course Code:	78MS105
Course Title:	Research Methodology
Course Outcomes:	
CO1-78MS105.1	Students will understand research approaches.
CO2-78MS105.2	With the help of this course, students will be able to take up and implement a research project/ study.
CO3-78MS105.3	Define a research problem.
CO4-78MS105.4	The Students will develop skills in qualitative and quantitative data analysis and presentation.



CO5-78MS105.5	To teach students different techniques of research modeling, data collection, designing and planning of experiments.
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Semester-II

Course Code:	78MS201
Course Title:	Advanced Abstract Algebra-II
Course Outcomes:	
CO1-78MS201.1	Determine whether a particular subset of a ring R is a subring, ideal, or radical.
CO2-78MS201.2.	Prove elementary facts about subrings and ideals from the relevant definitions and other elementary facts;
CO3-78MS201.3.	Prove basic relationships between subrings and ideals (e.g.all ideals are subrings but not all subrings are ideals)
CO4-78MS201.4	Learn about the concept of linear independence of vectors over a field and the dimension of a vector space.
CO5-78MS201.5	Basic concepts of linear transformations dimension theorem

Course Code:	78MS202
Course Title:	Real Analysis-II
Course Outcomes:	
CO1-78MS202.1	Understand the importance of properties of Lebesgue outer measure and Borel measurability of sets
CO2-78MS202.2	Determine the Measurable function and Lebesgue Integral
CO3-78MS202.3	Demonstrate an understanding of the theory of Four derivatives and Lebesgue Differentiation theorem
CO4-78MS202.4	Define and recognize the series and Students will compute the expression of LP Space and convex function.
CO5-78MS202.5	Students will create the concept of a Riesz theorem and uniform convergence.

Course Code:	78MS203
Course Title:	Complex Analysis-II
Course Outcomes:	
CO1-78MS203.1	This course gives more Understanding about Analysis
CO2-78MS203.2.	Students will be equipped with the understanding of the fundamental concepts of complex variable theory and skill of contour integration.



CO3-78MS203.3.	This course involved complex number properties of them, analytic function, residues fundamental theorem.
CO4-78MS203.4	With this Course students are prepared to learn about advance complex analysis.
CO5-78MS203.5	5 Students will Constructing mobius transformations mapping givencircle to given Circle.

Course Code:	78MS204
Course Title:	Advanced Discrete Mathematics
Course Outcomes:	
CO1-78MS204.1	Learn the structure of graphs and familiarize the basic concepts used to analyses different problems in different branches such as chemistry, computer science etc.
CO2-78MS204.2.	Analyze characterization of special graphs.
CO3-78MS204.3.	Understand the importance of algebraic properties with regard to working within various number systems.
CO4-78MS204.4	Acquire knowledge of Boolean algebras and Boolean function and understand how these concepts arise in certain real life problems.
CO5-78MS204.5	Learn the equivalence of deterministic and non-deterministic finite accepters.

Course Code:	78MS205
Course Title:	Ordinary and Partial Differential Equations
Course Outcomes:	
CO1-78MS205.1	Solve first-order non-linear differential equations and linear differential equations.
CO2-78MS205.2	Formulate mathematical models using ODEs to represent real-world problems.
CO3-78MS205.3	Formulate differential equations for various mathematical models.
CO4-78MS205.4	Study techniques for handling linear PDEs and understand their behavior and applies partial derivative equation techniques to predict the behavior of certain phenomena.
CO3-78MS205.5	Apply numerical methods (e.g., Euler's method, Runge-Kutta methods) to approximate solutions of ODEs.



Semester-III

Course Code:	78MS301
Course Title:	Operational Research
Course Outcomes:	
CO1-78MS301.1	To learn graphical method and the simplex algorithm for solving a linear programming problem.
CO2-78MS301.2.	To learn more optimization techniques for solving linear programming models transportation problem and integer programming problem.
CO3-78MS301.3.	Understand optimization techniques for solving some network related problems.
CO4-78MS301.4	To learn sensitivity analysis and parametric programming, which describes how various changes in the problem affect its solution
CO5-78MS301.5	Ability to think innovatively to do research in high level in mathematics and interdisciplinary fields.

Course Code:	78MS302
Course Title:	Integral Equation
Course Outcomes:	
CO1-- MSC 302.1	Define and understand the concept of laplace transform and differentialequation and their classification, definition of integral transform Fredholm and Volterra integral equation.
CO2-- MSC 302.2	Define and understand the basic concepts of integral transform method, LaPlace transform convolution integral. Application of Volterra with convolution type kernels. solution of the Cauchy type singular integralequation. And the Hilbert kernel.
CO3-- MSC 302.3	Define and compute, symmetric kernels, orthonormal system of functions. Fundamental properties of eigenvalues and eigen functions for symmetric kernels. Solution of integral equations with symmetric kernels.
CO4-- MSC 302.4	Understand and definition of a boundary value problem for an ordinary equation of a second order and reduction to a Fredholm integral equation of the second kind. Dirac delta function. Green function approach to reduce the boundary value problem of a self-adjoint differential equation with homogenous boundary condition to integral equation form.
CO5 - - MSC 302.5	Understand the integral representation formulae for the solution of the laplace and Poisson equations. Newtonian single layer and double layer potentials. Integral equation formulation of boundary value problem for laplace equations



Course Code:	78MS303
Course Title:	Advanced Numerical Techniques
Course Outcomes:	
CO1-78MS303.1	Understand the importance of Uniform approximation by polynomials, Errors and their computations.
CO2-78MS303.2	Determine the Systems of Linear Equations
CO3-78MS303.3	Demonstrate an understanding of the theory of Iterative method
CO4-78MS303.4	Define and recognize the Eigen value problem
CO5-78MS303.5	Students will create the concept of a Numerical Integration and method based on Interpolation

Course Code:	78MS304
Course Title:	Special function
Course Outcomes:	
CO1-78MS304.1	Understand the property of special function like Gauss hypergeometric Legendre function with their integral representations.
CO2-78MS304.2.	Understand the concept of Bessel's function Hermite function etc. with its properties like recurrence relation orthogonal properties generating function etc.
CO3-78MS304.3.	Understand how special function is useful in differential equation.
CO4-78MS304.4	Explain the application and the usefulness of these special function
CO5-78MS304.5	classify and explain the function different types of differential equation.

Course Code:	78MS305
Course Title:	Fundamentals of Computers & Programming
Course Outcomes:	
CO1-78MS305.1:	Understand and apply the programming concepts of C++ which is important for mathematical investigation and problem solving.
CO2-78MS305.2:	Use mathematical libraries for computational objectives.
CO3-78MS305.3:	Represent the outputs of programs visually in terms of well formatted text and plots.
CO4-78MS305. 4:.	Apply the knowledge to solve complex problems and contribute meaningfully to the development of various software and systems
CO5-78MS305.5:	Understand Microsoft Office is favored in professional settings due to its extensive features, compatibility, and support, while Open Office might be more suitable for personal use or organizations looking for a free and basic office suite.



Course Code:	78MS306-A
Course Title:	Scientific writing
Course Outcomes:	
CO1-78MS306-A .1	Do review of literature
CO2-78MS306-A .2	Write review paper thesis write and Generate report
CO3-78MS306-A .3	Aware to format of publications
CO4-78MS306-A .4	Understand concept of impact factor, H index
CO5-78MS306-A.5	Understand implementation of Software's to writing research papers and plotting the graphs.

Semester-IV

Course Code:	78MS401
Course Title:	Analytic Number Theory
Course Outcomes:	
CO1-78MS401.1	Be able to effectively express the concepts and results of numbertheory.
CO2-78MS401.2	Learn basic theory of arithmetical functions and Dirichlet multiplication,averages of some arithmetical functions.
CO3-78MS401.3	Understand distribution of prime numbers and prime number theorem.
CO4-78MS401.4	Learn the concept of quadratic residue and Quadratic reciprocity laws.
CO5-78MS401.5	Get a basic knowledge in Cryptography.

Course Code:	78MS402
Course Title:	Functional Analysis
Course Outcomes:	
CO1-78MS402.1	Understand the importance of normed Linear spaces and Banachspaces
CO2-78MS402.2	Determine the Fundamental theorems on normed linear space
CO3-78MS402.3	Demonstrate an understanding of the Applications of Normed linear Space
CO4-78MS402.4	Define and recognize the Hilbert Spaces
CO5-78MS402.5	Students will create the concept of a Operator Theory and Sturm



Course Code:	78MS403
Course Title:	General Theory of Relativity
Course Outcomes:	
CO1-78MS403.1	Understanding of Einstein's Field Equations.
CO2-78MS403.2	Understanding of the concept of tensor calculus, which is essential for expressing and manipulating the equations of General Relativity.
CO3-78MS403.3	Students should gain insights into the properties of black holes, their formation, and their role in the universe.
CO4-78MS403.4	Understanding of the concept of gravitational waves, their detection, and their significance as a powerful tool to study astrophysical phenomena.
CO5-78MS403.5	Understanding of the concepts, principles, and mathematical framework of the General Theory of Relativity.

Course Code:	78MS404
Course Title:	Jacobi Polynomial and H-Function
Course Outcomes:	
CO-78MS404.1:	Understanding of special functions and their importance in various mathematical and physical applications.
CO-78MS404.2:	Using Jacobi polynomials as a basis and apply them to various mathematical and physical problems.
CO-78MS404.3:	Understand the concept of applied in manipulating and solving problem involving the H-function.
CO78MS404.4:	Understand the concept of integral transforms, specifically the H-transform, and its use in solving integral equations.
CO-78MS404.5:	Understanding of fractional calculus and its importance in modeling complex systems with fractional derivatives and integral.

Course Code:	78MS405
Course Title:	ADVANCED MATHEMATICAL STATISTIC
Course Outcomes:	
CO1-.78MS405.1	Learn the statistical methods to describe the central or typical value in a set of data to have clear understanding of the concept of central



Department of Physics



Doctor of Philosophy in Physics Ph.D. (Physics)

Ph.D. Course work

CourseCode:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports.
151PH01.5	Evaluate the role and functioning of computer in research.

CourseCode:	151PHY02
Course Title:	Advances in Physics
Course Outcomes:	
151PHY02.1	Students will be well-prepared to pursue further research, academic, or industrial endeavors in the interdisciplinary field of nanocomposites, contributing to advancements in materials science, engineering, and technology.
151PHY02.2	The students will be well-prepared to contribute to the advancement of knowledge and innovation in the field of advanced materials, whether through academic research, industrial applications, or technological advancements.
151PHY02.3	Students will be well-equipped to engage in advanced research and scholarship in the field of relativity, contributing to our understanding of the fundamental nature of space-time and the laws of physics.
151PHY02.4	Students will be well-prepared to engage in advanced research and scholarship in the fields of astrophysics and cosmology, contributing to our understanding of the universe's origins, evolution, and fundamental properties.
151PHY02.5	Students will be well-prepared to conduct cutting-edge research in space science, whether in academia, government research institutions, or the private sector, and contribute to our understanding of the universe and its myriad phenomena.



CourseCode:	151PH03
Course Title:	Research Methodology
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research.
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles.
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
151PH03.6	Develop a valid and ethical research report.

CourseCode:	151PH04
Course Title:	Review of Literature
Course Outcomes:	
151PH04.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Master of Science in Physics M.Sc. (Physics)

Semester-I

CourseCode:	PH101
Course Title:	Mathematical Physics
Course Outcomes:	
PH101.1	Describe the mathematics concepts and their applications to complex numbers, complex functions, analytic functions, complex integration and theory of residues problems of physics.
PH101.2	Understand and analyze the concept of Numerical Solution of Linear and Non-Linear Equations, Ordinary Differential Equations and Function of complex variable.
PH101.3	Identify the applications of complex variables, tensors and group theory.
PH101.4	Understand the concept of Bessel's function, Hermite function etc., with its properties like recurrence relations, orthogonal properties, generating functions etc. Understand how special function is useful in differential equations.
PH101.5	Evaluate the Fourier transform of a continuous function and be familiar with its basic properties, Solution of integral equation and their application, Solve differential & integral equations with initial conditions using Laplace transform.

CourseCode:	PH102
CourseTitle:	Classical Mechanics
Course Outcomes:	
PH102.1	Understand the mechanics of system of particles, D. Alembert's principle, Lagrangian mechanics, & Euler's equation of motion.
PH102.2	Learn about Hamiltonian formulation, Hamilton's Equations of Motion and principle of least action.
PH102.3	Learn about Canonical Transformations & Hamilton-Jacobi theory.
PH102.4	Learn about Rigid body dynamics including problems.
PH102.5	Understand the Relativistic Mechanics and its related aspects.



CourseCode:	PH103
CourseTitle:	Condense Matter Physics
Course Outcomes:	
PH103.1	The course would empower the students to develop an idea about Crystal Structure.
PH103.2	The students would be able to understand all about X-ray and Its Applications.
PH103.3	The students would be able to understand and identify Defects in crystals and can relate it to their daily life.
PH103.4	The students would acquire the knowledge of Crystal Mechanism.
PH103.5	The students would be able to understand the free electron theory.

CourseCode:	PH104
CourseTitle:	Electronic Devices
Course Outcomes:	
PH104.1	Understand the characteristics, properties, and functions of common electronic components such as resistors, capacitors, inductors, diodes, transistors, and integrated circuits.
PH104.2	Gain knowledge about semiconductor materials, their properties, and the operation of semiconductor devices such as diodes and transistors. Understand their applications in rectification, amplification, and switching
PH104.3	Learn about different types of amplifiers and their characteristics. Understand the operation and applications of operational amplifiers (op-amps) in various electronic circuits.
PH104.4	Explore the world of integrated circuits, including their types, fabrication methods, and applications. Understand the functionality and operation of common ICs, such as operational amplifiers, timers, voltage regulators, and digital logic ICs.
PH104.5	Dive deeper into the applications of operational amplifiers (op-amps). Explore op-amp circuits such as active filters, oscillators, comparators, voltage regulators, and instrumentation amplifiers. Understand the design principles and analysis techniques for these circuits.



CourseCode:	PH151
CourseTitle:	General Physics Lab-I
Course Outcomes:	
PH151.1	Learn various Physics aspects by performing the experiments related to light, wave optics, interference, diffraction and polarization.

CourseCode:	PH152
CourseTitle:	Electronics Lab-I
Course Outcomes:	
PH152.1	The course would empower the students to develop an idea about Electronic Devices, Experimental knowledge, working and characteristics curve of electronic apparatus.

Semester-II

CourseCode:	PH201
CourseTitle:	Thermodynamics and Statistical Physics
Course Outcomes:	
PH201.1	Explain the various thermo dynamical quantities and Maxwell's relations and apply the thermodynamics in ideal gas, magnetic and dielectric materials.
PH201.2	Describe various statistical approaches which describe systems of particles and compare microstates, microstates, and statistical ensembles.
PH201.3	Understand the theories and mathematical approaches of statistical ensembles, equi partition theorem and Maxwell-Boltzmann statistics.
PH201.4	Illustrate the fundamental concepts of Bose-Einstein Statistics and phasetransition.
PH201.5	Evaluate the formulae of random walk and diffusion equation and thermo dynamical fluctuations.



CourseCode:	PH202
CourseTitle:	Solid State Physics
Course Outcomes:	
PH202.1	Describe the mathematics concepts and their applications to complex numbers, complex functions, analytic functions, complex integration and theory of residues problems of physics
PH202. 2	Understand and analyze the concept of Numerical Solution of Linear and Non-Linear Equations, Ordinary Differential Equations and Function of complex variable.
PH202.3	Identify the applications of complex variables, tensors and group theory.
PH202.4	Understand the concept of Bessel's function, Hermite function etc., with properties like recurrence relations, orthogonal properties, generating functions etc. Understand how special function is useful in differential equations.
PH202.5	Evaluate the Fourier transform of a continuous function and be familiar with its basic properties. Solution of integral equation and their application. Solve differential & integral equations with initial conditions using Laplace transform.

CourseCode:	PH203
CourseTitle:	Quantum Mechanics-I
Course Outcomes:	
PH203.1	To explain the theories and phenomena of vector space, operators, Dirac's notations, matrices, and commutator's which are very helpful in solving the various Quantum mechanics problems and understand the uncertainty relation between two arbitrary operators.
PH203.2	To understand and solve the Schrödinger equation for a free particle. A comprehensive understanding of the behavior of particles in one and three dimensions enabling them to analyze and solve problems in a wide range of quantum systems.
PH203.3	Understand the potential energy function for a linear harmonic oscillator. Interpret the wave functions associated with harmonic oscillator states. To understand the significance of vibrational energy levels in molecular spectra.
PH203.4	To understanding the angular momentum, spin, and their applications in quantum mechanics, enabling them to analyze and solve problems in systems with angular momentum and spin. Understand the coupling of two angular momenta to obtain the total angular momentum.



PH203.5	Understanding of time-independent perturbation theory, variation methods, WKB approximation, Fermi's Golden Rule, and the semi classical theory of interaction with radiation.
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CourseCode:	PH204
CourseTitle:	Atomic, Molecular and Laser Physics
Course Outcomes:	
PH204.1	Atomic Spectra: To provide students with a comprehensive understanding of atomic spectra and quantum mechanics, preparing them for advanced studies and applications in the field. Students should be able to apply theoretical concepts to interpret experimental data.
PH204.2	Molecular Spectra: To equip students with a strong foundation in molecular spectroscopy, enabling them to understand and analyze rotational spectra for different types of molecules. Students are expected to develop critical thinking, problem-solving skills.
PH204.3	Oscillator: Students have a comprehensive understanding of the theoretical principles, mathematical models, and practical applications of molecular vibrations and spectroscopy in diatomic molecules.
PH204.4	Spectroscopy: To provide students with a comprehensive understanding of various spectroscopic techniques and experimental methods, preparing them for applications in research, industry, and analytical chemistry.
PH204.5	Laser: Course aims to provide students with a comprehensive understanding of laser physics and its applications, preparing them for advanced studies in optics, photonics, and laser technology.

CourseCode:	PH251
CourseTitle:	General Physics Lab-II
Course Outcomes:	
PH251.1	Learn various Physics aspects by performing the experiments related to thermodynamics, dielectric and magnetic properties.



CourseCode:	PH252
CourseTitle:	Electronics Lab-II
Course Outcomes:	
PH252.1	The course would empower the students to develop an idea about Electronic Devices, Experimental knowledge, working and characteristics curve of electronic apparatus.

Semester-III

CourseCode:	PH301
CourseTitle:	Electrodynamics and Plasma Physics
Course Outcomes:	
PH301.1	Understanding Fundamental Electrostatic Concepts: Students will review and deepen their understanding of fundamental electrostatic concepts, including electric fields, Gauss's law, Laplace's and Poisson's equations, and methods of images.
PH301.2	Maxwell's Equations: Familiarity with Maxwell's equations, both in integral and differential forms, and the ability to apply them to solve problems in electrostatics and magneto statics.
PH301.3	Relativistic Electrodynamics: Exploring the extension of classical electrodynamics to the relativistic regime, including the invariance of electric charge and the transformation properties of electric and magnetic fields under Lorentz transformations.
PH301.4	Covariance of Electrodynamics: Understanding the covariance of electrodynamics and deriving the Lagrangian and Hamiltonian for a relativistic charged particle in an external electromagnetic field.
PH301.5	Magneto hydrodynamic Equations: Understanding the fundamental magneto hydrodynamic equations and their applications in describing plasma behavior.



CourseCode:	PH302
CourseTitle:	Quantum Mechanics-II
Course Outcomes:	
PH302.1	Students will be able to apply different approximation methods for stationary states. Make extensive use of Schrodinger representation to learn about the newer concepts of quantization of energy.
PH302.2	To solve time independent perturbed systems using various methods. Use of different approximation methods to perturbed systems. To describe the time evolution of quantum systems and discuss matter radiation interaction.
PH302.3	To provide a formulation for quantum mechanical description of scattering phenomena and their applications.
PH302.4	To describe the relativistic quantum phenomena and account for electron spin.
PH302.5	To understand and appreciate the commutative and non-commutative algebra in the special context of angular momentum in general. To understand the extensive use of abstract operator algebra to learn about angular momentum and its importance.

CourseCode:	PH303
CourseTitle:	Digital Electronics & Microprocessor
Course Outcomes:	
PH303.1	After studying this course, the student will be able to Observe logic circuits, assemble logic circuits and test the logic circuit
PH303.2	Identify the applications of junction devices, amplifiers and logic circuits.
PH303.3	Learn and to apply concepts learnt in analog and digital electronics in real life.
PH303.4	Describe architecture and operation of microprocessor 8085 and develop assembly language programs using instruction set of 8085.
PH303.5	Learn and to apply concepts learnt about Microprocessor & Peripheral Device.



CourseCode:	PH304
Course Title:	Nuclear and Particle Physics
Course Outcomes:	
PH304.1	Understand the basic properties of nuclei and nuclear forces for studying nuclear structure.
PH304.2	Learn about nuclear models like- Liquid drop model and shell model to know nuclear structure.
PH304.3	Learn about nuclear decay and detection methods.
PH304.4	Learn about elementary particles and classify the particles and will be able to understand their properties.
PH304.5	Learn about cosmic rays and detection methods.

CourseCode:	PH305
CourseTitle:	Digital signal processing
Course Outcomes:	
PH305.1	Understanding of Discrete time signals and systems. Significance of sampling and reconstruction.
PH305.2	Applications of Z-transform in Digital signals and systems.
PH305.3	Identify the properties and characteristics of discrete Fourier Transform along with their Mathematical representation and analysis.
PH305.4	Understanding the basic concepts designing of different types of filters.
PH305.5	Analyzing the Applications of Digital Signal Processing.

CourseCode:	PH351
CourseTitle:	General Physics Lab-III
Course Outcomes:	
PH351.1	Learn various Physics aspects by performing the experiments related to nuclear physics and decay detection methods.

CourseCode:	PH352
CourseTitle:	Electronics Lab-III
Course Outcomes:	
PH352.1	The course would empower the students to develop an idea about Electronic Devices, Experimental knowledge, working and characteristics curve of electronic apparatus.

**Semester-IV**

Course Code	PH401
Course Title	Physics of Nano Materials
Course Outcomes	
PH401.1	Correlate properties of nanostructures with their size, shape and surface characteristics.
PH401.2	Qualitatively describe how the nanoparticle size can affect the morphology, crystal structure, reactivity and mechanical properties.
PH401.3	Understand the effects of quantum confinement on the electronic structure and corresponding physical and chemical properties of materials at Nano scale.
PH401.4	Describe several synthesis methods for fabrication of inorganic nanoparticles, one-dimensional nanostructures (nanotubes, nanorods, and nanowires), thin films, nonporous materials, and nanostructured bulk materials, and also could describe how different lithography methods can be used for making nanostructures.
PH401.5	To comprehend basic knowledge on the characterization of nanomaterial by different methods. Understand some specific materials like graphene and carbon nanotubes for various applications.

Course Code:	PH402
Course Title:	Solar Cell and other Renewable Energy Devices
Course Outcomes:	
PH402.1	Develop a strong foundation in the physics and material properties relevant to photovoltaic energy conversion. They will be equipped with the knowledge to analyze and understand the operation of photovoltaic devices.
PH402.2	Develop a comprehensive understanding of different types of solar cells, their operating principles, and the underlying concepts of semiconductor physics. They will be able to analyze the performance and efficiency of solar cells, understand the principles of advanced solar cell technologies.
PH402.3	Gain a comprehensive understanding of hydrogen energy, its production through solar methods, and the storage processes and materials involved. They will be equipped with the knowledge to analyze the environmental and energy considerations associated with hydrogen, understand the physics and material characteristics.



PH402.4	Demonstrate a comprehensive understanding of safety factors associated with hydrogen production, storage, and utilization. Understand the use of hydrogen for electricity generation and assess its benefits for power production and explain elementary concepts of proton-conducting batteries and compare them to other energy storage technologies.
PH402.5	Demonstrate a thorough understanding of the elements and principles of solar thermal energy, wind energy, and ocean thermal energy conversion. Apply their knowledge to design and analyze practical applications of solar thermal energy, including solar cookers, water heaters, and air dryers.

Course Code	PH403
Course Title	Computational and Experimental Techniques and Data Analysis
Course Outcomes:	
PH403.1	Computations techniques to solve various differential equations
PH403.2	The solutions of linear and non-linear equations along with solutions of differential equations
PH403.3	Monte Carlo methods and its application to problems of physical world.
PH403.4	To understand computer application to problems in condensed matter physics.
PH403.5	Learn about experimental techniques and data analysis used in physics.

CourseCode:	PH404
CourseTitle:	Physics of Solar Energy
Course Outcomes:	
PH404.1	The available solar energy and the current solar energy conversion and utilization processes, solar spectrum.
PH404.2	The factors that influence the use of solar radiation as an energy source.
PH404.3	The various active and passive technologies that are available for collecting solar energy; have the ability to apply design principles to selection of an appropriate solar energy installation to meet requirements.
PH404.4	How solar cells convert light into electricity, how solar cells are manufactured, how solar cells are evaluated.
PH404.5	To examine the potential & drawbacks of currently manufactured technologies, as well as pre-commercial technologies. How to enhance solar cell performance and reduce cost, and the major hurdles-technological and economic, towards widespread adoption.



CourseCode:	PH405
CourseTitle:	Astronomy and Space physics
Course Outcomes:	
PH405.1	Student will be able to know the basic concepts of astronomy and Space physics.
PH405.2	Student will be able to know about physical processes optical telescope, instars and evolution of stars.
PH405.3	Student would be able to know about stellar distances and other.
PH405.4	Student would be able to differentiate between various coordinate systems and know about Binary stars and their motions.
PH405.5	Student would be able to know about the characteristics of Sun.

CourseCode:	PH451
CourseTitle:	General Energy and Computational Lab
Course Outcomes:	
PH451.1	Learn various Physics aspects by performing the experiments related to Nano material synthesis and computational techniques.

CourseCode:	PH452
CourseTitle:	Research Project Work
Course Outcomes:	
PH452.1	Learn various Physics aspects by performing the experiments related to nano material synthesis, space physics, general physics and other areas of physics.



Department of Chemistry



Doctor of Philosophy in Chemistry

Ph.D. (Chemistry)

CourseCode:	117PH01
CourseTitle:	Research Methodology Course outcomes
Course Outcomes:	
CO 1	apply appropriate research methodology in their researches/ project works.
CO 2	collect, interpret and evaluate data regarding their research work.
CO 3	apply the statistical analysis tools and techniques for better research outcomes.
CO 4	be skilled to interpret and write review/research report.
CO 5	Evaluate the role of computer and software for creation of new knowledge in the area of his/her interest research work.

CourseCode:	117PH02
CourseTitle:	Research Advances In
Course Outcomes:	
CO 1	Apply Laboratory apparatus and techniques, calibration of volumetric apparatus and create new knowledge in his selected research area.
CO 2	Explain coordination compounds and apply the CFSE for complexes.
CO 3	Apply UV-Visible Spectro-photometry, IR, TG-DTA, NMR, AAS, Mass spectroscopy and XRD Spectroscopy techniques and evaluate data obtained from them for better research outcomes
CO 4	Create new knowledge by evaluating data obtained from Mass, Ultraviolet visible, Infrared, ^1H - NMR and ^{13}C -NMR Spectroscopy.
CO 5	Evaluate the role and functioning of computer in research and apply QSAR and spectral analysis.



CourseCode:	117PH03
CourseTitle:	Research and Publication
Course Outcomes:	
CO 1	Conduct of scientific research keeping in mind ethical issues
CO 2	Utilize indexing and citation databases, open access publications, research.
CO 3	Identify research misconduct and predatory publications.
CO 4	Understand about the infer the ethical framework and principles
CO 5	Student will be able to explore plagiarism tools for a valid and ethical research report
CO6	Develop a valid and ethical research report

CourseCode:	117PH04
CourseTitle:	Review of Literature
Course Outcomes:	
CO 1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Master of Science in Chemistry M.Sc. (Chemistry)

CourseCode:	76CH101
CourseTitle:	Inorganic Chemistry I
Course Outcomes:	
76CH101.1	Explain hybridization as well as $d\pi$ - $p\pi$ bonds and also compare the bond angle of molecules of main group compounds.
76CH101.2	Analyze metal ligand equilibrium in solution on the basis of factors affecting the stability of the complexes as well as determine the stability constant of complexes.
76CH101.3	Apply crystal field theory and molecular orbital theory for the stability of the complexes
76CH101.4	Apply mechanistic details of reaction of transition metal complexes and inertness, liability of complexes.
76CH101.5	Explain π -metal complexes, their spectra, structure and reactions including nitrogen and di-oxygen complexes.

CourseCode:	76CH102
CourseTitle:	Organic Chemistry I
Course Outcomes:	
76CH102.1	Apply the concept of bonding and aromaticities on existed or newly synthesized organic molecules and explain structure of fullerenes as well as bonds weaker than covalent bond with related compounds
76CH102.2	Explain stereo-chemical terms and inter-convert to stereo-structural formulae of organic molecules analyze configurations, create stereo-structures as well as correlate configuration by applying the concept of chemical correlation.
76CH102.3	Explain stereo-chemical terms and inter-convert to stereo-structural formulae of organic molecules analyze configurations, create stereo-structures as well as correlate configuration by applying the concept of chemical correlation.
76CH102.4	Apply mechanistic details of different types reactions with intermediates, thermodynamic & kinetic requirements and analyse the qualitative and quantitative structure & reactivity relationship in organic chemistry
76CH102.5	Apply mechanistic details of aliphatic nucleophilic substitution reactions and factors affecting reactivity in aliphatic nucleophilic substitution
76CH102.6	Apply the knowledge of the factors affecting reactivity in aromatic nucleophilic



CourseCode:	76CH103
CourseTitle:	Physical Chemistry I
Course Outcomes:	
76CH103.1	Explain and apply the basic concept of quantum mechanics.
76CH103.2	Apply molecular orbital theory to simple organic molecule.
76CH103.3	Explain and apply thermodynamic of chemical process.
76CH103.4	Explain catalytic activity and surface chemistry
76CH103.5	Apply electrochemical aspects to related process

CourseCode:	76CH104
CourseTitle:	Group Theory And Spectroscopy I
Course Outcomes:	
76CH104.1	Explain and apply the basic concept symmetry and group theory.
76CH104.2	Describe fundamental aspects of spectroscopy and apply the knowledge these aspects on solving problem related to these.
76CH104.3	Apply the basic concept of microwave and its principle
76CH104.4	Explain and apply the principle of atomic spectroscopy and photo electron spectroscopy.
76CH104.5	Apply the knowledge of NMR principle, instrumentation and applications. And apply the knowledge to solve issues related to NMR spectroscopy

Course Code	76CH105
Course Name	Mathematics For Chemist
Course Outcomes:	
76CH105.1	Explain Matrix and Vectors Algebra.
76CH105.2:	Apply Differential Calculus.
76CH105.3	Apply Integral calculus.
76CH105.4	Discuss Differential equations.
76CH105.5	Explain Fundamentals of Permutation and Probability with applications



Course Code	76ch105
Course Name	Biology For Chemist
Course Outcomes:	
76CH105.1	Explain the metabolism and energy cycle of living beings.
76CH105.2	Explain carbohydrates and their importance for living beings
76CH105.3	Predict biochemistry of any metabolism
76CH105.4	Solve problems related protein structure and amino acid sequence in protein
76CH105.5	Solve problem related genetic engineering

Course Code	76CH151
Course Name	Inorganic Chemistry Lab-I
Course Outcomes:	
76CH151.1	Analyze inorganic mixture qualitatively
76CH151.2	Analyze inorganic mixture containing less common salts
76CH151.3	Analyze inorganic mixture containing insoluble salts
76CH151.4	Synthesize simple inorganic complex compounds.

Course Code	76CH152
Course Name	Organic Chemistry Lab I
Course Outcomes:	
76CH152.1:	Analyse a given mixture of mono functional organic compounds qualitatively in laboratory.
76CH152.2:.	Analyse the mixture of bi functional organic compounds
76CH152.3:	Synthesize various organic compounds via single step in laboratory
76CH152.4:	Synthesize organic compounds via two steps.
76CH152.5:	Analyse the given oil fat quantitatively and qualitatively

Course Code	76CH-153
Course Name	Physical Chemistry Lab I
Course Outcomes:	
76CH153.1	Handle electrodes and conductivity meter to perform physical property analysis.
76CH153.2	Determine rate and estimate molecular mass of polymer system.
76CH153.3	Determine rate constant for various chemical reactions.
76CH153.4	Analyze the viscosity of liquids using Ostwald viscometer.
76CH153.5:	Handle pH meter to perform physical property analysis.



Semester II

Course Code	76CH201
Course Name	Inorganic Chemistry II
Course Outcomes:	
76CH-201.1	Explain the correlation of spectroscopic terms and apply the knowledge to interpret the spectra and draw the Orgel energy level diagram for transition metal complexes.
76CH-201.2	Describe the mechanism of substitution reactions in square planar complexes and interpret them with different types of factors
76CH-201.3	Apply the knowledge of electronic spectra to determine the crystal field splitting energy (Dq), Racah parameter (B) and Nephelauxetic ratio (β) for d^3 , d^7 and d^8 complexes.
76CH-201.4	Apply the knowledge of optical activity for optical rotator dispersion (ORD) and Cotton effect
76CH-201.5	Explain borane chemistry and structure and properties metal clusters

Course code	76CH202
Course name	Organic Chemistry II
Course Outcomes	
76CH202.1	Explain and apply the concept of aromatic electrophilic and aliphatic substitution reactions.
76CH202.2	Explain the concept of free radical substitution reactions with their mechanisms and create mechanistic path for newer free radical reactions
76CH202.3	Explain the reactivity of carbonyl compounds in various reactions and apply these concepts for synthesizing new organic compounds
76CH202.4	Explain mechanistic details of different types of elimination reactions, Saytzeff and Hoffman rules and apply these concepts in prediction of product formation in various elimination reactions
76CH202.5	Explain pericyclic reactions, types, mechanisms and FMO and PMO approach in reference of pericyclic compounds and propose mechanistic path for newer products obtained by pericyclic reactions.

Course Code	76CH203
Course Name	Physical Chemistry II
Course outcomes	
76CH203.1	Explain the chemical kinetics of reactions through different approaches.
76CH203.2	Describe and apply the knowledge with help of statistical thermodynamics.
76CH203.3	Aware about different types of polymeric materials, their synthesis and properties
76CH203.4	Understand approximate methods and angular momentum and its importance.
76CH203.5	Understand to handle different electrochemical process



Course Code:	76CH204
Course Name:	Diffraction Methods And Spectroscopy
Course outcomes	
76CH204.1	Explain the symmetry and group theory provides a powerful framework to understand and analyze patterns, structures, and behaviors across various disciplines.
76CH204.2	Describe and apply the knowledge which helps in identifying and characterizing specific vibrational frequencies..
76CH204.3	Collectively aim to provide students with a comprehensive discussion of the theory, operation, data analysis, and applications of Raman spectroscopy.
76CH104.4	Students would gain a comprehensive apply the theoretical foundations, practical aspects, and diverse applications of ESR spectroscopy.
76CH204.5	Collectively aim to equip students with a comprehensive explanation of the theoretical principles, practical methodologies, and diverse applications of diffraction techniques.

Course Code	76CH205
Course Name	Computer Application In Chemistry
Course outcomes:	
76CH205.1	Apply the basics of computers for Chemists.
76CH205.2	Explain and apply various theoretical and practical principles involved in the design and use of programming interface.
76CH205.3	apply the basic programming for chemist's requirement like Van der Waals equation.
76CH205.4	Design and implement Chart plotting using Excel and create the document using MS Word.
76CH205.5	Apply the Internet, SEO, PDF, JPG and RTF format.

Course Code	76CH251
Course Name	Inorganic Chemistry Lab-II
Course Outcomes:	
76CH251.1	Analyze inorganic mixture qualitatively
76CH251.2	Analyze inorganic mixture containing less common salts
76CH251.3	Separation of inorganic mixture using chromatography
76CH251.4	Synthesize simple inorganic complex compounds.
76CH251.5	Estimate metallic ions in solution volumetrically



Course Code	76CH252
Course Name	Organic Chemistry Lab-II
Course Outcomes:	
76CH152.1	Analyze a given mixture of bi functional organic compounds qualitatively in laboratory.
76CH152.2	Estimate carbohydrate, Vitamin C, Aspirin by spectrophotometer
76CH152.3	Synthesize various organic compounds via green methods
76CH152.4	Synthesize organic compounds via two steps.
76CH152.5	Analyze Quantitatively: Iodine value of oil fat, BOD, COD, DO of water sample

Course Code	76CH253
Course Name	Physical Chemistry Lab-II
Course Outcomes:	
76CH253.1	Determine refractive index, refractivity, and molar Refractivity properties of liquids in analysis.
76CH253.2	Determine rate and estimate molecular mass of polymer system.
76CH253.3	Solve wet-lab practical difficulties related to kinetics of in version,
76CH253.4	Analyze distribution properties of two liquids.
76CH253.5	Handle electrode potential for various applications.

Semester III

Course Code	76CH301
Course Name	Application Of Spectroscopy
Course outcomes:	
76CH-301CO1	Apply the basic principle of UV- Visible Spectroscopy for qualitative analysis
76CH-301 CO2	Explain and apply the basic principle of I. R. Spectroscopy for the qualitative analysis specially for structure elucidation
76CH-301 CO3	Explain and apply the basic principles of NMR spectroscopy (¹ H NMR, ¹³ C NMR) for the structure determination of organic compounds.
76CH-301: CO4	Explain the basic principle of Mossbauer spectroscopy for Qualitative analysis
76CH-301 CO5	Apply spectral data obtained from UV-Visible, I.R., NMR, Mossbauer spectroscopy and Mass spectrometry for solving /determining the structure of organic compounds (composite problems)

Course Code	76CH303
Course Name	Photochemistry And Solid State
Course outcomes:	
76CH303.1	Understand theoretical aspect of photochemistry .
76CH303.2	Apply the principle of photochemistry in photochemical process
76CH303.3	Understand the principle of solid state reaction .
76CH303.4	Solve the problem related solid state and photochemistry
76CH303.5	Apply the knowledge of solid state for preparing semiconductor.



Course Code	76CH303
Course Name	Analytical Chemistry
Course Outcomes:	
76CH303.1	Explain and apply theoretical aspect of analytical chemistry.
76CH303.2	Analyse water, soil and biological fluid sample
76CH303.3	Explain and identify the errors occurred during chemical analysis
76CH303.4	Handle glass ware and reagent in scientific way
76CH303.5	Expertise in laboratory safety

Course Code	76CH304
Course Name	Bio Inorganic, Bio Physical, Bio Organic Chemistry
Course Outcomes:	
76CH-304.1	Explain structure and function of metal complexes or metallo-proteins involved in storage & transportation of oxygen as well in transmission of energy.
76CH-304.2	Explain structure and function of metalloproteins like cytochrome and iron- sulphur proteins involved in electron transport processes and also describe various reactions catalyzed by enzymes.
76CH-304.3	Explain the concept of enzymes and apply its production, purification and applications in various areas.
76CH-304.4	Describe mechanistic details of chemical reactions of various co-enzymic form of vitamins and also describe structure and function of proteins.
76CH-304.5	Explain standard free energy change in biochemical reactions and apply the same concept to hydrolysis and synthesis of ATP.

Course Code	76CH305
Course Name	Green Chemistry
Course Outcomes:	
76CH305.1	Explain and apply concept and principle of green chemistry
76CH305.2	Design environment sustainable and economical route of a synthesis.
76CH305.3	Adopt renewable and alternate resources of energy in various processes
76CH305.4	Solve environmental issues by adopting the principle of green chemistry

Course Code	76CH351
Course Name	Instrumental Techniques In Chemical Analysis Lab
Course Outcomes:	
76CH351.1	Explain and apply chromatography techniques.
76CH351.2	Apply spectroscopic techniques and characterize chemical compounds.
76CH351.3	Analyse sample by conductivity meter, ph meter and potentiometer.
76CH351.4	Analyse qualitatively or quantitatively inorganic/organic compound.
76CH351.5	Apply microwave & ultra sound organic synthesis techniques.



Course Code	**Audit Course
Course Name	Human Value, Professional Ethics & Scientific Writing
Course Outcomes:	
CO1	Create environment in industry/institutions with the highest level of values and ethics
CO2	Apply learning process for holistic development
CO3	Create an environment of impeccable governance
CO4	Create an environment well-laid system of rewards and reprimand
CO5	Will act enable justice and equity for all And Expert in writing scientifically

Course Code	76CH-352
Course Name	Project Work
Course Outcomes:	
76CH-352.1	Create new knowledge in chemical science
76CH-352.2	Explain data obtained during research
76CH-352.3	Present and evaluate research findings
76CH-352.4	Write research findings in form of research paper
76CH-352.5	Solve environmental issues which are based on chemical science

Course Code	76CH-401
Course Name	Industrial Chemistry
Course Outcomes:	
76CH401.1	Apply quality of raw materials and energy for specific chemical industry
76CH401.2	Expert in theoretical aspect of glass, ceramics, fertilizer and cement manufacturing.
76CH401.3	Explain preparation of materials in small scale industries like soap, match, metal powders etc
76CH401.4	Perform work according to need of sugar industry
76CH401.5	Capable to provide solution of environmental issues related to chemical industry

Course Code	76CH-402
Course Name	Research Methodology & Research Ethics
Course Outcomes:	
76CH401.1	Discuss the purpose of research, research process and research design by acquiring the knowledge of types and method of research.
76CH-401.2	Conceptualize and design research projects, including selecting appropriate data collection methods and planning for subsequent analysis.
76CH-401.3	Explain the processing and analysis of data with the skills and knowledge necessary to manage and analyze data effectively.
76CH-401.4	Understand a foundational understanding of the ethical considerations, philosophical principles, and standards of scientific conduct that are crucial in various fields of study.
76CH-401.5	Explain of the ethical considerations and standards related to publishing academic and research work.



Elective Courses

Course Code	76CH-403
Course Name	Polymer Chemistry
Course Outcomes:	
76CH403.1	Explain the Basic concepts of Monomers, repeat units, degree of polymerization Linear, branched and network polymers and Classification of polymers.
76CH403.2	Explain average molecular weight concept. Number, weight and viscosity average molecular weights. Polydispersity an molecular weight distribution
76CH403.3	Describe the analysis and testing of polymers Chemical and physical analysis of polymers
76CH403.4	Explain the structure, Properties and Applications of borazines, boranes and carboranes. silicone's, polymetalloxanes and polymetallosiloxanes,
76CH403.5	Apply the knowledge of Polymers based on Phosphorous-Phosphazenes, Polyphosphates Polymers based on Sulphure-Tetrasulphur tetranitride and related compounds

Course Code	76CH-404
Course Name	Heterocyclic Chemistry (Elective Paper)
Course Outcomes:	
76CH-404.1	Explain & apply heterocyclic chemistry
76CH-404.2	Explain nomenclature of heterocyclic chemistry.
76CH-404.3	Explain synthesis of heterocyclic compounds.
76CH-404.4	Apply heterocyclic synthetic route.
76CH-404.5	Explain to predict theoretically synthesis of newer heterocyclic

Course Code	76CH-405
Course Name	Medicinal Chemistry And Natural Product (Elective Paper)
Course Outcomes:	
76CH-405.1	Explain occurrence, structure properties terpenoids & caretenoids and apply biosynthesis of terpenoids and carotenoids
76CH-405.2	Create use of alkaloids and steroids natural products as starting materials for medicines.
76CH-405.3	Explain and apply of the field of Plant Pigments, Porphyrins & Prostaglandins natural product chemistry.
76CH-405.4	Apply the SAR, Mechanism of action and Pharmacokinetics & Pharmacodynamics of Natural products based medicine.
76CH-405.5	Explain and apply the metabolic process of biomolecules in health and illness (metabolic disorders)



Course Code	76ch-406
Course Name	Chemistry Of Materials
Course Outcomes:	
76CH-406.1	Apply the concept of <i>Ceramics</i> , Composites and Nanomaterial explain the characterization, properties and applications.
76CH-406.2	Explain the Liquid crystals the positional order and bond orientation and Optical properties of liquid crystals by Liquid crystals.
76CH-406.3	Explain the mechanism of ionic conduction, interstitial jumps (Frenkel); vacancy mechanism, diffusion superionic conductors, phase transitions and mechanism of conduction in superionic conductors. Examples and applications of ionic conductors.
76CH-406.4	Explain the High T _c superconductivity Preparation and characterization of 1-2-3 and 2-1-4 materials. Normal state properties, anisotropy, Temperature dependence of electrical resistance.
76CH-406.5	Apply the knowledge of the Molecular rectifiers and transistors, artificial photosynthetic devices, optical storage memory and switches, sensors. Conducting organics, organic superconductors, magnetism in organic materials. Fullerenes, doped and superconductors

Course Code	76CH-407
Course Name	Advanced Synthetic Organic Chemistry
Course Outcomes:	
76CH-407.1	Explain and apply theoretical aspect of Organometallic reagent.
76CH-407.2	Explain oxidative process of hydrocarbon, carbonyl compound.
76CH-407.3	Analyse the reduction process of hydrocarbon, carbonyl compound.
76CH-407.4	Explain Disconnection approach, functional group inter-conversions
76CH-407.5	Analyse two Group C-C Disconnections



Under Graduate Programs (Basic Sciences)



Program:

B.Sc.(Hons)Duration: 4 Years

Course Code:	Commutations skills
Course Title:	0F101
Course Outcomes:	
OF101.1	: Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
OF101.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work. Besides, they will always remain updated with the latest Resume.
OF101.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
OF101.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
OF101.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	0F102
Course Title:	SDG
Course Outcomes:	
98ME104.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
98ME104.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
98ME104.3.	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
98ME104.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.



98ME104.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programs and processes.
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Course Code:	1MS101
Course Title:	Algebra, Vector Analysis and Geometry
Course Outcomes:	
1MS101.1	Student will aware of history of mathematics and hence of its Past, present and future role as part of our culture.
1MS101.2	Student will understand the mathematical structures made up of rows and columns of numbers or other elements.
1MS101.3	Students will be able to apply the knowledge of vector quantities and their derivatives in two and three dimensions both, also use the operations like gradient, divergence and curl.
1MS101.4	Proficiency in analyzing the vector quantities to understanding vector Integration and their practical applications.
1MS101.5	Students will improve the ability to analyze and sketch various types of curves (such as conic sections, polynomial curves, trigonometric curves, etc.) using principles from algebra and geometry in real life problems.

Course Code:	1CS101
Course Title:	Fundamentals of Computer
Course Outcomes:	
1CS101.1	Students should be familiar with various characteristics of the computer
1CS101.2	Learn how to use Windows Operating System including icons and menus
1CS101.3	Learn how to use MS-Office Package including MS-Word
1CS101.4	Learn how to use Internet and Web Browsing
1CS101.5	Using Google Tools such as Drive



Course Code:	1CH101
Course Title:	Analytical Chemistry
Course Outcomes:	
1CH101.1	Explain basic concept of straight line equation, logarithmic relation, differentiation and integration and run the software's to plot the graphs and draw the structure of different molecules.
1CH101.2	describe the presentation of experimental data and analyze the results in terms of significant figure by applying the concept of concentration terms, error, sampling, precision, accuracy
1CH101.3	explain thermodynamic derivation of law of chemical equilibrium by applying the concept of Gibbs free energy and chemical potential
1CH101.4	Discuss principle of chromatography and analyze different components of a mixture quantitatively by applying chromatographic principle.
1CH101.5	Discuss basic concept of spectroscopy and analyze unknown component qualitatively & quantitatively and also identify the functional groups of a molecule on the basis of their stretching and bending vibrations.

Course Code:	2GO101
Course Title:	Physical Geology
Course Outcomes:	
2GO101.1	Basic concept of geology and its branches and general introduction about Earth and solar system.
2GO101.2	Explain the theory of plate tectonics and its relationship to earth processes, features, and landforms.
2GO101.3	Describe and explain processes operating on the surface of the Earth and the resulting landforms and features.
2GO101.4	Explain geological work of natural agency work on the surface of the Earth and the resulting landforms and features.
2GO101.5	Explain the Ocean morphology and glacial morphology.



Semester-II

Course Code:	0IKS201
Course Title:	IKS
Course Outcomes:	
0IKS201.1	To understand the ancient civilization
0IKS201.2	Students will have the ability to learn about ancient books
0IKS201.3	Student will be able to gain knowledge on Vedic Science
0IKS201.4	Understanding on ancient Engineering
0IKS201.5	Student will able to understand about the Life

Course Code:	X1-FCAC1T
Course Title:	Environmental Studies
Course Outcomes:	
X1-FCAC1T.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropogenic era.
X1-FCAC1T.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
X1-FCAC1T.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
X1-FCAC1T.4	To develop the critical thinking for shaping strategies such as; scientific, social. Economic. administrative & legal. environmental protection, conservation of biodiversity. environmental equity and sustainable development.
X1-FCAC1T.5	To prepare for the competitive exams.



Course Code:	2CS201
Course Title:	Programming Methodologies & Data Structures
Course Outcomes:	
2CS201.1	Develop simple algorithms and flow charts to solve a problem with programming using top down design principles.
2CS201.2	Learn to formulate iterative solutions and array processing algorithms for problems.
2CS201.3	Will be familiar with fundamental data structures, their implementation; become accustomed to the description of algorithm in both functional and procedural styles
2CS201.4	Have knowledge of complexity of basic operations like insert, delete, search on these data structures.
2CS201.5	Possess ability to choose a data structure to suitably model any data used in computer applications.

Course Code:	1MH201
Course Title:	Calculus and Differential Equations
Course Outcomes:	
1MH201.1	The Student will aware of history of mathematics and hence of its Past, present and future role as part of our culture.
1MH201.2	The Student will Sketch curves in a plane using its mathematical properties in the different coordinate systems of reference.
1MH201.3	The Students will Using the derivatives optimization, social Science, physics and life science etc
1MH201.4	The student will Formulate the differential equation for various mathematical models.

Course Code:	1CH102
Course Title:	Fundamentals of Chemistry
Course Outcomes:	
1CH102.1	Various theories and principles applied to reveal atomic structure.
1CH102.2	Significance of quantum numbers.
1CH102.3	Concept of Periodic table & periodic properties of elements of elements.
1CH102.4	Theories related to chemical bonding.
1CH102.5	Acid-base concept, pH, buffer and Properties of electrolytes and Basics and mechanism of chemical kinetics.



Course Code:	1PH201
Course Title:	Thermodynamics and Statistics Physics
Course Outcomes:	
1PH201.1	The course would enable the students to understand the basic Physics of heat and temperature in relation to energy, work, radiation and matter.
1PH201.2	The students are expected to learn that —how laws of thermodynamics are used in a heatengine to transform heat into workl.
1PH201.3	Understandthetheoriesandmathematicalapproachesofstatisticalensemble s,equi-partition the remand Maxwell-Boltzmann statistics.
1PH201.4	This course will also develop an understanding of the various concepts of statistics andthe methods to apply them in thermodynamics
1PH201.5	Students will understand the importance of studying statistical mechanics with thebehavior of particles under classical and quantum conditions

Course Code:	1GO201
Course Title:	Crystal and Mineral Sciences
Course Outcomes:	
1GO201.1	Describe the Introduction to Crystallography
1GO201.2	Demonstrate the Crystallography in the Study of Minerals
1GO201.3	Analyses Minerals including their physical and chemical properties
1GO201.4	Explain the Optical Mineralogy in detail including basic concepts
1GO201.5	Discuss Minerals and Lithosphere including composition of later.

Semester-III

Course Code:	01CH301
Course Title:	Reaction, Reagents and Mechanism in organic Chemistry
Course Outcomes:	
01CH301.1:	Explain Nucleophilic substitution Electrophallic Substitution
01CH301.2	Describe the Addition reaction Elimination reactions
01CH301.3:	Explain Regent and catalyst Grignard reagent
01CH301.4:	Reduction reactions . Opener oxidation discuss principle of oxidation reactions
01CH301.5:	Norrish type-I and II reactions and cis-trans isomerisations pericyclic reaction and their classification 2 + 2 and 4 + 2 cycloaddition discuss basic concept of photo- chemical reaction and Par cyclic Reactions



Course Code:	01MS301
Course Title:	Abstract Algebra And Linear Algebra
Course Outcomes:	
01MS301.1	Understand the importance of algebraic properties with regard to working within various number systems.
01MS301..2.	Students will determine whether a given binary operation on the given set gives a group structure by applying the axioms.
01MS301.3.	The fundamental concept of rings, fields, subrings, integral domains and the corresponding morphism.
01MS301..4	Analyze whether a finite set of vectors in a vector space is linearly independent. Explain the concepts of basis and dimension of a vector space.
01MS301..5	Students will understand the Basic concepts of linear transformations, dimension theorem, matrix representation of a linear transformation.

Course Code:	PH201
Course Title:	Thermodynamics and Statistical Physics
Course Outcomes:	
PH201.1	The course would enable the students to understand the basic Physics of heat and temperature in relation to energy, work, radiation and matter.
PH201.2	The students are expected to learn that —how laws of thermodynamics are used in a heat engine to transform heat into work.
PH201.3	Understand the theories and mathematical approaches of statistical ensembles, equipartition theorem and Maxwell- Boltzmann statistics.
PH201.4	This course will also develop an understanding of the various concepts of statistics and the methods to apply them in thermodynamics.
PH201.5	Students will understand the importance of studying statistical mechanics with the behavior of particles under classical and quantum conditions.



Course Code:	1PH301
Course Title:	Waves and Optics
Course Outcomes:	
1PH301.1	Fundamental principles in physics related to oscillations and wave motion, providing a solid foundation for further studies in this field.
1PH301.2	Sound and wave optics, providing students with a comprehensive understanding of the physics of sound and light waves, as well as their practical applications.
1PH301.3	Interference and interferometry, providing students with a deep understanding of wave optics principles and their practical applications. Students will gain hands-on experience with various experimental setups to observe and analyze interference patterns.
1PH301.4	Wave optics, focusing on the principles and applications of diffraction, with a particular emphasis on Fresnel and Fraunhofer diffraction. Students will gain theoretical knowledge as well as practical skills in analyzing diffraction patterns.
1PH301.5	The principles and applications of polarized light, including its production, interaction with anisotropic crystals, and optical activity. Students will gain a solid foundation in the theory and practical aspects of polarization.

Course Code:	0SEC301
Course Title:	Web Designing
Course Outcomes:	
0SEC301.1	Have knowledge of HTML, its essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page.
0SEC301.2	Develop skills to generate HTML and CSS page and have knowledge of JavaScript assisted style sheets.
0SEC301.3	Have knowledge of CSS, CSS Syntax, Comments, Level of CSS, Embedding HTML in CSS, JavaScript pre-defined and used defined.
0SEC301.4	Develop skills to generate Static and dynamic application designing, Google form designing.



Course Code:	1GE301
Course Title:	Igneous and Metamorphic Petrology
Course Outcomes:	
1GE301.1:	Describe the evolution and crystallization of magma
1GE301.2:	Demonstrate the igneous rocks - its forms, structures, texture and classification
1GE301.3:	Analyse the petrography and petrogenesis of Igneous rocks
1GE301.4:	Explain the processes of metamorphism and the metamorphic rocks
1GE301.5:	Metamorphism of various rock types, metasomatism and migmatites

Semester-IV

Course Code:	01MS401
Course Title:	Advanced Calculus and partial differential equations
Course Outcomes:	
01MS401.1	The Student will aware of history of mathematics and hence of its Past, present and future role as part of our culture.
01MS401.2	Calculate the limit superior, the limit inferior, and the limit of bounded sequence.
01MS401.3	Apply the mean value theorems and Taylor's theorem.
01MS401.4	Apply the various tests to determine convergence and absolute convergence of an infinite series of real numbers.
01MS401.5	Formulate, classify and transform partial differential equations into canonical form.

Course Code:	1CH401
Course Title:	Transition elements, Chemi – energetic, Phase Equilibria
Course Outcomes:	
1CH401.1:	Explain the electronic configuration, oxidation states and magnetic behavior of d and f-block elements
1CH401.2:	Describe the metal ligand bonding on the basis of VBT, CFT and LFT
1CH401.3:	Discuss about the first, second and third law of thermodynamics and their applications
1CH401.4:	Describe the various types of reference electrodes, electrochemical series, electrode potential and Nernst equation
1CH401.5:	Apply their knowledge to explain the phase diagram of one and two component systems



Course Code:	OSE401
Course Title:	Desktop Publishing with Advance PageMaker
Course Outcomes:	
OSE401.1:	Students will gain a foundational understanding of desktop publishing principles, terminology, and techniques, Navigate and utilize essential tools such as the basics toolbox, control palette, and color palette in PageMaker, create new documents, open existing publications, and manage document settings such as margins, page size, and orientation, Users can easily manipulate text, images.
OSE401.2:	Students will learn how to insert various objects such as shapes, images, and text boxes into their publications and apply formatting options including color, size, and style, moving objects within a document and applying transformations such as rotation, reflection, skewing, and resizing to achieve desired effects.
OSE401.3:	Students will learn preparing a book manuscript for publication, including combining individual chapters, formatting text, and managing page layout, add page numbers to their book manuscript, including the ability to restart page numbering for different chapters as needed.
OSE401.4:	Student will design and create a creating, modifying, and managing tables using the Tables Editor interface, text formatting options including font styles, sizes, colors, and alignment, import external tables into Adobe software from various sources such as Excel or CSV files.
OSE401.5:	Knowledge of the differences between linking and embedding objects in documents, Knowledge of Keyline customization options, including line weight, style, and color, Story Editor for tasks such as editing text attributes, formatting, and restructuring content.



Course Code:	2GO401
Course Title:	Sedimentary Rocks and Stratigraphy of India
Course Outcomes:	
2GO401.1	Describe the Sedimentary Rocks.
2GO401.2	Demonstrate the Sedimentary Texture - Structure and Fossils.
2GO401.3	Analyses the concept of Stratigraphy.
2GO401.4	Explain the Phanerozoic Stratigraphy of India.
2GO401.5	Discuss Deccan Traps, Cenozoic Rocks of Assam and the Siwalik Group.

Course Code:	1CH401
Course Title:	Electricity, Magnetism and Electromagnetic theory
Course Outcomes:	
PH 101.1	Understand the basic concepts of electrostatics and their applications.
PH101.2	Understand the basic concepts of electrostatics and their applications.
PH101.3	Apply various network theorems and their applications in electronics, electrical circuit analysis and electrical machines.
PH101.4	To explain charged particle dynamics and addition from localized time varying vector magnetic sources. To understand the construction and working of various charged particle accelerators.
PH101.5	Understand the concept of electromagnetic wave and its propagation through different media and interfaces and understanding reflection and refraction from a plane surface. To use of Maxwell equations in analyzing the electromagnetic field due to time varying charge and current distribution

Semester- V

Course Code:	0SEC501
Course Title:	Development of Entrepreneurship
Course Outcomes:	
0SEC501.1	Acquire the knowledge of Entrepreneurship and different theories of Entrepreneurship, challenges and process of Entrepreneurship.
0SEC501.2	Acquire the basic concept of Entrepreneurial mindset and creativity with innovative ideas related to technology.
0SEC501.3	Exposed to various methods of Opportunity analysis which includes opportunity sighting, opportunity evaluation process and different business models.



0SEC501.4	Familiarize and understand Various techniques of pitching, various sources of funds, Types of investors and understanding of the three financial statements: Profitand loss account, Balance sheet, and cash flow statement.
0SEC501.5	Acquire the concept of Collaboration it's types, Networking and it's types and Intellectual property rights.
course Code:	1CS501
Course Title:	Operating system (Theory)
Course Outcomes:	
1CS501.1	Describe the importance of computer system resources and the role of operating system in their management policies and algorithms
1CS501.2	Understand various process management concepts and can compare various scheduling techniques, synchronization, and deadlocks.
1CS501.3	Identify the best suited memory management technique for any process and Describe various file operations, file allocation methods and disk space management.
1CS501.4	Students will gain practical skills in system management and an appreciation for theimportance of the Linux kernel and open-source principles.
1CS501.5	Learn to operate the Linux system, along with its administration and Shell programming.

Course Code:	2CS501
Course Title:	PHP & MYSQL
Course Outcomes:	
2CS501.1	Have knowledge of HTML, its essential tags, Attributes, Text styles, Links to ExternalDocuments and different sections of a HTML page.
2CS501.2	Develop skills to generate HTML and CSS page and have knowledge of Java Scriptassisted style sheets.
2CS501.3	Have knowledge of PHP, PHP Syntax, Comments, Variables and Constants, EmbeddingPHP in HTML pre-defined and used defined..
2CS501.4	Develop skills to generate Static and dynamic application designing, Google formdesigning.
2CS501.5	Develop skills to generate Static and dynamic application designing, Google formdesigning.



Course Code:	1MS501
Course Title:	Numerical Methods and scientific computation
Course Outcomes:	
1MS501.1	Understand the importance of Interpolation for equal and unequal interval
1MS501.2	Determine the Method for Solving Algebraic and Transcendental Equation
1MS501.3	Demonstrate an understanding of the theory of the Numerical Differentiation and Numerical Integration
1MS501.4	Define and recognize the method to solve system of linear equation
1MS501.5	Students will create the concept of a Numerical solution of ordinary differential equations

Course Code:	2MS501
Course Title:	Elements of Discrete Mathematics
Course Outcomes:	
2MS501.1	Student will aware of history of Indian logic of mathematics and hence of its Past
2MS501.2	Understand the concepts of the propositions, truth table, predicates and quantifiers, relation, partition etc. and Understand the concepts of Hass diagram and lattices .
2MS501.3	Apply the knowledge of Boolean algebra, Logical circuits, Karnaugh Map. and their applications .
2MS501.4	Understand the concepts of Graph, and its applications in study of shortest path algorithms.
2MS501.5	Understand the concepts of application of tree and matrix Representation of graph using adjacency and incidence matrices.

Course Code:	1PH501
Course Title:	Quantum, Atomic and Molecular Physics
Course Outcomes:	
1PH501.1	The students will be able to know Quantum technology in India: National Mission on Quantum Technologies & Applications (NM-QTA).
1PH501.2	The students will be able to know the quantum mechanics and its applications.
1PH501.3	The students will be able to explain the atomic structures and X-rays.
1PH501.4	The students will be able to analyses the atomic and molecular spectra such as electronic, rotational and vibrational.
1PH501.5	The students will be able to identify the various materials using Raman spectroscopic techniques.



Course Code:	2PH501
Course Title:	Nuclear and Particle Physics
Course Outcomes:	
2PH501.1	Understand the structure of nucleus and nuclear energy.
2PH501.2	Understand the nuclear model and two body interaction processes.
2PH501.3	Develop the understanding for fission and fusion processes and nuclear power generation.
2PH501.4	Understand the different forms of nuclear counter and detectors
2PH501.5	Understand the different nuclear accelerator and decay process.

Course Code:	1CH501
Course Title:	Analytical Chemistry
Course Outcomes:	
1CH501.1	Explain and apply theoretical aspect of analytical chemistry.
1CH501.2	Analyze water, soil and biological fluid sample
1CH501.3	Explain and identify the errors occur red during chemical analysis
1CH501.4	Handle glassware and reagent in scientific way
1CH501.5	Expertise in laboratory safety

Course Code:	2CH501
Course Title:	Green Chemistry
Course Outcomes:	
2CH501.1	Explain and apply concept and principle of green chemistry.
2CH501.2	Design environment sustainable and economical route of a synthesis.
2CH501.3	Adopt renewable and alternate resources of energy in various processes
2CH501.4	Solve environmental issues by adopting the principle of green chemistry.
2CH501.5	Explain and apply concept and principle of green chemistry.



Course Code:	1GO501
Course Title:	Mining Geology-Mineral Beneficiation
Course Outcomes:	
1GO501.1	Student will acquire knowledge about Mining and related terminology.
1GO501.2	Students will learn mining methods and their classification.
1GO501.3	Students will acquire knowledge about mineral beneficiation process and its importance.
1GO501.4	Students will learn how crushing process is important during mineral beneficiation.
1GO501.5	Students will learn how particle separation method helps during mineral beneficiation.

Course Code:	2GO501
Course Title:	Mineral resources of India
Course Outcomes:	
2GO501.1	Develop an understanding of the natural processes associated with the formation of mineral deposits
2GO501.2	Students will learn processes of ore formation specially sedimentary and metamorphic deposits.
2GO501.3	Students will learn about metallic mineral resources-1 of India, their origin and occurrences.
2GO501.4	Students will learn about metallic mineral resources-2 of India, their origin and occurrences.
2GO501.5	Students will learn about nonmetallic mineral wealth of India, their origin and occurrences.

Semester- VI

Course Code:	1CS601
Course Title:	Programming with Python
Course Outcomes:	
1CS601.1	Python programs that effectively utilize conditional statements and loops for decision- making and iteration.
1CS601.2	Proficiency in utilizing various data structures such as lists, tuples, dictionaries, strings, and sets to store and manipulate data efficiently.
1CS601.3	Implement file handling operations, including reading, writing, and appending data to files, and utilize functions effectively for data processing tasks.
1CS601.4	Will be able to design and implement object-oriented programs using classes, inheritance, and encapsulation principles, and handle exceptions gracefully using try-except blocks.



1CS601.5	Demonstrate the ability to create Graphical User Interfaces (GUI) using the Tkinter module and perform database operations such as CRUD (Create, Read, Update, Delete) operations on SQLite databases using Python.
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Course Code:	2CS601
Course Title:	Data Analysis & Visualization with Python
Course Outcomes:	
2CS601.1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.
2CS601.2	Express proficiency in the handling of strings, functions and file handling
2CS601.3	Determine the method to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples, and sets.
2CS601.4	Develop proficiency in using NumPy for data manipulation, and data visualization using Matplotlib.
2CS601.5	Apply NumPy and Matplotlib to analysis and visualize real-world datasets.

Course Code:	2CS 602
Course Title:	Cloud Computing
Course Outcomes:	
2CS 601.1	Analyze the trade offs between deploying applications in the cloud and over the local infrastructure.
2CS 601.2	Deploy applications over commercial cloud computing infrastructure such as Amazon Web Services, Windows Azure, and Google App Engine.
2CS 601.3	Program data intensive parallel applications in the cloud.
2CS 601.4	Analyze the performance, scalability, and reliability of the underlying cloud technologies and software.
2CS 601.5	Identify security and privacy issues in cloud computing.

Course Code:	1MS601
Course Title:	Integral Transform
Course Outcomes:	
1MS601.1	Understanding about Laplace transform and its properties
1MS601.2	Understanding about Inverse Laplace transform and its properties
1MS601.3	Determine the Method for Solve ordinary differential equations using Laplace transform



1MS601.4	Define and recognize the Parseval's identity and applications of Fourier series
1MS601.5	Demonstrate an understanding of the theory of the Familiarize with Fourier transform offunctions, relation) between Laplace and Fourier transform.

Course Code:	2MS601
Course Title:	Fundamentals of Boolean Algebra
Course Outcomes:	
2MS601.1	Student will aware of history of Indian logic of mathematics and hence of its Past, present and future role as part of our culture and Using the Boolean algebra in logical problems.
2MS601.2	Understand the Application of Boolean Algebra in Mathematics and Engineering.
2MS601.3	Minimize the Boolean function using Karnaugh-Map .
2MS601.4	Understand the Applications of Logic Gates
2MS601.5	Applying the circuits in logical problems.

Course Code:	2MS602
Course Title:	Probability & Statistics
Course Outcomes:	

2MS602.1	Student will aware of history of Indian Contribution in statistics and hence of its Past,present and future role as part of our culture.
2MS602.2	Understand The concept Of Measures of Central Tendency
2MS602.3	Understand the Application of Dispersion and distribution in Mathematics and Engineering .
2MS602.4	Students will constructing methods of least squares, curve Fitting & correlations
2MS602.5	With this Course students are prepared to learn about Sampling of large sampling

Course Code:	1PH601
Course Title:	Solid State Physics and Electronics
Course Outcomes:	
1PH601.1	Students should possess a comprehensive knowledge of the contributions of premier Indian institutes, as well as a thorough understanding of the classification of solids, space lattice, crystallographic concepts, simple crystal structures, reciprocal lattice, and diffraction in crystals.
1PH601.2	Students should have a deep understanding of the principles governing specific heat in solids, lattice vibrations in crystals, and the motion of electrons in metals. They should also be familiar with classical theories and models, as well as experimental methods for determining physical properties related to these topics.



1PH601.3	Students should have a thorough understanding of the principles and applications of energy bands, semiconductors, P-N junctions, diodes, and rectifiers, enabling them to analyze and design electronic circuits involving these components.
1PH601.4	Students with a solid foundation in transistor operation, biasing techniques, and amplifier design, enabling them to apply this knowledge to the analysis and design of electronic circuits.
1PH601.5	To equip students with the knowledge and skills necessary to analyze and design circuits involving oscillators and modulation techniques in communication systems.

Course Code:	2PH601
Course Title:	Astronomy & Space Physics
Course Outcomes:	
2PH601.1	Student will be able to know the basic concepts of astronomy and space physics.
2PH601.2	Student will be able to know about physical processes optical telescope, in stars and evolution of stars.
2PH601.3	Student would be able to know about stellar distances and other.
2PH601.4	Student would be able to differentiate between various coordinate system and know about binary stars and their motions.
2PH601.5	Student would be able to know about the characteristics of sun.

Course Code:	2PH602
Course Title:	Solar Energy
Course Outcomes:	
2PH602.1	The available solar energy and the current solar energy conversion and utilization processes, solar spectrum.
2PH602.2	The factors that influence the use of solar radiation as an energy source.
2PH602.3	The various active and passive technologies that are available for collecting solar energy; have the ability to apply design principles to selection of an appropriate solar energy installation to meet requirements.
2PH602.4	How solar cells convert light into electricity, how solar cells are manufactured, how solar cells are evaluated.
2PH602.5	To examine the potential & drawbacks of currently manufactured technologies, as well as pre-commercial technologies. How to enhance solar cell performance and reduce cost, and the major hurdles-technological and economic, towards wide spread adoption.



Course Code:	1CH601
Course Title:	Pharmaceutical & Medicinal Chemistry
Course Outcomes:	
1CH601.1	Understand importance of pharmaceutical chemistry and pharmacopeia.
1CH601.2	Learn intellectual property rights, patents trademark and copyright.
1CH601.3	Understand definition, classification of the drugs with examples and structures.
1CH601.4	Describe the structure activity relation of some important class of drugs.
1CH601.5	Describe the overall process of drug discovery and the role played by medicinal chemistry in this process.

Course Code:	2CH601
Course Title:	Polymer Chemistry
Course Outcomes:	
2CH601.1	Explain the Basic concepts of Monomers, repeat units, degree of polymerization Linear, branched and network polymers and Classification of polymers.
2CH601.2	Explain average molecular weight concept. Number, weight and viscosity average molecular weights. Poly disparity and molecular weight distribution
2CH601.3	Describe the analysis and testing of polymers Chemical and physical analysis of polymers
2CH601.4	Explain the structure, Properties and Applications of borazines, boranes and carbonates. silicone's, poly metalloxanes and poly metallocenes,
2CH601.5	Apply the knowledge of Polymers based on Phosphorous-Phosphazenes, Polyphosphates Polymers based on Sulphure-Tetra sulphur tetranitride and related compounds

Course Code:	2CH602
Course Title:	Bio Physical, Bio Inorganic, Bio Organic Chemistry
Course Outcomes:	
2CH602.1	Explain structure and function of metal complexes or metallo-proteins involved in storage & transportation of oxygen as well in transmission of energy.
2CH602.2	Explain structure and function of metalloproteinase like cytochrome and iron-sulphur proteins involved in electron transport processes and also describe various reactions catalyzed by enzymes.
2CH602.3	Explain the concept of enzymes and apply its production, purification and applications in various areas.
2CH602.4	Describe mechanistic details of chemical reactions of various co-enzymic form of vitamins and also describe structure and function of proteins.
2CH602.5	Explain standard free energy change in biochemical reactions and apply the same concept to hydrolysis and synthesis of ATP.



Course Code:	1GO601
Course Title:	Economic Geology
Course Outcomes:	
1GO601.1	Develop an understanding of the natural processes associated with the formation of mineral deposits.
1GO601.2	Students will learn processes of ore formation specially sedimentary and metamorphic deposits.
1GO601.3	Students will learn about metallic mineral resources of India, their origin and occurrences.
1GO601.4	Explain origin of coal and analysis of coal and physical and chemical constituents and distribution of coal.
1GO601.5	Explain and describe process of formation of petroleum, accumulation traps and Petroliferous basin and distribution of petroleum in India.

Course Code:	2GO601
Course Title:	Fuel Geology
Course Outcomes:	
2GO601.1	Explain origin of coal and analysis of coal and physical and chemical constituents of coal.
2GO601.2	Explain and Describe washing and briquetting of coal, methods of coal prospecting and distribution of coal in India.
2GO601.3	Explain physical properties, processes of occurrence of petroleum.
2GO601.4	Explain and describe process of petroleum accumulation traps and Petroliferous basin and distribution of petroleum in India.
2GO601.5	Explain and describe atomic energy sources of India.

Course Code:	2GO602
Course Title:	Hydro Geology
Course Outcomes:	
2GO602.1	Introduction and basic concepts Scope of hydrogeology
2GO602.2	Describe and explain theory of well hydraulics and its utility to understand groundwater hydrogeology.
2GO602.3	Explain the whole processes of well development and its stages.
2GO602.4	Describe the quality of groundwater its characteristics and causes and parameters.
2GO602.5	Explain concept of groundwater management, developments as a conjunctive use of both surface water and groundwater.



Semester- VII

Course Code:	1CS701
Course Title:	Current trends and technology
Course Outcomes:	
1CS701.1	Understand Concepts of Block chain, basic crypto currency, crypto currency benefits and Cryptographic use in crypto currency.
1CS701.2	Use of JavaScript knowledge to learn different types of new Frameworks available in a market that are also current industry need
1CS701.3	Develop client-server connectivity with the use of Node JS and use of Express frameworks.
1CS701.4	Develop algorithms for text processing applications and Dynamic programming Applications.
1CS701.5	Design Web applications using Mongo DB database with Node.JS Technology in Backend.

Course Code:	2CS701
Course Title:	AI for Everyone
Course Outcomes:	
2CS701.1	Understand the basic concepts of AI and machine learning.
2CS701.2	Understand the working of self-driving systems.
2CS701.3	Understand how to build different AI projects.
2CS701.4	Evaluate the impact of AI on society.
2CS701.5	Apply AI techniques to any application domain

Course Code:	2CS702
Course Title:	Research Methodology & IPR
Course Outcomes:	
2CS702.1	Understand research problem formulation.
2CS702.2	Analyze research related information and Follow research ethics
2CS702.3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
2CS702.4	Understanding that when IPR would take such important place in growth of Individuals & nation, it is needless to emphasize the need of information about Intellectual Property Right to be promoted among students in general & engineering In particular.



2CS702.5	IPR protection incentivizes inventors to invest in R&D, leading to new and improved products, economic growth, and social benefits
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Course Code:	1MH701
Course Title:	Jacobi Polynomial and H-Function
Course Outcomes:	
1MH701.1	Understanding of special functions and their importance in various mathematical and physical applications.
1MH701.2	Using Jacobi polynomials as a basis and apply them to various mathematical and physical problems.
1MH701.3	Understand the concept of applied in manipulating and solving problems involving the H-function.
1MH701.4	Understand the concept of integral transforms, specifically the H-transform, and its use in solving integral equations.
1MH701.5	Understanding of fractional calculus and its importance in modeling complex systems with fractional derivatives and integrals.

Course Code:	2MS702
Course Title:	Research Methodology
Course Outcomes:	
2MS702.1	Students will understand research approaches.
2MS702.2	With the help of this course, students will be able to take up and implement a research project/ study.
2MS702.3	Define a research problem
2MS702.4	The Students will develop skills in qualitative and quantitative data analysis and presentation.
2MS702.5	To teach students different techniques of research modeling, data collection, designing and planning of experiments.

Course Code:	1PH701
Course Title:	Electronic Devices
Course Outcomes:	
1PH701.1	Understand the characteristics, properties, and functions of common electronic components such as resistors, capacitors, inductors, diodes, transistors, and integrated circuits.
1PH701.2	Gain knowledge about semiconductor materials, their properties, and the operation of semiconductor devices such as diodes and transistors. Understand their applications in rectification, amplification, and switching



1PH701.3	Learn about different types of amplifiers and their characteristics. Understand the operation and applications of operational amplifiers (op-amps) in various electronic circuits.
1PH701.4	Explore the world of integrated circuits, including their types, fabrication methods, and applications. Understand the functionality and operation of common ICs, such as operational amplifiers, timers, voltage regulators, and digital logic ICs.
1PH701.5	Dive deeper into the applications of operational amplifiers (op-amps). Explore op-amp circuits such as active filters, oscillators, comparators, voltage regulators, and instrumentation amplifiers. Understand the design principles and analysis techniques for these circuits

Course Code:	2PH701
Course Title:	Atomic, Molecular and Laser Physics
Course Outcomes:	
2PH701.1	Atomic Spectra: To provide students with a comprehensive understanding of atomic spectra and quantum mechanics, preparing them for advanced studies and applications in the field. Students should be able to apply theoretical concepts to interpret experimental data.
2PH701.2	Molecular Spectra: To equip students with a strong foundation in molecular spectroscopy, enabling them to understand and analyze rotational spectra for different types of molecules. Students are expected to develop critical thinking, problem-solving skills.
2PH701.3	Oscillator: Students have a comprehensive understanding of the theoretical principles, mathematical models, and practical applications of molecular vibrations and spectroscopy in diatomic molecules.
2PH701.4	Spectroscopy: To provide students with a comprehensive understanding of various spectroscopic techniques and experimental methods, preparing them for applications in research, industry, and analytical chemistry.
2PH701.5	Laser: Course aims to provide students with a comprehensive understanding of laser physics and its applications, preparing them for advanced studies in optics, photonics, and laser technology.

Course Code:	2PH702
Course Title:	Research Methodology
Course Outcomes:	
2PH702.1	Students will understand research approaches.
2PH702.2	With the help of this course, students will be able to take up and implement a research project/ study.
2PH702.3	Define a research problem
2PH702.4	The Students will develop skills in qualitative and quantitative data analysis and presentation.



2PH702.5	To teach students different techniques of research modeling, data collection, designing and planning of experiments.
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Course Code:	1CH701
Course Title:	Group theory and Spectroscopy I
Course Outcomes:	
1CH701.1	Explain and apply the basic concept symmetry and group theory.
1CH701.2	Describe fundamental aspects of spectroscopy and apply the knowledge these aspects on solving problem related to these.
1CH701.3	Apply the basic concept of microwave and its principle
1CH701.4	Explain and apply the principle of atomic spectroscopy and photoelectron spectroscopy.
1CH701.5	Apply the knowledge of NMR principle, instrumentation and applications. And apply the knowledge to solve issues related to NMR spectroscopy

Course Code:	2CH701
Course Title:	Industrial Chemistry
Course Outcomes:	
2CH701.1	Apply quality of raw materials and energy for specific chemical industry
2CH701.2	Expert in the or ethical aspect of glass, ceramics, fertilizer and cement manufacturing.
2CH701.3	Explain preparation of materials in small scale industries like soap, match, and metal powder etc.
2CH701.4	Perform work according to need of sugar industry
2CH701.5	Capable to provide solution of environmental issues related to chemical industry

Course Code:	2CH702
Course Title:	Research Methodology
Course Outcomes:	
2CH702.1	Students will understand research approaches.
2CH702.2	With the help of this course, students will be able to take up and implement a research project/ study.
2CH702.3	Define a research problem
2CH702.4	The Students will develop skills in qualitative and quantitative data analysis and presentation.



2CH702.5	To teach students different techniques of research modeling, data collection, designing and planning of experiments.
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Course Code:	1CS801
Course Title:	Statistical Thinking for Data Science
Course Outcomes:	
1CS801.1	Understand the statistical foundation for data science.
1CS801.2	Apply statistical thinking in collecting, modeling and analyzing data.
1CS801.3	Apply statistical thinking in collecting, modeling and analyzing data.
1CS801.4	Ability to visualize all types of data.
1CS801.5	Understand how to use R for different types of data.

Course Code:	2CS801
Course Title:	English for Research Paper Writing
Course Outcomes:	
2CS801.1	Student will learn how to improve their writing skills, and level of readability.
2CS801.2	Students will understand the concept of plagiarism, and how to avoid ambiguity and vagueness.
2CS801.3	Students will learn about what to write in each section of paper.
2CS801.4	Students will understand significance of each section of paper, and learn how to write it at the same time.
2CS801.5	Ensure the good quality of paper at very first-time submission.

Course Code:	1MH801
Course Title:	Special Function
Course Outcomes:	
1MH801.1	Understand the property of special function like Gauss hyper geometric legendary function with their integral representations.
1MH801.2	Understand the concept of Bessel's function hermit function etc. with its properties like recurrence relation orthogonal properties generating function etc.
1MH801.3	Understand how special function is useful in differential equation.
1MH801.4	Explain the application and the usefulness of this special function.
1MH801.5	Classify and explain the function different types of differential equation.



Course Code:	2MH801
Course Title:	Complex Analysis
Course Outcomes:	
2MH801.1	Understand the importance of algebra of complex numbers with regard to working within various number systems.
2MH801.2	Student will determine a given function which is on the closed contour „C' and the value of integration of this function.
2MH801.3	Students will Calculate Residues in some special cases by using Residue theorem.
2MH801.4	Students will compute the expansion of Analytic function as power series by using Taylor and Laurent theorem.
2MH801.5	Students will create the concept of a Mapping or Transformation and their representation.

Course Code:	1PH801
Course Title:	Classical Mechanics
Course Outcomes:	
1PH801.1	Understand the mechanics of system of particles, D'Alembert's principle, Lagrangian mechanics, & Euler's equation of motion.
1PH801.2	Learn about Hamiltonian formulation, Hamilton's Equations of Motion and principle of least action.
1PH801.3	Learn about Canonical Transformations & Hamilton-Jacobi theory.
1PH801.4	Learn about Rigid body dynamics including problems.
1PH801.5	Understand the Relativistic Mechanics and its related aspects.

Course Code:	2PH801
Course Title:	Solid State Physics
Course Outcomes:	
2PH801.1	Describe the mathematics concepts and their applications to complex numbers, complex functions, analytic functions, complex integration and theory of residues. problems of physics.
2PH801.2	Understand and analyze the concept of Numerical Solution of Linear and Non-Linear Equations, Ordinary Differential Equations and Function of complex variable.
2PH801.3	Identify the applications of complex variables, tensors and group theory.
2PH801.4	Understand the concept of Bessel's function, Hermite function etc., with its properties like recurrence relations, orthogonal properties, generating functions etc. Understand how special function is useful in differential equations.



2PH801.5	Evaluate the Fourier transform of a continuous function and be familiar with its basic properties. Solution of integral equation and their application. Solve differential & integral equations with initial conditions using Laplace transform.
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Course Code:	1CH801
Course Title:	Diffraction Methods And Spectroscopy II
Course Outcomes:	
1CH801.1	Explain the symmetry and group theory provides a powerful framework to understand and analyze patterns, structures, and behaviors across various disciplines.
1CH801.2	Describe and apply the knowledge which helps in identifying and characterizing specific vibrational frequencies..
1CH801.3	Collectively aim to provide students with a comprehensive discussion of the theory, operation, data analysis, and applications of Raman spectroscopy.
1CH801.4	Students would gain a comprehensive apply the theoretical foundations, practical aspects, and diverse applications of ESR spectroscopy.
1CH801.5	Collectively aim to equip students with a comprehensive explanation of the theoretical principles, practical methodologies, and diverse applications of diffraction techniques.

Course Code:	2CH801
Course Title:	Chemistry Of Materials
Course Outcomes:	
2CH801.1	Apply the concept of Ceramics, Composites and Nanomaterial explain the characterization, properties and applications.
2CH801.2	Explain the Liquid crystals the positional order and bond orientation and Optical properties of liquid crystals by Liquid crystals.
2CH801.3	Explain the mechanism of ionic conduction, interstitial jumps (Frenkel); vacancy mechanism, diffusion supersonic conductors, phase transitions and mechanism of conduction in supersonic conductors. Examples and applications of ionic conductors.
2CH801.4	Explain the High T _c superconductivity Preparation and characterization of 1-2-3 and 2- 1-4 materials. Normal state properties, anisotropy, Temperature dependence of electrical resistance.
2CH801.5	Apply the knowledge of the Molecular rectifiers and transistors, artificial photosynthetic devices, optical storage memory and switches, sensors. Conducting organics, organic superconductors, magnetism in organic materials. Fullerenes, doped and superconductors.



Faculty of Commerce and Financial Studies

Department of Commerce



Programme: Ph.D.in Commerce

CourseTitle:	Research Methodology
Course Code:	117PH01
CourseTitle:	Research Methodology
Course Outcomes:	
117PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
117PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
117PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
117PH01.4	To explain the art of interpretation and the art of writing research reports
117PH01.5	Evaluate the role and functioning of computer in research

CourseTitle:	Advances in Commerce
Course Code:	117PH02
CourseTitle:	Advances in Commerce
Course Outcomes:	
117PH02.1	Understand about basics of financial management with profit and wealth maximization.
117PH02.2	Determine the Tools and Techniques of analysis of financial statements .
117PH02.3	Determine the basics of cost accounting with Cost-Unit Cost center and Elements of cost.
117PH02.4	Understand about basics of Income tax Residential status and GST
117PH02.5	Understand about basics of advanced accounting with Elementary study of Human Resources Accounting and Inflation Accounting.



CourseTitle:	Research and Publication Ethics
CourseCode:	117PH03
CourseTitle:	Research and Publication Ethics
Course Outcomes:	
117PH03.1	Students will be able to understand the ethics in conduct of scientific research
117PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
117PH03.3	Identify research misconduct and predatory publications.
117PH03.4	Understand about the infer the ethical framework and principles
117PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
117PH03.6	Develop a valid and ethical research report.

CourseTitle:	Review of Literature
Course Code:	117PH04
CourseTitle:	Review of Literature
Course Outcomes:	
117PH04.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Master of commerce (M.Com)

SEMESTER I

Course Code:	40AC103
Course Title:	Advanced accounting
Course Outcomes:	
40AC103.1	To memorize the basic terms, concepts and their application in accounting for business consolidations, and partnership also learn the preparations of financial statements
40AC103.2	To Describe the Bank Reconciliation statement, Rectification of errors, types of errors and methods of rectification of accounting for non- profit organization.
40AC103.3	Summarize concepts of accounting from incomplete Records by Net worth method and conversion method, and also conceptualized the aspect of insurance claim and accounting For Insurance Claim.
40AC103.4	To understand the meaning and concept of investment accounting, Preparation of investment account also conceptualized the meaning and concept of voyage account and Preparation of Voyage accounts, Concept of Insolvency, Preparation of Statement of Affairs and Deficiency account
40AC103.5	To understand the concept of Dissolution of partnership Firm Accounting and process in case of Dissolution with insolvency of partner, concept and accounting of including sales of Firm. Concept and Accounting for Amalgamation.

Course Code:	40MT102
Course Title:	Business Environment
Course Outcomes:	
40MT102.1	Apply the knowledge about Theoretical framework of business environment: concept, significance and nature of business environment, elements of environment internal and external changing dimensions of business environment, liberalization, privatization and Globalization.
40MT102.2	Acquire the Economic Environment of Business: Significance and elements of economic environment, Economic system and business environment, economic planning in India, Government policies Industrial policy and licensing policy, fiscal, policy, Monetary policy, Exam. Policy.
40MT102.3	Apply the Political and legal Environment of business Monopoly and Restrictive Trade practices (MRTP) Act, Foreign Exchange Management Act (FEMA),



	Consumer Protection Act, and Patent Laws
40MT102.4	Understand the Socio, Cultural & International Environment: Social Responsibility of business, Characteristic, Components, Scope, relationship between society and business, Socio-cultural business Environment, Social Groups, World Trade Organization (WTO) International Monetary Fund (IMF), foreign investment in India.
40MT102.5	Apply the Technological Environment: Concept Online Channels, Online Services, Advantage of Online Service, E-commerce, Indian Conditions of E-commerce, Electronic Banking, Franchise Business.

Course Code:	40MT104
Course Title:	Cost Analysis and Control
Course Outcomes:	
0MT104.1	Students will connect the strategic need for analyzing and managing costs, and the definition of cost management Activity based management: ABC systems, and budgetary control
0MT104.2	Students will understand Cost estimation and transfer pricing: Cost estimation techniques, and cost estimation and transfer pricing
0MT104.3	Students will prepare Evaluating and managing performance: Cost, volume, and profit analysis
0MT104.4	Students will understand the Cost control techniques. How to differentiate cost control and cost reduction concepts, and identify effective techniques
0MT104.5	Students will calculate Cost audit techniques: Evaluation of techniques of cost audit and rules for cost record Marginal costing techniques: How to appraise the application of marginal costing techniques to evaluate performances, fix selling price, and make or buy decisions



Course Code:	40 MT 101
Course Title:	MANAGEMENT CONCEPT
Course Outcomes:	
40 MT 101.1	To understand various approaches of management within society and within an economic system.
40 MT 101.2	To learn the vital role of Planning in management within a firm and the necessary relationships between marketing and other functional areas of business
40 MT 101.3	To consider the various decision areas within management and the tools and methods used by managers for Organising and decisions making.
40 MT 101.4	To familiarize principles Directing and terminology, because this is a survey course, there is an emphasis on basic concepts and terminology of directing.
40 MT 101.5	To understand how management Functions are important in your own personal and professional development

Semester-II

Course Code:	40MS203
Course Title:	Advanced Statistical Analysis
Course Outcomes:	
40MS203.1	Evaluate theorem of probability, binomial poison, and normal distribution
40MS203.2	Understand the meaning and concept of Sampling and test of signification.
40MS203.3	Analyze the concept of variance including one way and two way classification, Chi Square Test
40MS203.4	Analyze Interpolation and Extrapolation, Association of Attributes, Yules Coefficient of Attributes
40MS203.5	Develop the application skills regarding regression, decision tree analysis.



Course Code:	40EC201
Course Title:	Corporate legal framework
Course Outcomes:	
40EC201.1	Acquire knowledge in about the basics of the law, including its sources, Precedents, significance, and Company Act 1956
40EC201.2	Acquire the basic concept of about the elements of law related to ,Negotiable instrument act 1881.
40EC201.3	.Exposed to various provisions of various elements of law related to MRTPact 1969.
40EC201.4	Familiarize and understand the concise overview of the elements of lawrelated to the Consumer protection act 1986.
40EC201.5	Develop the application skills regarding about the functions of the elements of Regulatory environment for international business.

Course Code:	40MT 204
Course Title:	Functional management
Course Outcomes:	
40MT 204.1	To understand the role of financial management in economic sector and need, influencing Factors, Characteristics of a sound financial plan.
40MT 204.2	State the meaning, Nature and significance of Capitalization over and Under Capitalization, Capital Structure Balanced Capital structure, trading on Equity, Leverage: Financial and operating leverage.
40MT 204.3	To consider the significance of the Marketing Management mainly helps in the survival and growth of an organization and Marketing mix. Advertising, Management: Meaning Objectives, Function and Scope, media of Advertising.
40MT 204.4	To familiarize the concept of Personal Management, Signification of Man- Power Planning, Sources of Recruitment, Characteristics Of a good Recruitment Policy, Concept of Selection, Selection procedure and Methods of selection which increases productivity of an organization.



40MT 204.5	To understand how Production management Works Type of production Systems, Concept of Production Planning Objectives, elements And steps of production control, process Of Product Diversification,. Which increase Efficiency and effectiveness of an employees
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Course Code:	40MT20
Course Title:	Organizational Behavior
Course Outcomes:	
40MT20.1	Understand the role of Concept of Organization, Type and Significance Organization Goal And its Determinants: Organization Behavior – Concept, Nature and Significance Organizational Behavior models.
40MT20.2	State the meaning, Theories Determinants and Importance Perception Concept process and The Theories Learning- concept components, Affecting factors and theories.
40MT20.3	To consider the significance of Meaning, Type and important elements and Theories of Motivation Attitudes and Values: Concept, factors, significance and Theories.
40MT20.4	To Understand the Transactional Analysis, concept of Group Theories of Group Formation, group cohesiveness , power and Authority
40MT20.5	To Apply the knowledge of Causes and suggestions developing sound Organizational Climate, Management of Change Concept and process of Organizational Development.

Semester-III

Course Code:	40TP302
Course Title:	Tax Planning and Management
Course Outcomes:	
40TP302.1	To enumerate the fundamental concepts of Tax Planning and Management appropriate for all organizations.
40TP302.2	To discuss appropriate financial information to make operational decision.
40TP302.3	To demonstrate usage of accounting data in critical management situations.
40TP302.4	To increase their understanding of global markets and various regions of the world.
40TP302.5	To develop and study of Management Audit.



Course Code:	40EC 301
Course Title:	Managerial Economics
Course Outcomes:	
40EC 301.1	Given the details regarding price and quantity, the future manager will be able to calculate and interpret price elasticity, income elasticity and cross-price elasticity of demand and will also be able examine the uses and abuses of demand forecasting techniques.
40EC 301.2	Given the information about scale of production, the future manager will be able to analyze various aspects of empirical production functions and also will be able to comprehend the difference sources of economies and diseconomies of scale.
40EC 301.3	Given the information pertaining to market structure, the future manager will be able to determine the optimal price and output for firms under different market structures.
40EC 301.4	Given the circular flow model of an economy, the future manager will be able to interpret the role and importance of each component with regard to factor market and product market and will also be able to comment on the implications and control of inflation.
40EC 301.5	Given the information regarding expenses and income in an economy, the future manager will be able to calculate and explicate the gross domestic product using expenditure and income approaches and given the details about a phase of the business cycle, the future manager will be able to depict the symptoms, causes and effects on economic activities of a nation.

Course Code:	40EN303
Course Title:	Entrepreneurship skill development
Course Outcomes:	
40EN303.1	Acquire the knowledge of Entrepreneurship and different theories of Entrepreneurship, challenges and process of Entrepreneurship.
40EN303.2	Acquire the basic concept of Entrepreneurial mindset and creativity with innovative ideas related to technology.
40EN303.3	Exposed to various methods of Opportunity analysis which includes opportunity sighting, opportunity evaluation process and different business models.
40EN303.4	Familiarize and understand Various techniques of pitching, various sources of funds, Types of investors and understanding of the three financial statements: Profit and loss account, Balance sheet, and cash flow statement.
40EN303.5	Acquire the concept of Collaboration it's types, Networking and it's types and Intellectual property rights.



Course Code:	40AC 304
Course Title:	Accounting for Managerial Decision
Course Outcomes:	
40AC 304.1	Understand financial reflections, including appreciating the importance of professional codes and regulatory frameworks.
40AC 304.2	Analyze and interpret financial statements, including the analysis of profitability, liquidity, and solvency
40AC 304.3	Knowledge of financial analysis techniques, like trend and ratio analysis, to assess the financial growth of a company
40AC 304.4	Use accounting software and advanced technologies to record, manage and present accounts and financial data.
40AC 304.5	Apply a range of financial decision-making models to analyze and evaluate business decisions

Course Code:	40MM404
Course Title:	International Marketing
Course Outcomes:	
40MM404.1	Understand the role of International Marketing and International Marketing Environment – Internal and External, International Market. Orientation Identification and selection of international markets.
40MM404.2	State the meaning, Nature and significance of Export Organization and Overseas Product Development Methods, of Pricing, price quotation
40MM404.3	To consider the significance of Direct Trading and Indirect Trading and Methods of Payment in international Marketing mainly helps in the survival and growth of an organization and equips it to meet various challenges.
40MM404.4	To familiarize Export creditor the provision for appropriate financial resources is an essential requirement for any Organization's success and directing process. Influencing factors Methods of Export Credit and Finance in India and Risk in Export.
40MM404.5	To understand Export and Import Procedure and Documentation in Foreign trade, Bilateral and Multilateral Trade Agreements, Role of SAARC, Role of WTO in Foreign Trade



Course Code:	40MM403
Course Title:	Rural and Agricultural marketing
Course Outcomes:	
0MM403.1	To understand the role of image of Indian Rural marketing and approach to rural market of India rural consumer and demand dimensions and market segmentation.
0MM403.2	To learn the vital role of Agriculture marketing: Concept, nature, scope and subject matter, classification of agricultural product and their differences with manufactured goods, Agriculture market.
0MM403.3	To consider the various Market Management and channel strategy: Modern marketing management and agricultural products, structured organized market, commodity exchange and produce exchange, cash market.
0MM403.4	To familiarize Regulation of market: Regulated market , genesis of regulated market in India , limitations in present marketing regulation, advantages and limitations of regulated market
0MM403.5	To understand Marketing of Farm Products: Packaging- Packing and packaging, packing material, Transportation advantage, means of transport and transportation cost grading and standardization-

Course Code:	40MM402
Course Title:	Consumer Behavior
Course Outcomes:	
40MM402.1	To understand meaning and significance of consumer behavior along with its determinants. They will get to know about the key difference between consumer Vs buyers_ behavior and also the consumer buying process
40MM402.2	To acquire advanced skills in conducting market research to analyze consumer preferences and trends also elaborate the determinates of organizational buying behavior
40MM402.3	To understand the meaning and need of motivation for consumer as well as marketers along with its type with dynamic nature of consumer.
40MM402.4	To evaluate the concept of personality and consumer diversity along with the various theories of personality
40MM402.5	To Gain insight into meaning of social class, measurement of social class, lifestyle profile of the social class, social class mobility, affluent and non-affluent consumer, selected consumer behavior application in social class.



Course Code:	40MM401
Course Title:	Advertisement and Sales Management
Course Outcomes:	
40MM401.1	To understand the role of Advertisement in selling in market and Effectiveness of Personal selling vs Advertising within an Marketing system
40MM401.2	To learn the vital role of Advertisement decision within a firm and Market the necessary relationships between selling and other functional areas of business, Advertisement layout
40MM401.3	To consider the various processes of Promotional Management and the roles of Advertising Agencies and their selection Advertisement budget With Evaluation of Advertising Effectiveness.
40MM401.4	To familiarize Personal Selling and it's importance while comparing Advertising, personal selling and sales promotion with Methods of Personal Selling.
40MM401.5	To understand how Sales Management work it's objectives and function, And those factors which can affect sales, Sales forces and it's recruitment;- selection, Training, Compensations and Evaluation.

Semester-IV (ELECTIVE)

Course Code:	40TP403
Course Title:	Indirect Taxes
Course Outcomes:	
40TP403.1	Gain comprehensive understanding of indirect taxes, excise liability, goods classification, and excisable goods manufacturing principles.
40TP403.2	Understand excisable goods valuation and assessable value, including inclusions/exclusions and maximum retail price methods
40TP403.3	Gain proficiency in assessment procedures, demand management, refund processes, appeals, and the CENVAT credit system in central excise.
40TP403.4	Develop understanding of customs duty nature, types, valuation methods, and procedures for exporting under the Customs Act.
40TP403.5	Acquire knowledge of export incentives, duty drawbacks, customs officers' powers, penalties, and confiscation procedures in international trade.



Course Code:	40TP402
Course Title:	Business Taxation
Course Outcomes:	
40TP402.1	To provide students with the skills and knowledge needed for Computation of Income from Business and Profession, Assessment of H.U.F. including tax liabilities
40TP402.2	To develop application and analytical skill of the provisions of Tax Law for assessment and analysis and Calculation of Tax Liabilities.
40TP402.3	To impart knowledge in the use of Assessment of Companies, including tax Calculation
40TP402.4	To increase their understanding of Assessment of Co-operative society, Charitable and other Trust including tax calculation.
40TP402.5	To develop application and analytical skill of the provisions Double Taxation Relief, Assessment of Non-Residents

Course Code:	40TP401
Couse Title:	Direct Tax in India
Course Outcomes:	
40TP401.1	Students will be able to understand the background and functioning of the taxation system in India and students will gain a comprehensive overview of basic concepts in income tax, including residential status, scope of total income, and tax rates.
40TP401.2	Apply the relevant provisions to when income is chargeable under the head —Income from house property.
40TP401.3	Apply the relevant provisions to when income is chargeable under the head Computation Income from Salary.
40TP401.4	Apply the relevant provisions to when income is chargeable under the head Profits and gains of business or profession.
40TP401.5	Apply the relevant provisions to when income is chargeable under the head income under the head —Capital Gains‡ and —Income from Other Sources.



Course Code:	40TP404
Course Title:	Sales and Service Tax
Course Outcomes:	
40TP404.1	To enable the students to identify the basic concepts, definitions and terms related to Income Tax. Students would identify the technical terms related to Income Tax.
40TP404.2	Students will Understand the meaning of inter and intra state transaction.
40TP404.3	Student will be equipped with the knowledge of basic concepts of Registration of Dealers Students will understand the provisions for MP VAT and procedures, computation of taxable turnover and VAT
40TP404.4	Students will calculate and compute the sales tax
40TP404.5	To enable the students to identify the basic concepts, definitions and terms related to Income Tax. Students would identify the technical terms related to Income Tax.



Programme: B. Com (H)

Semester-I

Course Code:	0FO 101
Course Title:	Sustainable Development Goals
Course Outcomes:	
0FO 101.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0FO 101.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0FO 101.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astro vastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0FO 101.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0FO 101.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	0FO 102
Course Title:	Environmental Studies
Course Outcomes:	
0FO 102.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropocene era.
0FO 102.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make informed decisions.
0FO 102.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
0FO 102.4	To develop the critical thinking for shaping strategies such as; scientific, social, economic, administrative & legal, environmental protection, conservation of biodiversity, environmental equity and sustainable development.
0FO 102.5	To prepare for the competitive exams.



Course Code:	1AC 101
Course Title:	Financial Accounting
Course Outcomes:	
1AC 101.1	Acquire the knowledge in accounting system of maintenance of journal, ledger, Trial balance and final account.
1AC 101.2	Acquire the basic concept of accounting of depreciation and Royalty.
1AC 101.3	Exposed to various provision of hire purchase system and evaluate del credere commission, normal and abnormal loss, value of unsold stock in consignment account.
1AC 101.4	Familiarize and understand the basic accounting concepts of different type of branch and the Evaluate the unrealized profit under the departmental accounting.
1AC 101.5	Develop the application skills regarding the dissolution of a firm in case of insolvency.

Course Code:	2MT 101
Course Title:	Business Organization & communication.
Course Outcomes:	
2MT 101.1	Acquire the knowledge about the traditional and modern business and provide the knowledge of trade, industry and commerce.
2MT 101.2	Provide the knowledge about different forms of business organization.
2MT 101.3	Provide the knowledge about Private and Public companies and Multinational companies.
2MT 101.4	Apply the introduction about Business communication and tools ,Forms and elements of Business communication
2MT 101.5	Provide to the students' knowledge about oral and written communication and important skills such as Group discussion.

Course Code:	3EC 101
Course Title:	Finance Services and Insurance
Course Outcomes:	
3EC 101.1	to know about financial system and its role in Indian Financial System.
3EC 101.2	to understand Merchant Banking, Forfeiting, Leasing, Mutual Funds etc.
3EC 101.3	to apply his knowledge of financial services in global perspective.
3EC 101.4	Students will be able to apply his knowledge about hire purchase and installment payment system which will be helpful in his further life.



3EC 101.5	Students will be able to relate his knowledge about principles of insurance. They will also become aware about Online Insurance, Process of Claim Settlement.
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Semester-II

Course Code:	0FO 201
Course Title:	Indian Knowledge System
Course Outcomes:	
0FO 201.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0FO 201.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0FO 201.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0FO 201.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0FO 201.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	0FO 202
Course Title:	Communication skills
Course Outcomes:	
0FO 202.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
0FO 202.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work. Besides, they will always remain updated with the latest Resume.
0FO 202.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.
0FO 202.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
0FO 202.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.



Course Code:	1AC 201
Course Title:	Business Regulatory framework
Course Outcomes:	
1AC 201.1	Student will recall various definitions and would be able to evaluate the provisions of Indian contract act 1872.
1AC 201.2	Students would be able to examine various provisions of contract of indemnity and Guarantee, Contract of Bailment and contract of Agency.
1AC 201.3	Students would be able to compare and contrast different types of negotiable instruments and its applicability in the money market.
1AC 201.4	Familiarize and understand the concise overview of the elements of law related to the Consumer protection act 1986 and 2018 and FEMA.
1AC 201.5	Students would be able to apply and examine various provisions of Indian partnership Act 1932, and the Limited liability partnership Act 2008.

Course Code:	2MT 201
Course Title:	Business Organization & Management
Course Outcomes:	
2MT 201.1	Apply the knowledge about stages of Development of Business, Evolution of Business, Modern Business, Forms of Business organization and MSMEs of India.
2MT 201.2	Apply the Knowledge Plant Location, Layout and Size Plant Location: Factors affecting Plant location, Plant Layout. Size of business Unit: Criteria for measuring the size of unit, Factors affecting size, Optimum Unit Size and factors affecting Optimum Size.
2MT 201.3	Apply the Business Combination; Causes, Forms and Kinds of Business Combination, Rationalization: Meaning, Characteristics, Objectives, Principles, and Merits & Demerits: Difference between Rationalization & Nationalization
2MT 201.4	Apply the knowledge Concept of Management, Functions of Management, Taylor's Scientific Management, Henri Fayol's Principles of Management, Planning: Concept, Importance, Process, Types of Plans. Decision making: Process, Individual vs. Group Decision Making
2MT 201.5	Organizations, Organization Structure: Factors affecting Organization structure, Features of Good Organization Structure, Span of Management, Delegation of Authority, Centralization and Decentralization; Line and staff Authority Staffing: Nature & Scope of Staffing, Man Power Planning-Concept and importance, Recruitment: Concept and Sources, e-recruitment, Selection: Concept, Important Tests and Types of Interview Directing: Concept and importance of Directing



Course Code:	3MS 201
Course Title:	Business Math
Course Outcomes:	
3MS 201.1	Apply the knowledge of Mathematics (Algebra, Matrices, Calculus, Optimization) in Solving Business problems by using rules of ratio, percentage and commission
3MS 201.2	Demonstrate mathematical skills required in mathematically intensive areas with the help of Simultaneous equation in Commerce
3MS 201.3	Understand the important role of matrices plays in all facets of the business world.
3MS 201.4	Understand the use of equations, formulae, and mathematical expressions and Relationships In a variety of contexts.
3MS 201.5	Solve the problems in the areas of business calculus simple and compound interest

Semester-III

Course Code:	1AC 301
Course Title:	Cost Accounting
Course Outcomes:	
1AC 301.1	Understand the meaning , Advantages and Disadvantages of Cost accounting
1AC 301.2	Acquaint with the procedure of storekeeping, documentation of material receipt and issue, how to use a technique for setting stock levels, calculation of Economic Order Quantity,
1AC 301.3	Understand the Methods of Labour Turnover, remuneration and bonus methods, also be able understand different types of overheads and its classification into various heads
1AC 301.4	Understand cost unit, cost centre and calculation of various costs by prepare a statement of cost and a cost sheet to find out costalso be able to calculate profit on different type contracts
1AC 301.5	Understand about calculation of profit under process costing including various wastages and to know how to prepare a reconciliation statement to find out the reasons for the difference in the net profit/net loss as per cost and financial records



Course Code:	2MT 301
Course Title:	Business Statistics
Course Outcomes:	
2MT 301.1	Organize, manage and presentation of data. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
2MT 301.2	Analyze statistical data using measures of central tendency with different Averages
2MT 301.3	Analyze statistical data using measures of dispersion and location.
2MT 301.4	Calculate and interpret the correlation between two variables.
2MT 301.5	Calculate the simple linear regression equation for a set of data.

Course Code:	3EC 301
Course Title:	Banking and Insurance
Course Outcomes:	
3EC 301.1	Students will get an understanding about banks and its various principles and the process of recruitment, selection and training.
3EC 301.2	Students will learn about various negotiable instruments which will help them in their practical life.
3EC 301.3	Students will be familiarized with various development banks in India and also about bank accounts, records and reports.
3EC 301.4	Students will be exposed to insurance along with its various types and advantages.
3EC 301.5	Develop the application skills regarding calculation of insurance premium. They will also get knowledge about IRDA and its various functions.

Course Code:	4SE303/ 4SE351 (for lab)
Course Title:	Data Analysis and Computer Application/ Data Analysis and Computer Application (LAB)
Course Outcomes:	
4SE303.1	Understand basic hardware, components of a computer system.
4SE303.2	Proficiently utilize word processing software in an online environment to create, format and manage documents effectively.
4SE303.3	Creating and delivering basic presentations using presentation software in an online environment.
4SE303.4	Proficiency in spreadsheet software for basic data analysis and management tasks.



4SE303.5	Understanding of computer networks, internet services, and their practical applications.
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Semester-IV

Course Code:	1AC 401
Course Title:	Corporate Accounting
Course Outcomes:	
1AC 401.1	Acquire the knowledge of the accounting treatment in issue of shares and issues of Debenture at par and premium.
1AC 401.2	Construct the financial statements of company calculate pre and post incorporation and liquidation with liquidators statement of affairs.
1AC 401.3	Develop the skills of application of calculation of goodwill and shares.
1AC 401.4	Develop the procedure involved in Amalgamation & Absorption of companies.
1AC 401.5	Familiarize the analytical skills in corporate accounting, regarding for preparation of consolidated balance and Cost of control of Holding.

Course Code:	2MT 401
Course Title:	Advanced Business Statistics
Course Outcomes:	
2MT 401.1	Students will be able to calculate the Index Number by various methods and can also represent the data through Diagrams and Graphs.
2MT 401.2	Students will be able to determine and forecast the variables with the help of Time Series Analysis.
2MT 401.3	Students will be able to calculate the probability that an event will occur with the help of various laws of probability.
2MT 401.4	Students will be able to interpolate and extrapolate the variables by using various methods of Interpolation and Extrapolation.
2MT 401.5	Students will be able to identify methods of obtaining and interpreting the associations of attributes , chi-square goodness of fit test and uses of student T-test

Course Code:	3AC 402
Course Title:	Applied Economics
Course Outcomes:	
3AC 402.1	Apply the knowledge about Introduction Concept of Applied Economics, Scope, Nature and Importance, Its Limitations Difference between Micro and Macroeconomics.
3AC 402.2	Acquire the knowledge about the Concept, Gross National Product, Net



	National Product & Gross Domestic Product Net Domestic Product, Methods of Measurement of National Income and Problem.
3AC 402.3	Apply the Principles of Determination of Income Classical and Keynes's Theory, Solution of short term and long-term consumption function, Consumption function in Indian economy.
3AC 402.4	Acquire the knowledge Economic development and its Determining factors Economic and non-economic factors affecting economic growth, classical and modern theories of economic development, stages of economic development of Keynes and Rostow.
3AC 402.5	Apply the knowledge about Concept and determinants of value of money, Quantity theory of money, Theory of Fisher and Cambridge Money Inflation, Money deflation, inflation and narrative inflation, demand driven inflation, cost growth inflation, stagflation, effects of Money Inflation & Money deflation in the India economy

Course Code:	04CA401
Course Title:	Desktop Publishing [DTP]
Course Outcomes:	
04CA401.1	Understand basics of DTP and Advantages of DTP, DTP Software and Hardware and Introduction to Word Processing, Commercial DTP Package.
04CA401.2	Understand basic computer graphics, Anatomy of Typefaces, Printers, Types of Printers used in DTP, Plotter, Scanner.
04CA401.3	Understand methods of placing text and graphics in a document. Master Page, story editor, formatting of text, indent, leading, hyphenation, spelling check, creating index.
04CA401.4	Understand various software used for Desktop Publishing like design documents with text and graphics like newspaper ad, wedding cards, visiting cards, greeting cards etc.
04CA401.5	Know about the multimedia software tools, multimedia authoring – Production and presentation, graphic file formats, MIDI– Overview, concepts, structure of MIDI.

Semester-V

Course Code:	01AC501
Course Title:	Income Tax Law & Practice
Course Outcomes:	
01AC501.1	Apply the relevant provisions to determine the residential status of different persons examine the scope of income of a person based on his residential status, apply the relevant provisions to determine the total income of a person based on his residential status.
01AC501.2	Apply the relevant provisions to when income is chargeable under the head—Income from house property and income under the head —Salaries
01AC501.3	Apply the relevant provisions to when income is chargeable under the head—Profits and gains of business or profession", income under the head —Capital Gains and —Income from Other Sources



01AC501.4	Apply the relevant provisions to Computation of total income of individuals and firms Set off and carry forward of Losses Deduction from Grass total Income Clubbing of Income.
01AC501.5	Basic concepts of Advance payment of tax Assessment Procedure, Tax deduction at Source, (TDS), e-Filing of return.

Course Code:	05AC511
Course Title:	Goods and Service Tax
Course Outcomes:	
05AC511.1	Connect with the genesis of goods and services tax (GST), decipher the constitutional amendment carried out to install in India and working of GST council.
05AC511.2	Understand the meaning of supply under GST law.
05AC511.3	Comprehend the utilization of input tax credit.
05AC511.4	Understand the provisions for registration under GST law.
05AC511.5	Compute the assessable value for charging customs duty.

Course Code:	0MT003
Course Title:	Marketing Management
Course Outcomes:	
0MT003.1	To understand the role of marketing within society and within an economic system.
0MT003.2	To learn the vital role of marketing within a firm and the necessary relationships between marketing and other functional areas of business.
0MT003.3	To consider the various decision areas within marketing and the tools and methods used by marketing managers by making decisions.
0MT003.4	To familiarize key marketing principles and terminology, because this is a survey course, there is an emphasis on basis concepts and terminology.
0MT003.5	To understand how a marketing perspective is importance in your own personal and professional development.

**Semester-VI**

Course Code:	01AC601
Course Title:	Management Accounting
Course Outcomes:	
01AC601.1	To prepare the managerial report of the company
01AC601.2	Be well versed in a thorough analysis of any company's financial statements such as profit and loss account and position statement, and be able to make accurate estimates of the financial position, solvency and profitability of that company.
01AC601.3	By studying the cash flow statement, you will get the knowledge of proper use of cash in the organization and adequate availability of cash in the organization.
01AC601.4	After getting the knowledge of marginal cost, will be able to make very important decisions for the company such as whether to make or buy the item, fix the price, stop production etc.
01AC601.5	Learn to control costs by creating different types of budgets from budgetary control.

Course Code:	05AC601
Course Title:	Financial Management
Course Outcomes:	
05AC601.1	Student learn about basic concept of financial management and able to calculate capital budgeting.
05AC601.2	Student will able to calculate various leverage, cost of capital.
05AC601.3	Student will be able to preparation of projected financial report.
05AC601.4	Student will learn about dividend policy.
05AC601.5	Student will learn about security analysis.

Course Code:	05AC603
Course Title:	Auditing
Course Outcomes:	
05AC603.1	Student would outline the basic objectives of Auditing, the concepts of errors and frauds, Principles of audit and different types of Audit and Students would construct the factors involved in preparation of Audit plan and Audit program.
05AC603.2	Student would evaluate the importance of internal control and internal checks, students would restate the objectives, basic principles establishing internal audit and its usefulness.
05AC603.3	Students would learn about Test check and Audit sampling as Audit techniques.



05AC603.4	Student will understand auditor_s legal liabilities, and student will understand to describe the various level of persuasiveness of different types of Audit evidence.
05AC603.5	Students will be able to understand various types of Auditing .

Semester-VII

Course Code:	01AC701
Course Title:	Income Tax for Business and Tax planning
Course Outcomes:	
01AC701.1	To describe how the provisions in the Business tax and law can be used for tax planning
01AC701.2	To develop ability to calculate taxable income and Tax Liability of firms
01AC701.3	To develop ability to calculate taxable income and Tax Liability of HUF & cooperative societies
01AC701.4	To develop ability to calculate taxable income and Tax Liability of a Company
01AC701.5	acquire knowledge about the submission of Income Tax Return, Advance Tax, Tax deducted at Source, Tax Collection Authorities

Course Code:	02RM703
course Title:	Research Methodology
Course Outcomes:	
02RM703.1	Comprehensive Understanding of Research methodology.
02RM703.2	Develop the skills to navigate the research process effectively.
02RM703.3	Acquire knowledge in sampling design, criteria for selecting sampling procedure.
02RM703.4	Understanding Data analysis by exploring measurement.
02RM703.5	Understanding Advanced Statistical Techniques and Reporting.

Course Code:	05AC702 – A
Course Title:	Public Finance
Course Outcomes:	
05AC702 A.1	Understand the historical background, concepts, principles, and theories of public finance, including its role in economic development, market failures, and government interventions.
05AC702 A.2	Develop strong analytical skills to assess the economic implications of public finance policies, evaluate fiscal decisions, and analyze empirical data related to government revenue, expenditure, and debt management.



05AC702 A.3	– Critically evaluate fiscal policies, tax reforms, budgetary decisions, and public expenditure programs based on their economic efficiency, equity implications, and effectiveness in achieving societal objectives.
05AC702 A.4	– Acquire problem-solving abilities to address fiscal challenges, financial imbalances, and policy dilemmas faced by governments at the national, state, and local levels.
05AC702 A.5	– Apply economic principles, such as resource allocation, market efficiency, income distribution, and public goods theory, to real-world scenarios and policy debates in the field of public finance.

Semester - VIII

Course Code:	01AC801
Course Title:	Advance Accounting
Course Outcomes:	
01AC801.1	Makes aware about Banking Operations -Types of accounts - Banking Services - Current Scenario
01AC801.2	Well acquainted for Understanding Risk - Need and Scope of insurance -accounting treatment of general and life insurance company
01AC801.3	To comprehend accounting process of various Kinds of Public utility concerns
01AC801.4	To develop ability to calculate payback period of investment and decision making
01AC801.5	To develop ability to calculate claims against loss of stock and loss of profit

Course Code:	02RM802
Course Title:	Project Planning and control
Course Outcomes:	
2RM802.1	Students' confidence and knowledge to train other professionals in the organization for effective project planning and control
2RM802.2	Students the required awareness and foresight to predict risks and challenges and put in place corrective actions to eliminate or minimize the negative impact on the project outcome
2RM802.3	Students the capability and skill to undertake complex projects and complete them successfully, facilitating opportunities for higher roles and responsibilities within the organization
2RM802.4	Students the ability and experience to handle projects of any kind in any organization or industry
2RM802.5	Students the ability and skill to apply modern methods and techniques to gather information about the progress of a project to ensure seamless completion



Programme: B. Com

Semester-I

Course Code:	OFO 101
Course Title:	Sustainable Development Goals
Course Outcomes:	
OFO 101.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
OFO 101.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
OFO 101.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
OFO 101.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
OFO 101.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	OFO 102
Course Title:	Environmental Studies
Course Outcomes:	
OFO 102.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropocene era.
OFO 102.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
OFO 102.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
OFO 102.4	To develop the critical thinking for shaping strategies such as; scientific, social, economic, administrative & legal, environmental protection, conservation of biodiversity. environmental equity and sustainable development.
OFO 102.5	To prepare for the competitive exams.



Course Code:	1AC 101
Course Title:	Financial Accounting
Course Outcomes:	
1AC 101.1	Acquire the knowledge in accounting system of maintenance of journal, ledger, Trial balance and final account.
1AC 101.2	Acquire the basic concept of accounting of depreciation and Royalty.
1AC 101.3	Exposed to various provision of hire purchase system and evaluate del credere commission, normal and abnormal loss, value of unsold stock in consignment account.
1AC 101.4	Familiarize and understand the basic accounting concepts of different type of branch and the Evaluate the unrealized profit under the departmental accounting.
1AC 101.5	Develop the application skills regarding the dissolution of a firm in case of insolvency.

Course Code:	2MT 101
Course Title:	Business Organization & communication.
Course Outcomes:	
2MT 101.1	Acquire the knowledge about the traditional and modern business and provide the knowledge of trade ,industry and commerce .
2MT 101.2	Provide the knowledge about different forms of business organization.
2MT 101.3	Provide the knowledge about Private and Public companies and Multinational companies .
2MT 101.4	Apply the introduction about Business communication and tools ,Forms and elements of Business communication
2MT 101.5	Provide to the student's knowledge about oral and written communication and important skills such as Group discussion.

Course Code:	3AC 102
Course Title:	Business Economics
Course Outcomes:	
3AC 102.1	Student will recall various definitions and would be able to evaluate the provisions of Indian contract act 1872.
3AC 102.2	Students would be able to examine various provisions of contract of indemnity and Guarantee, Contract of Bailment and contract of Agency
3AC 102.3	Students would be able to compare and contrast different types of negotiable instruments and its applicability in the money market.



3AC 102.4	Familiarize and understand the concise overview of the elements of law related to the Consumer protection act 1986 and 2018 and FEMA.
3AC 102.5	Students would be able to apply and examine various provisions of Indian partnership Act 1932, and the Limited liability partnership Act 2008.

Semester-II

Course Code:	0FO 201
Course Title:	Indian Knowledge System
Course Outcomes:	
0FO 201.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0FO 201.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0FO 201.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0FO 201.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0FO 201.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	0FO 202
Course Title:	Communication skills
Course Outcomes:	
0FO 202.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
0FO 202.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work. Besides, they will always remain updated with the latest Resume.
0FO 202.3	Students will be able to communicate effectively in Hindi and English



	languages without hindrances.
0FO 202.4	Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
0FO 202.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers.

Course Code:	1AC 201
Course Title:	Business Regulatory framework
Course Outcomes:	
1AC 201.1	Student will recall various definitions and would be able to evaluate the provisions of Indian contract act 1872.
1AC 201.2	Students would be able to examine various provisions of contract of indemnity and Guarantee, Contract of Bailment and contract of Agency.
1AC 201.3	Students would be able to compare and contrast different types of negotiable instruments and its applicability in the money market.
1AC 201.4	Familiarize and understand the concise overview of the elements of law related to the Consumer protection act 1986 and 2018 and FEMA.
1AC 201.5	Students would be able to apply and examine various provisions of Indian partnership Act 1932, and the Limited liability partnership Act 2008.

Course Code:	2MT 201
Course Title:	Business Organization & Management
Course Outcomes:	
2MT 201.1	Apply the knowledge about stages of Development of Business, Evolution of Business, Modern Business, Forms of Business organization and MSMEs of India.
2MT 201.2	Apply the Knowledge Plant Location, Layout and Size Plant Location: Factors affecting Plant location, Plant Layout. Size of business Unit: Criteria for measuring the size of unit, Factors affecting size, Optimum Unit Size and factors affecting Optimum Size.
2MT 201.3	Apply the Business Combination; Causes, Forms and Kinds of Business Combination, Rationalization: Meaning, Characteristics, Objectives, Principles, and Merits & Demerits: Difference between Rationalization & Nationalization
2MT 201.4	Apply the knowledge Concept of Management, Functions of Management,



	Taylor's Scientific Management, Henri Fayol's Principles of Management, Planning: Concept, Importance, Process, Types of Plans. Decision making: Process, Individual vs. Group Decision Making
2MT 201.5	Organizations, Organization Structure: Factors affecting Organization structure, Features of Good Organization Structure, Span of Management, Delegation of Authority, Centralization and Decentralization; Line and staff Authority Staffing: Nature & Scope of Staffing, Man Power Planning-Concept and importance, Recruitment: Concept and Sources, e-recruitment, Selection: Concept, Important Tests and Types of Interview Directing: Concept and importance of Directing

Course Code:	3EC 204
Course Title:	Money and Banking
Course Outcomes:	
3EC 204.1	CO1. Able to understand about the origin of Money and Banking
3EC 204.2	CO2. Able to understand about various concepts of Money, its functions, value, money market and monetary policy operations.
3EC 204.3	CO3. Able to develop the procedure involved in various banking institutions along with their basic functions and their credit creation role.
3EC 204.4	Able to familiarize the skills about the Central bank of our country and assess the objectives and functions of Reserve Bank of India (RBI)
3EC 204.5	Able to analyze the Banking Sector Reforms and gauge at the recent trends in Banking System.

Semester-III

Course Code:	1AC 301
Course Title:	Cost Accounting
Course Outcomes:	
1AC 301.1	Understand the meaning , Advantages and Disadvantages of Cost accounting
1AC 301.2	Acquaint with the procedure of storekeeping, documentation of material receipt and issue, how to use a technique for setting stock levels, calculation of Economic Order Quantity,
1AC 301.3	Understand the Methods of Labour Turnover, remuneration and bonus methods, also be able understand different types of overheads and its classification into various heads
1AC 301.4	Understand cost unit, cost centre and calculation of various costs by prepare a



	statement of cost and a cost sheet to find out cost also be able to calculate profit on different type contracts
1AC 301.5	Understand about calculation of profit under process costing including various wastages and to know how to prepare a reconciliation statement to find out the reasons for the difference in the net profit/net loss as per cost and financial records

Course Code:	2MT 301
Course Title:	Business Statistics
Course Outcomes:	
2MT 301.1	Organize, manage and presentation of data. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
2MT 301.2	Analyze statistical data using measures of central tendency with different Averages
2MT 301.3	Analyze statistical data using measures of dispersion and location.
2MT 301.4	Calculate and interpret the correlation between two variables.
2MT 301.5	Calculate the simple linear regression equation for a set of data.

Course Code:	3AC 302
Course Title:	Financial Market Operations
Course Outcomes:	
3AC 302.1	Acquire the knowledge role and importance of the Indian financial market.
3AC 302.2	Acquire the analyze the Concepts relevant to Indian financial markets and financial institutions
3AC 302.3	Exposed to Understand and analyze the mechanics and regulation of financial instruments and determine how the value of stocks, bonds, and securities are calculated
3AC 302.4	Familiarize and understand the Evaluate empirical evidence of the market performance and accordingly the role of regulatory authorities to develop the financial market.
3AC 302.5	Research and analyze specific problems or issues related to financial markets and institutions.



Course Code:	4SE303/ 4SE351 (for lab)
Course Title:	Data Analysis and Computer Application/ Data Analysis and Computer Application (LAB)
Course Outcomes:	
4SE303.1	Understand basic hardware, components of a computer system.
4SE303.2	Proficiently utilize word processing software in an online environment to create, format and manage documents effectively.
4SE303.3	Creating and delivering basic presentations using presentation software in an online environment.
4SE303.4	Proficiency in spreadsheet software for basic data analysis and management tasks.
4SE303.5	Understanding of computer networks, internet services, and their practical applications.

Semester-IV

Course Code:	1AC 401
Course Title:	Corporate Accounting
Course Outcomes:	
1AC 401.1	Acquire the knowledge of the accounting treatment in issue of shares and issues of Debenture at par and premium.
1AC 401.2	Construct the financial statements of company calculate pre and post incorporation and liquidation with liquidator's statement of affairs.
1AC 401.3	Develop the skills of application of calculation of goodwill and shares.
1AC 401.4	Develop the procedure involved in Amalgamation & Absorption of companies.
1AC 401.5	Familiarize the analytical skills in corporate accounting, regarding for preparation of consolidated balance and Cost of control of Holding.

Course Code:	2MT 401
Course Title:	Advanced Business Statistics
Course Outcomes:	
2MT 401.1	Students will be able to calculate the Index Number by various methods and can also represent the data through Diagrams and Graphs.
2MT 401.2	Students will be able to determine and forecast the variables with the help of Time Series Analysis.
2MT 401.3	Students will be able to calculate the probability that an event will occur with the help of various laws of probability.
2MT 401.4	Students will be able to interpolate and extrapolate the variables by using various methods of Interpolation and Extrapolation.



2MT 401.5	Students will be able to identify methods of obtaining and interpreting the associations of attributes , chi-square goodness of fit test and uses of student T-test
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Course Code:	3EC 401
Course Title:	Personal Selling and Salesmanship
Course Outcomes:	
3EC 401.1	To study and apply the knowledge of will be able to explain the concepts of salesmanagement, personnel selling and sales task.
3EC 401.2	An in-depth study to various stages in selling process and the catalytic role of salesperson in the effective functioning of an organization.
3EC 401.3	Learn some of the tools and techniques of selling process.
3EC 401.4	Analysis the concept of personal selling and related terms.
3EC 401.5	Will be able to explain the preparations before contact the customer, how and when salesperson deal with a customer, ways of identifying customer needs and submission of the product to the customer.

Course Code:	04CA401
Course Title:	Desktop Publishing [DTP]
Course Outcomes:	
04CA401.1	Understand basics of DTP and Advantages of DTP, DTP Software and Hardware and Introduction to Word Processing, Commercial DTP Package.
04CA401.2	Understand basic computer graphics, Anatomy of Typefaces, Printers, Types of Printers used in DTP, Plotter, Scanner.
04CA401.3	Understand methods of placing text and graphics in a document. Master
04CA401.4	Page, story editor, formatting of text, indent, leading, hyphenation, spelling check, creating index.
04CA401.5	Understand various software used for Desktop Publishing like design documents with text and graphics like newspaper ad, wedding cards, visiting cards, greeting cards etc.
04CA401.6	Know about the multimedia software tools, multimedia authoring – Production and presentation, graphic file formats, MIDI – Overview, concepts, structure of MIDI.



Semester-V

Course Code:	01AC501
Course Title:	Income Tax Law & Practice
Course Outcomes:	
01AC501.1	Apply the relevant provisions to determine the residential status of different persons examine the scope of income of a person based on his residential status, apply the relevant provisions to determine the total income of a person based on his residential status.
01AC501.2	Apply the relevant provisions to when income is chargeable under the head—Income from house property and income under the head —Salaries
01AC501.3	Apply the relevant provisions to when income is chargeable under the head—Profits and gains of business or profession", income under the head —Capital Gains and —Income from Other Sources
01AC501.4	Apply the relevant provisions to Computation of total income of individuals and firms Set off and carry forward of Losses Deduction from Gross total Income Clubbing of Income.
01AC501.5	Basic concepts of Advance payment of tax Assessment Procedure, Tax deduction at Source, (TDS), e-Filing of return.

Course Code:	05AC511
Course Title:	Goods and Service Tax and Customs Duty
Course Outcomes:	
05AC511.1	Connect with the genesis of goods and services tax (GST), decipher the constitutional amendment carried out to install in India and working of GST council.
05AC511.2	Understand the meaning of supply under GST law.
05AC511.3	Comprehend the utilization of input tax credit.
05AC511.4	Understand the provisions for registration under GST law.
05AC511.5	Compute the assessable value for charging customs duty.

Course Code:	0MT003
Course Title:	Marketing Management
Course Outcomes:	
0MT003.1	To understand the role of marketing within society and within an economic system.
0MT003.2	To learn the vital role of marketing within a firm and the necessary relationships between marketing and other functional areas of business.
0MT003.3	To consider the various decision areas within marketing and the tools and methods used by marketing managers by making decisions.



0MT003.4	To familiarize key marketing principles and terminology, because this is a survey course, there is an emphasis on basis concepts and terminology.
0MT003.5	To understand how a marketing perspective is importance in your own personal and professional development.

Semester-VI

Course Code:	01AC601
Course Title:	Management Accounting
Course Outcomes:	
01AC601.1	To prepare the managerial report of the company
01AC601.2	Be well versed in a thorough analysis of any company's financial statements such as profit and loss account and position statement, and be able to make accurate estimates of the financial position, solvency and profitability of that company.
01AC601.3	By studying the cash flow statement, you will get the knowledge of proper use of cash in the organization and adequate availability of cash in the organization.
01AC601.4	After getting the knowledge of marginal cost, will be able to make very important decisions for the company such as whether to make or buy the item, fix the price, stop production etc.
01AC601.5	Learn to control costs by creating different types of budgets from budgetary control.

Course Code:	05AC601
Course Title:	Financial Management
Course Outcomes:	
05AC601.1	Student learn about basic concept of financial management and able to calculate capital budgeting.
05AC601.2	Student will able to calculate various leverage, cost of capital.
05AC601.3	Student will be able to preparation of projected financial report.
05AC601.4	Student will learn about dividend policy.
05AC601.5	Student will learn about security analysis.



Course Code:	05AC603
Course Title:	Human Resource Management
Course Outcomes:	
05AC603.1	Master fundamental mathematical concepts for problem-solving in business applications efficiently.
05AC603.2	Understanding financial mathematics concepts and solving related inequalities effectively.
05AC603.3	Understanding permutations, combinations, factorial, and their applications in problem-solving scenarios.
05AC603.4	Understanding of sequences, series, progressions, AM-GM relationship, and practical applications.
05AC603.5	Course Outcome: Mastery of foundational concepts in sets, relations, functions, limits, continuity, and basic applications of differential and integral calculus for solving problems in business and economics contexts.



Programme: B.Com CSP

Semester-I

Course Code:	01EC104
Course Title:	Business Law
Course Outcomes:	
01EC104.1	Acquire the knowledge in about the basics of law, including its sources, precedents, significance and concept of Company Act 2013.
01EC104.2	Acquire the basic concept about the elements of law related to partnership and LLP.
01EC104.3	Exposed to various provisions of various elements of law related to contracts.
01EC104.4	Familiarize and understand the concise overview of the elements of law related to the Sale of Goods Act, of 1930.
01EC104.5	Develop the application skills regarding about the elements of law related to negotiable instruments.

Course Code:	03EC105
Course Title:	Micro Economics
Course Outcomes:	
03EC105.1	Analyze the concept of economic problem in real life and also analyze the different economic systems such as capitalistic, socialistic and mixed economies
03EC105.2	Evaluate human wants, utility and consumer behavior using marginal utility analysis. They will understand law of demand, elasticity of demand and equilibrium in the market
03EC105.3	Understand the concept of supply, production and cost concepts also the determinants of supply, the law of supply and the producers equilibrium in the market.
03EC105.4	Identify the different market structures and analyze their characteristics.
03EC105.5	Analyze business cycles, their phases, features and causes. They will be elaborating the determination of national income

Course Code:	02AC104
Course Title:	Financial Accounting
Course Outcomes:	
02AC104.1	Students will start doing journal entries for transaction of business.
02AC104.2	Students will record various financial transactions in subsidiary books and cash books. Students will prepare a trial balance and identify and rectify errors in the accounting records.
02AC104.3	Students will prepare bank reconciliation statement; Students will record transaction regarding bills of exchange and promissory notes, Students will calculate and account for depreciation and will give its accounting treatment.
02AC104.4	Students will prepare the final accounts of sole proprietors for both manufacturing and non-manufacturing entities, with necessary adjustments
02AC104.5	Students will calculate value goodwill in partnership; student will give accounting for the admission of a new partner and its impact on the partnership's financial position.



Course Code:	0EVS03
Course Title:	EVS
Course Outcomes:	
0EVS03.1	Define ecosystem, biodiversity & natural resources.
0EVS03.2	Identify different sources of environmental pollution.
0EVS03.3	Relate to different biomes.
0EVS03.4	Understand the methods of resource management/conservation.
0EVS03.5	Know about environmental movements and organizations related to environment protection & management

Semester-II

Course Code:	03MT205
Course Title:	Business statistics
Course Outcomes:	
03MT205.1	Students will represent statistical data diagrammatically and graphically using various methods such as histograms, frequency polygons, Ogive, and pie charts and Students will analyze frequency distributions.
03MT205.2	Students will calculate and interpret measures of central tendency like mean, median, and mode, as well as measures of dispersion such as mean deviation, quartiles, and standard deviation.
03MT205.3	Students will construct index numbers and apply different methods of constructing them and Students will analyze time series data and apply moving average and method of least squares for forecasting.
03MT205.4	Students will calculate and interpret correlation coefficients, including Karl Pearson's coefficient and rank correlation and will apply mathematical concepts of finance, such as simple interest, compound interest, time value of money, and annuity calculations.
03MT205.5	Students will apply probability concepts, including independent and dependent events, mutually exclusive events, and compound probability to analyze data.

Course Code:	0SSD02
Course Title:	Communication Skills.1
Course Outcomes:	
0SSD02.1	Students will be able to speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
0SSD02.2	Students will be able to interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work. Besides, they will always remain updated with the latest Resume.
0SSD02.3	Students will be able to communicate effectively in Hindi and English languages without hindrances.



0SSD02.4	: Students will be able to convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills.
0SSD02.5	The Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers

Course Code:	02AC204
Course Title:	Financial Accounting-II
Course Outcomes:	
02AC204.1	Students will prepare and interpret financial statements for not-for-profit organizations. Students will prepare statements of affairs and profit and loss from incomplete records.
02AC204.2	Students will prepare revaluation accounts, profit and loss adjustment accounts, and reserves in the balance sheet
02AC204.3	Students will calculate the gaining ratio, revalue assets and liabilities, and determine final payments to retiring partners
02AC204.4	Students will do accounting treatment for share capital, including issuing, forfeiting, and reissuing shares.
02AC204.5	Students will apply accounting procedures of various aspects of debentures, such as issuance, redemption, interest payments

Course Code:	01EC204
Course Title:	Legal aptitude
Course Outcomes:	
01EC204.1	Students should be able to possess immense skill sets with an enormous knowledge of Constitutional Law, Fundamental rights and fundamental duties etc.
01EC204.2	Students will be able to demonstrate a high level of understanding in the matters of contracts, commercial agreements and other kinds of agreements and legal instruments. Students will learn to analyse the case laws and will be able to extract the exact issues of laws from the same.
01EC204.3	Students should be able to understand the Company Secretaries_ Legislation, Incorporation of institutes,its Functions, board & committees of institutes, Appointment, and Functions of company secretary as per the Company Secretaries Act, 1980.
01EC204.4	Students should be able to demonstrate the ability to apply both in theory and in practice the law relating to Banking and Finance Banking Regulation Act, 1949
01EC204.5	Student can understand and Develop the Legal Problems through Reading and understanding a case



Course Code:	03MS204
Course Title:	Quantitative Aptitude
Course Outcomes:	
03MS204.1	Master fundamental mathematical concepts for problem-solving in business applications efficiently..
03MS204.2	Understanding financial mathematics concepts and solving related inequalities effectively.
03MS204.3	Understanding permutations, combinations, factorial, and their applications in problem-solving scenarios.
03MS204.4	Understanding of sequences, series, progressions, AM-GM relationship, and practical applications.
03MS204.5	Course Outcome: Mastery of foundational concepts in sets, relations, functions, limits, continuity, and basic applications of differential and integral calculus for solving problems in business and economics contexts

Semester-III

Course Code:	01LW302
Course Title:	Corporate Law Framework
Course Outcomes:	
01LW302.1	Acquire knowledge about the basics of corporate law, including , Jurisprudence of Company Law; Meaning, Nature, Features of a company as per act 2013.
01LW302.2	Acquire the basic concept of about the Shares and Share Capital Meaning and types of Capital; Concept of issue and allotment; Issue of Share related to company.
01LW302.3	Exposed to Members and Shareholders & Register of Members various elements of Register of Members; Rights of Members.
01LW302.4	Familiarize and understand the concise overview of debt Instruments, Issue and redemption of debentures and charges of company as per Act 2013.
01LW302.5	Acquire the basic concept of about the Distribution of Profits , Profit and Ascertainment of Divisible Profits; Declaration and Payment of Dividend; Unpaid Dividend Account; Investor Education and Protection Fund

Course Code:	02TA303
Course Title:	Direct Tax Practices I
Course Outcomes:	
02TA303.1	Students will be able to understand the background and functioning of the taxation system in India and students will gain a comprehensive overview of basic concepts in income tax, including residential status, scope of total income, and tax rates.
02TA303.2	Apply the relevant provisions to when income is chargeable under the head —Income from house property..
02TA303.3	Apply the relevant provisions to when income is chargeable under the head Computation Income from Salary.
02TA303.4	Apply the relevant provisions to when income is chargeable under the head Profits and gains of business or profession.



02TA303.5	Apply the relevant provisions to when income is chargeable under the head income under the head —Capital Gains and —Income from Other Sources
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Course Code:	03LW303
Course Title:	Jurisprudence
Course Outcomes:	
03LW303.1	Student should Understand the Meaning of law and its significance, Relevance of Law to Civil Society, Jurisprudence and Legal Theory. Students should be able to possess immense skill sets with an enormous knowledge
03LW303.2	of Constitutional Law, Fundamental rights, writs, fundamental duties, Directive Principles of State Policy, etc
03LW303.3	Understand the provisions of General Clauses Act, of 1897. Key Definitions; General Rule of Construction; Retrospective Amendments.
03LW303.4	Understand the concise overview of the study the principles of Tortious liability, The defenses available in an action for torts and provisions of limitation act.
03LW303.5	Student can Understand the Special Courts , Tribunals & NCLT Rules, and Quasi-Judicial Authorities .

Course Code:	04SE304
Course Title:	The setting of business entities & Closure (Company incorporation & Compliances)
Course Outcomes:	
04SE304.1	Students will learn about business organizations, including the various structures and types of companies..
04SE304.2	Students will acquire a basic understanding of the Memorandum of Association and Articles of Association, as well as alterations to these documents and the legal status of a registered company.
04SE304.3	Students will gain an understanding of the concept of Limited Liability Partnerships (LLPs) and the different forms of business organizations and their registration processes.
04SE304.4	Students will become familiar with an overview of the formation and registration processes for Non-Governmental Organizations (NGOs) and Financial Services Organizations.
04SE304.5	Students will acquire a basic understanding of startups and their registration processes, as well as business collaborations



Semester-IV

Course Code:	02TA402
Course Title:	Advanced Direct Tax
Course Outcomes:	
02TA402.1	Apply the relevant provisions to determine the Incomes not included in Total Income, Deductions from Gross Total Income.
02TA402.2	Apply the relevant provisions to Computation of Total Income and Tax Liability of various entities
02TA402.3	Apply the relevant provisions to Classification and Tax Incidence on Companies.
02TA402.4	Apply the relevant provisions to Computation of total income of individuals and firms Set off and carry forward of Losses Deduction from Grass total Income Clubbing of Income.
02TA402.5	Basic concepts of Advance payment of tax Assessment Procedure, Tax deduction at Source, (TDS), e-Filing of return.

Course Code:	01EC404
Course Title:	Corporate Law Practice
Course Outcomes:	
01EC404.1	Acquire knowledge about the basics of Accounts, Audit and Auditors &, Qualification and Disqualification; Rights, Duties and Liabilities of auditors as per companies act 2013.
01EC404.2	Understand the basic concept of about the Registers ,Records ,Corporate Reorganization, MCA 21 & XBRL.
01EC404.3	Understand the directors, retirement, resignation and removal , committees ,board constitution and its Powers.
01EC404.4	Familiarize and understand the concise overview of Key Managerial Personnel (KMP_s) ,their Remuneration. And board meeting.
01EC404.5	Understand the concept of General Meetings & The Company Secretaries Act, 1980, Secretarial Standards.

Course Code:	04CA403
Course Title:	Information security and Cyber laws
Course Outcomes:	
04CA403.1	Students will be able to comprehend cyber security principles, threats, attack techniques, and password security, and identify network vulnerabilities and malware.
04CA403.2	Students will be able to master authentication, access control, cryptography, digital signatures, firewalls, and intrusion detection techniques
04CA403.3	Students will be able to analyses business risks, implement security policies, ensure business continuity, and navigate legal and ethical issues.
04CA403.4	Students will be able to understand cyber-crime legislation, IT governance, electronic records recognition, and protection against cyber offences.
04CA403.5	Students will be able to explore hacking techniques, ethical IP concerns, legal frameworks for cyber security, and data protection regulations.



Course Code:	03EC403
Course Title:	Interpretation & General Law
Course Outcomes:	
03EC403.1	Student should Understand the Meaning & legal framework of Interpretation of Statutes & Civil Procedure Code, 1908
03EC403.2	Students should be able to possess immense skill sets with an enormous knowledge of Indian Penal Code, 1860 & Criminal Procedure Code, 1973,
03EC403.3	Understand the provisions of Indian Evidence Act, 1872
03EC403.4	Understand the concise overview of the study the principles of Arbitration and Conciliation Act, 1996 & Indian Stamp Act, 1899
03EC403.5	Student can Understand the concept ,procedure and functions of Registration Act, 1908, Right to Information Act, 2005 & Information Technology Act, 2000

Semester-V

Course Code:	05FM501
Course Title:	Capital Market & Money market
Course Outcomes:	
05FM501.1	Proficiency in Securities Contracts (Regulations) Act 1956 and its pertinent rules, covering recognized stock exchanges, public issue, listing of securities, and associated regulations
05FM501.2	Comprehensive grasp of SEBI Act, 1992, and Depositories Act, 1996, including objectives, powers, functions, penalties, and audits.
05FM501.3	Understanding of SEBI regulations including Issue of Capital, Listing Obligations, Substantial Acquisition of Shares, Takeovers, and Buyback of Securities.
05FM501.4	Understanding of SEBI regulations, covering delisting of equity shares, voluntary and compulsory delisting, as well as SEBI regulations on share-based employee benefits.
05FM501.5	Proficient grasp of SEBI regulations encompassing sweat equity issuance, insider trading prohibition, UPSI, disclosures, codes of conduct, penalties, and appeals.

Course Code:	01EC503
Course Title:	Economic Law
Course Outcomes:	
01EC503.1	The students will use the schemes of Reserve Bank of India Act, 1934 & Foreign Exchange Management Act, 1999 by Reserve Bank of India Act, 1934 & Foreign Exchange Management Act, 1999 in business
01EC503.2	The student will apply schemes of Regulation of Foreign contribution, Foreign Source and Foreign Hospitality as per Foreign Contribution (Regulation) Act, 2010 during foreign visit, and contributions.
01EC503.3	The student will use the schemes of Overseas Direct Investment
01EC503.4	The student will use the schemes of Foreign Trade Policy & Procedure.
01EC503.5	Practice & apply the schemes of Non-Banking Finance Companies (NBFCs) for the commercial purpose.



Course Code:	04MT504
Course Title:	Strategic Management
Course Outcomes:	
04MT504.1	To understand the role of Business environment, it's elements and levels of Organization which help a student to know about those internal and external factors which can affect business Strategy.
04MT504.2	To learn the vital role of Business Policy , And decision making process, And role of an organization's Vision, goals and mission which plays an important role in business policy making.
04MT504.3	To consider the Typologies of strategy analysis , Major Reason for Growth/Expansion through Diversification,; Porter's Five Force Model competitive Analysis, and cost leadership Strategy which help an organization to reduce its cost.
04MT504.4	To familiarize Strategic Planning of an organization which help to understand about marketing strategy, Marketing Mix, Marketing Techniques, Financial Strategy, Production Strategy; Production system .
04MT504.5	To understand Formulation of Functional Strategy, introduction of Entrepreneurship and Entrepreneur And different between Entrepreneurship and Entrepreneur, and strategy implementation process with factors that can affect implementation process of strategy

Semester-VI

Course Code:	01EC603
Course Title:	Business And Commercial Laws
Course Outcomes:	
01EC603.1	Competition Act, 2002 - Understand anti-competitive agreements, dominant position abuse, and regulations on combinations; Familiarity with the Competition Commission of India and Appellate Tribunal.
01EC603.2	Consumer Protection Act, 1986 - Knowledge of consumer rights, dispute resolution forums, and remedies; Essential Commodities Act, 1955 - grasp on powers of the Central Government, authorities, and penalties; Legal Metrology Act, 2009 - awareness of standards, inspections, and penalties.
01EC603.3	Transfer of Property Act, 1882 - comprehend types of properties, restrictions, and specifics on sale, mortgage, lease, gift; Real Estate (Regulation and Development) Act, 2016 - awareness of project registration, agents, regulatory authorities, and penalties.
01EC603.4	Benami Transaction Prohibitions (Act) - understanding benami property, transactions, and adjudication; Prevention of Money Laundering - grasp methods, offenses, and procedures including attachment and confiscation.
01EC603.5	Specific Relief Act, 1963 - knowledge of specific reliefs, defenses, enforceability, rescission, cancellation, declaratory decrees, and preventive reliefs.



Course Code:	05AC608
Course Title:	Corporate Accounts
Course Outcomes:	
05AC608.1	Students will be able to understand financial accounting principles, including share capital transactions, such as issuance, forfeiture, and reissue.
05AC608.2	Students will be able to comprehend debenture accounting, including redemption, conversion, and related aspects of company accounts.
05AC608.3	Students will be able to interpret and analyze financial statements, including their preparation, presentation, and compliance with regulatory requirements.
05AC608.4	Students will be able to grasp corporate financial reporting requirements, trends, and the preparation and analysis of cash flow statements.
05AC608.5	Students will be able to explore national and international accounting authorities, understand standards adoption, convergence, and analyze practical case studies.

Course Code:	05AC607
Course Title:	COST AND MANAGEMENT ACCOUNTING
Course Outcomes:	
05AC607.1	Students will grasp the significance of cost accounting and understand its application in recording and auditing company costs.
05AC607.2	Learners will acquire skills in budgeting, control systems, and ratio analysis for effective financial management.
05AC607.3	Students will utilize management reporting systems and decision-making tools like marginal costing and transfer pricing efficiently.
05AC607.4	Understand valuation principles, regulatory requirements, and various approaches applicable to securities, businesses, and intangible assets.
05AC607.5	Gain proficiency in accounting for share-based payments and applying diverse valuation methods to business and intangible assets

Course Code:	05MT606
Course Title:	FINANCIAL MANAGEMENT
Course Outcomes:	
05MT606.1	student learn about basic concept of financial management and able to calculate capital budgeting.
05MT606.2	student will able to calculate various leverage, cost of capital
05MT606.3	student will be able to preparation of projected financial report.
05MT606.4	student will learn about dividend policy.
05MT606.5	student will learn about security analysis



Semester-VII

Course Code:	01EC703
Course Title:	Compliance Management
Course Outcomes:	
01EC703.1	Understand and identify applicable laws, rules, and regulations. Develop skills in risk assessment and responsibility centre mapping/allocation. Learn how to create, review, and update a compliance framework and reporting system. Gain knowledge of escalation and reporting procedures. Understand the importance of training and implementation in compliance.
01EC703.2	Understand the different compliances for various entities such as public, private, listed, government, small companies, OPC, Section 8 Company, LLP. Learn about activity-wise, sectorwise, and industry-specific compliances. Understand the state and local laws applicable to different sectors.
01EC703.3	Understand the difference between electronic and physical repositories. Learn the general principles of good documentation, coding, storage, preservation, safety, and retrieval. Understand the importance of privacy and control in documentation.
01EC703.4	Learn about different types of searches and the purpose and objective of search reports. Gain knowledge on how to compile and verify data published by MCA 21, SEBI, RBI, Stock Exchanges, other regulators/authorities (national/international), websites, and other sources.
01EC703.5	Understand the various certifications by a Company Secretary in practice. Learn about pre-certification of forms, signing & certification of Annual Return, and Corporate Governance Certification. Understand the obligations and penal provisions related to signing and certification

Course Code:	05EC704
Course Title:	Corporate Restructuring
Course Outcomes:	
05EC704.1	Understanding the concept of corporate restructuring, its importance, historical background, available tools and emerging trends in restructuring strategies, etc
05EC704.2	Understanding the meaning, concept, objectives of takeover, procedural requirements as to takeover of listed/ unlisted companies, takeover defenses etc
05EC704.3	Understanding the planning and strategy, purchase and protection of minority interests, succession planning and the funding process for mergers and acquisitions.
05EC704.4	Understanding the regulatory framework, interpretations of provisions in the Companies Act relating to merger/amalgamation, different approvals, steps involved, integration not only of the financials, accounting and software but also of the human and cultural integration and judicial pronouncements, etc



05EC704.5	Understanding the documentation involved, points to be factored while drafting such documents and general provisions under the Companies Act, 2013 and NCLT Rules with respect to mergers and amalgamations.
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Course Code:	05EC705
Course Title:	Drafting of Corporate, Commercial & Legal Instrument
Course Outcomes:	
05EC705.1	Students will understand the concept and general principles of drafting and the relevant substantive rules. They will learn about the basic components of deeds, endorsements, and supplemental deeds. The unit will also cover aids to clarity and accuracy, and legal requirements and implications.
05EC705.2	This unit will cover the general principles of convincing and the object of convincing. Students will learn to draft various agreements including sale agreements, joint venture and foreign collaboration agreements, arbitration, guarantees, counter guarantees, bank guarantees, hypothecation agreements, outsourcing agreements, and service agreements
05EC705.3	In this unit, students will about e-contracts, leave and license, IPR agreements, promissory note, power of attorney- general and special, will, relinquishment deed, deed of dissolution of partnership, hire-purchase agreement, deed of family settlement and other deeds. They will also learn about the deed of sale of land, building, mortgage, license, lease
05EC705.4	This unit will cover assignment, trust, gift, partnership drafting of writs, partnership deed, sale agreements, collaboration agreements, drafting of legal opinion, shareholders agreement
05EC705.5	In this unit, students will learn about pre-incorporation contracts, memorandums and articles of association, and others

Course Code:	02RM702
Course Title:	Business Research Methodology
Course Outcomes:	
02RM702.1	Comprehensive Understanding of Research methodology.
02RM702.2	Develop the skills to navigate the research process effectively.
02RM702.3	Acquire knowledge in sampling design, criteria for selecting sampling procedure.
02RM702.4	Understanding Data analysis by exploring measurement.
02RM702.5	Understanding Advanced Statistical Techniques and Reporting.



Semester-VIII

Course Code:	01EC803
Course Title:	Secretarial Audit
Course Outcomes:	
01EC803.1	Overview and introduction to the concept, advantages, legal provisions, risks, and code of conduct of Secretarial Audit. Understanding the scope of Secretarial Audit, including Corporate, Securities and Foreign Exchange Laws, other applicable laws, Board Processes, and Corporate conduct & practices.
01EC803.2	Understanding the objective and scope of Internal Audit & Performance Audit. Learning about Internal Audit Techniques, Appraisal of Management Decisions, Performance Assessment, and Internal Control Mechanism.
01EC803.3	Detailed study of various types of audits such as Corporate Governance Audit, CSR Audit, Takeover Audit, Insider Trading Audit, Industrial and Labour Laws Audit, Cyber Audit, Environment Audit, Systems Audit, Forensic Audit, and Social Audit.
01EC803.4	Learning about Audit Planning, Risk Assessment, Collection of information/Records of Audit, Audit Checklist, Audit Techniques, Examination & its process, Enquiry, Confirmation, Sampling, Compliance Test of Internal Control System, Substantive Checking, Dependence on other Expert, Verification of documents/records, Collection of audit evidences, Creation of Audit trails, Analysis of Audit findings, Documentation, materiality, and record keeping.
01EC803.5	Understanding the preliminary preparations, questionnaire, interaction, audit program, identification of applicable laws, creation of master checklist, maintenance of worksheet, working papers and audit trails, identification of events/corporate actions, verification, board composition, board process, systems and process, identification of events having bearing on affairs of the Company, and Auditing standard on Audit process & documentation

Course Code:	02EC804
Course Title:	Secretarial audit ethics, reporting and due diligence.
Course Outcomes:	
02EC804.1	Understanding the concept of values ethics and professional conduct. Discussing case studies to understand the practical aspects of these concepts
02EC804.2	Learning about the process of forming an opinion, including understanding materiality, forming an opinion on the report of a third party/expert, and understanding modified/unmodified opinion/qualifications. Understanding Management Representation Letter, Opinion obtained by Management, Discussion with Management, Evaluating Audit Evidence and forming Opinion, Audit report and drafting of qualifications. Learning about Sharing Draft Report with Management with Category of Risk involved with each Remark and Qualification, Signing of Audit reports and its Submission, Auditing standards on forming of an Opinion..



02EC804.3	Understanding the duty to report fraud and the process of Reporting of Fraud by Secretarial Auditor. Learning about Fraud vs. Non-compliance, speculation, suspicion, Reason to believe, knowledge, Reporting, Professional Responsibilities and Penalties, Record keeping, and Reporting of fraud in Secretarial Audit Report.
02EC804.4	Understand the Overview and Introduction of various types of the due diligence, due diligence process and the points need to be considered while performing due diligence.
02EC804.5	Understanding the various non-compliances under the Companies Act, 2013, SEBI Act, 1992 & RBI Act, etc. and the manner of adjudication and compounding of such offences



B.Com H (CAP) Corporate Accounting

Semester-I

Course Code:	01AC104
Course Title:	Financial Accounting
Course Outcomes:	
01AC104.1	Students will start doing journal entries for transaction of business.
01AC104.2	Students will record various financial transactions in subsidiary books and cash books. Students will prepare a trial balance and identify and rectify errors in the accounting records.
01AC104.3	Students will prepare bank reconciliation statement; Students will record transaction regarding bills of exchange and promissory notes, Students will calculate and account for depreciation and will give its accounting treatment.
01AC104.4	Students will prepare the final accounts of sole proprietors for both manufacturing and non-manufacturing entities, with necessary adjustments,
01AC104.5	Students will calculate value goodwill in partnership; student will give accounting for the admission of a new partner and its impact on the partnership's financial position.

Course Code:	02EC104
Course Title:	Business Law
Course Outcomes:	
02EC104.1	Acquire the knowledge in about the basics of law, including it sources, precedents, significance and Company Act 2013.
02EC104.2	Acquire the basic concept of about the elements of law related to partnership and LLP.
02EC104.3	Exposed to various provisions of various elements of law related to contracts.
02EC104.4	Familiarize and understand the concise overview of the elements of law related to the Sale of Goods Act, of 1930.
02EC104.5	Develop the application skills regarding about the functions of the elements of law related to negotiable instruments

Course Code:	03EC105
Course Title :	Microeconomics
Course Outcomes:	
03EC105.1	Analyze the concept of economic problem in real life and also analyze the different economic systems such as capitalistic, socialistic and mixed economies



03EC105.2	Analyze the concept of economic problem in real life and also analyze the different economic systems such as capitalistic, socialistic and mixed economies
03EC105.3	Understand the concept of supply, production and cost concepts also the determinants of supply, the law of supply and the producer's equilibrium in the market.
03EC105.4	Identify the different market structures and analyze their characteristics.
03EC105.5	Analyze business cycles, their phases, features and causes. They will be elaborating the determination of national income.

Course Code:	0EVS03
Course Title:	EVS
Course Outcomes:	
0EVS03.1	Define ecosystem, biodiversity & natural resources.
0EVS03.2	Identify different sources of environmental pollution.
0EVS03.3	Relate to different biomes.
0EVS03.4	Understand the methods of resource management/conservation.
0EVS03.5	Know about environmental movements and organizations related to environment protection & management

SEMESTER - II

Course Code	01AC204
Course Title	Financial Accounting-II
Course Outcome	
01AC204.1	Students will prepare and interpret financial statements for not-for-profit organizations. Students will prepare statement of affair and profit and loss from incomplete records.
01AC204.2	Students will prepare revaluation accounts, profit and loss adjustment accounts, and reserves in the balance sheet.
01AC204.3	Students will calculate the gaining ratio, revalue assets and liabilities, and determine final payments to retiring partners.
01AC204.4	Students will do accounting treatment for share capital, including issuing, forfeiting, and reissuing shares.
01AC204.5	Students will apply accounting procedure of various aspects of debentures, such as issuance, redemption, interest payments.



Course Code:	02MS204
Course Title :	Business statistics
Course Outcomes:	
02MS204.1	Students will represent statistical data diagrammatically and graphically using various methods such as histograms, frequency polygons, Ogive, and pie charts and Students will analyze frequency distributions.
02MS204.2	Students will calculate and interpret measures of central tendency like mean, median, and mode, as well as measures of dispersion such as mean deviation, quartiles, and standard deviation.
02MS204.3	Students will construct index numbers and apply different methods of constructing them and Students will analyze time series data and apply moving average and method of least squares for forecasting.
02MS204.4	Students will calculate and interpret correlation coefficients, including Karl Pearson's coefficient and rank correlation and will apply mathematical concepts of finance, such as simple interest, compound interest, time value of money, and annuity calculations.
02MS204.5	Students will apply probability concepts, including independent and dependent events, mutually exclusive events, and compound probability to analyze data.

Course Code:	03MS205
Course Title :	Quantitative Aptitude
Course Outcomes:	
03MS205.1	Master fundamental mathematical concepts for problem-solving in business applications efficiently.
03MS205.2	Understanding financial mathematics concepts and solving related inequalities effectively.
03MS205.3	Understanding permutations, combinations, factorial, and their applications in problem-solving scenarios
03MS205.4	Understanding of sequences, series, progressions, AM-GM relationship, and practical applications.
03MS205.5	Course Outcome: Mastery of foundational concepts in sets, relations, functions, limits, continuity, and basic applications of differential and integral calculus for solving problems in business and economics contexts.



Course Code:	03MS204
Course Title :	Quantitative Aptitude (Logical Reasoning)
Course Outcomes:	
03MS204.1	Student will solve problems related to Calendars, Cause and Effect Reasoning, Clocks, Coding and Decoding.
03MS204.2	Student will solve problems related to Drawing Inference, Number Test, Sequence and Series
03MS204.3	Student will solve problems related to Alphabet Test, Alpha Numeric Sequence Puzzle, and Analogy
03MS204.4	Student will solve problems related to Blood Relations, Decision Making, and Inserting Missing Characters Decoding.
03MS204.5	Student will solve problems related to Logical Venn Diagram,

Course Code:	0IKS04
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes	
0IKS04.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0IKS04.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0IKS04.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0IKS04.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0IKS04.5	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	01AC303
Course Title :	Advanced Accounting –I
Course Outcomes:	
01AC303.1	Students will identify and apply the relevant Accounting Standards to different financial reporting scenarios, understanding their applicability.
01AC303.2	Students will apply Accounting Standard 1 to disclose accounting policies effectively in financial statements and students will prepare and interpret cash flow statements in accordance with Accounting Standard 3.
01AC303.3	Students will apply concepts Asset-Based Accounting Standards, including Accounting Standard 2 for inventory valuation, Accounting Standard 10 for property, plant, and equipment, and Accounting Standard 19 for lease



	accounting and Students will understand and apply Accounting Standard 13 for accounting investments, Accounting Standard 26 for intangible assets, and Accounting Standard 28 for impairment of assets.
01AC303.4	Students will apply Accounting Standard 15 for employee benefits and AS 29 (Revised) for provisions, contingent liabilities, and contingent assets in financial reporting and Students will understand and apply Accounting Standards that impact financial statements, such as Accounting Standard 4 for contingencies, Accounting Standard 11 for foreign exchange rates, and Accounting Standard 22 for income taxes.
01AC303.5	Students will apply Accounting Standard 7 for accounting construction contracts and Accounting Standard 9 for revenue recognition effectively and Students will understand and apply Accounting Standard 12 for accounting government grants and apply various other Accounting Standards that impact financial reporting for different transactions and events.

Semester-III

Course Code:	02TA303
Course Title :	Direct Tax Practices I
Course Outcomes:	
02TA303.1	Students will be able to understand the background and functioning of the taxation system in India and students will gain a comprehensive overview of basic concepts in income tax, including residential status, scope of total income, and tax rates.
02TA303.2	Apply the relevant provisions to when income is chargeable under the head —Income from house property.
02TA303.3	Apply the relevant provisions to when income is chargeable under the head Computation Income from Salary.
02TA303.4	Apply the relevant provisions to when income is chargeable under the head Profits and gains of business or profession.
02TA303.5	Apply the relevant provisions to when income is chargeable under the head income under the head —Capital Gains and —Income from Other Sources.

Course Code:	03LW304
Course Title:	Company law and other law I
Course Outcomes:	
03LW304.1	Acquire knowledge about the basics of corporate law, including, Jurisprudence of Company Law; Meaning, Nature, Features of a company as per act 2013.
03LW304.2	Acquire the basic concept of about the Shares and Share Capital Meaning and types of Capital; Concept of issue and allotment; Issue of Share related to company.
03LW304.3	Exposed to Members and Shareholders & Register of Members various elements of Register of Members; Rights of Members.



03LW304.4	Familiarize and understand the concise overview of debt Instruments, Issue and redemption of debentures and charges of company as per Act 2013.
03LW304.5	Acquire the basic concept of about the Distribution of Profits, Profit and Ascertainment of Divisible Profits; Declaration and Payment of Dividend; Unpaid Dividend Account; Investor Education and Protection Fund.

Course Code:	04TA301
Course Title :	Indirect Tax Practices –I (Minor Subject)
Course Outcomes:	
04TA301.1	Concept of Indirect Taxes at a glance : Background; Constitutional powers of taxation; Indirect taxes in India – An overview; Pre-GST tax structure and deficiencies; Administration of Indirect Taxation in India; Existing tax structure.
04TA301.2	Apply the relevant provisions to Basics of Goods and Services Tax „GST“: Basics concept and overview of GST; Constitutional Framework of GST; GST Model – CGST / IGST / SGST / UTGST; Taxable Event
04TA301.3	Apply the relevant provisions Concept of supply including composite and mixed supply; Levy and collection of CGST and IGST; Composition scheme & Reverse Charge; Exemptions under GST.
04TA301.4	Explain the concept of Concept of Time, Value & Place of Taxable Supply: Basic concepts of Time and Value of Taxable Supply.
04TA301.5	Basics concept of Place of Taxable Supply.

Semester-IV

Course Code:	01AC405
Course Title :	Advanced Accounting –II
Course Outcomes:	
01AC405.1	Students will understand and apply accounting standards related to net profit, changes in accounting policies, amalgamations, consolidated financial statements, investments in associates, and interests in joint ventures.
01AC405.2	Students will demonstrate proficiency in preparing consolidated financial statements and accounting for investments in associates and joint ventures, ensuring accurate financial reporting.
01AC405.3	Students will analyze the accounting treatment for securities buyback, net profit calculation, and internal reconstruction in accordance with accounting principles.
01AC405.4	Students will comprehend accounting standards governing amalgamations, distinguishing between mergers and purchases, ensuring accurate financial reporting in business combinations.
01AC405.5	Students will master accounting for branches, including foreign branches, covering distinctions, methods of charging goods, reconciliation techniques, and treatment of incomplete information in branch accounts.



Course Code:	02TA402
Course Title:	Advanced Direct Tax.
Course Outcomes:	
02TA402.1	Apply the relevant provisions to determine the Incomes not included in Total Income, Deductions from Gross Total Income.
02TA402.2	Apply the relevant provisions to Computation of Total Income and Tax Liability of various entities
02TA402.3	Apply the relevant provisions to Classification and Tax Incidence on Companies.
02TA402.4	Apply the relevant provisions to Computation of total income of individuals and firms Set off and carry forward of Losses Deduction from Grass total Income Clubbing of Income.
02TA402.5	Basic concepts of Advance payment of tax Assessment Procedure, Tax deduction at Source, (TDS), e- Filing of return.

Course Code:	03EC405
Course Title:	Company Law and other Law 2
Course Outcomes:	
03EC405.1	Acquire knowledge about the basics of Accounts, Audit and Auditors & Qualification and Disqualification; Rights, Duties and Liabilities of auditors as per companies act 2013.
03EC405.2	Understand the basic concept of about the Registers ,Records ,Corporate Reorganization, MCA 21 & XBRL.
03EC405.3	Understand the directors, retirement, resignation and removal , committees ,board constitution and its Powers.
03EC405.4	Familiarize and understand the concise overview of Key Managerial Personnel (KMP"s), their Remuneration. And board meeting.
03EC405.5	Understand the concept of General Meetings & The Company Secretaries Act, 1980, Secretarial Standards.

Course Code:	04TA401
Course Title	Advanced indirect tax
Course Outcomes:	
04TA401.1	Concept of Eligible and Ineligible Input Tax Credit; Apportionments of Credit and Blocked Credits; Tax Credit in respect of Capital Goods; Recovery of Excess Tax Credit; Availability of Tax Credit in special circumstances; Transfer of Input Credit (Input Service Distribution)..
04TA401.2	Apply the relevant provisions to Input Tax Credit & Computation of GST Liability- Overview. Procedural Compliance under GST: Registration; Tax Invoice, Debit & Credit Note, Account and Record, Electronic way Bill; Return, Payment of Tax, Refund



	Procedures; Audit.
04TA401.3	Apply the relevant provisions Concept of Basic on Integrated Goods and Service Tax (IGST), Union Territory Goods and Service tax (UTGST) and GST Compensation to States. GST Network: Structure, Vision and Mission, Powers and Functions. Goods and Services Tax Suvidha Providers (GSP): Concept, Framework and Guidelines and Architecture to integrate with GST system. GSP eco system. (Theory only).
04TA401.4	Explain the concept of Overview of Customs Act : Overview of Customs Law; Levy and Collection of Customs Duties; Types of Custom Duties; Classification and Valuation of Import and Export Goods; Exemption; Officers of Customs;
04TA401.5	Basics concept of Administration of Customs Law; Import and Export Procedures; Transportation, and Warehousing; Duty Drawback; Demand and Recovery; Confiscation of Goods and Conveyances; Refund.

Semester-V

Course Code:	01AC503
Course Title :	Auditing I
Course Outcomes:	
01AC503.1	Understand the functional classification and qualities of an auditor, Define audit and understand the objectives of audit, principles governing audit etc.
01AC503.2	Understand the types of errors and frauds, Definition of fraud as given under the SA and its meaning. Analyze the duty of an auditor regarding detection of fraud and error.
01AC503.3	Apply the relevant SA to Identify Audit Evidence and Explain audit evidence, sufficiency and appropriateness of audit evidence, types of audit evidence, relevance and reliability of audit evidence, and also methods to obtain audit evidence.
01AC503.4	Understand the meaning of an automated environment. Learn how to perform an understanding of an automated environment. Identify the various risks in automated environment and the corresponding controls.
01AC503.5	Define Audit Sampling as per Standards on Auditing 530 and its importance. Understand the sampling techniques and how/when to apply them to audit procedures. Understand the meaning of analytical procedures as per Standards on Auditing.



Course Code:	05AC501
Course Title :	Cost and management Accounting
Course Outcomes:	
05AC501.1	Students will be able to understand the evolution, objectives, and scope of cost accounting and understand the concepts, classifications, and elements of cost.
05AC501.2	Students will be able to apply techniques for materials control, procurement procedures, and pricing methods, such as FIFO, LIFO, Simple Average, and Weighted Average and students will be able to calculate minimum level, maximum level, and reorder levels, Economic Order Quantity (EOQ), and ABC analysis for stock.
05AC501.3	Students will be able to calculate labour costs, labour turnover and efficiency.
05AC501.4	Students will be able to apply different costing methods, such as unit costing and batch costing, and prepare cost sheets with appropriate steps involved.
05AC501.5	Students will be able to understand contract costing, including its features, distinction from job costing, and handling progress payments, retention money, escalation clauses, and contract accounts. And students will be able to apply process costing techniques, and will be able to calculate process loss, abnormal gains and losses.

Course Code:	04MT504
Course Title :	Strategic Management
Course Outcomes:	
04MT504.1	To understand the role of Business environment, it's elements and levels of Organization which help a student to know about those internal and external factors which can affect business Strategy.
04MT504.2	To learn the vital role of Business Policy , And decision making process, And role of an organization's Vision, goals and mission which plays an important role in business policy making.
04MT504.3	To consider the Typologies of strategy analysis , Major Reason for Growth/Expansion through Diversification,; Porter's Five Force Model competitive Analysis, and cost leadership Strategy which help an organization to reduce its cost.
04MT504.4	To familiarize Strategic Planning of an organization which help to understand about marketing strategy, Marketing Mix, Marketing Techniques, Financial Strategy, Production Strategy; Production system



04MT504.5	To understand Formulation of Functional Strategy, introduction of Entrepreneurship and Entrepreneur And different between Entrepreneurship and entrepreneur, and strategy implementation process with factors that can affect implementation process of strategy.
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Semester-VI

Course Code:	01AC603
Course Title :	Advanced Auditing
Course Outcomes:	
01AC603.1	Understand the Appointment of auditors; Removal of auditors Remuneration of Auditors; Powers and duties of auditors; Branch audit.
01AC603.2	Understand the Forming an opinion on the Financial Statements and Nature of Comparative Information.
01AC603.3	Understanding of Audit Approach, Audit of Revenue items, Special Consideration in Bank Audit with emphasis on Advances and NPAs.
01AC603.4	Understand the Audit Procedure and Audit Report in respect of different Category of Entities.
01AC603.5	Understand the Audit Procedure of Items of Financial Statements.

Course Code:	05AC604
Course Title :	Advance Cost and management Accounting
Course Outcome	
05AC604.1	Students will be able to calculate cost of Service service-oriented businesses.
05AC604.2	Students will be able to use Standard Costing, budgeting techniques, and variance analysis, enabling them to make financial decisions and manage costs effectively.
05AC604.3	Students will maintain Cost Accounting Records, both integral and non-integral, and differentiate between them for better financial control.
05AC604.4	Students will grasp the nature and scope of Cost Audit, its techniques, and the reconciliation of financial and cost accounts, preparing them for cost auditing roles.
05AC604.5	Students will develop a deep understanding of Marginal Costing, Breakeven Analysis, and the differences between Marginal Costing and Absorption Costing, enabling better cost management and profit reporting.



Course Code:	05MT606
Course Title :	FINANCIAL MANAGEMENT
Course Outcome	
05MT606.1	Student learn about basic concept of financial management and able to calculate capital budgeting.
05MT606.2	student will able to calculate various leverage, cost of capital
05MT606.3	Student will be able to preparation of projected financial report.
05MT606.4	Student will learn about dividend policy.
05MT606.5	Student will learn about security analysis.

Semester-VII

Course Code:	02RM702
Course Title :	Research methodology
Course Outcomes:	
02RM702.1	Students will understand the definition, types, and characteristics of research, recognizing the significance conducting quality research.
02RM702.2	Students will learn to define research problems, formulate titles, and set hypotheses, while understanding various research designs.
02RM702.3	Students will grasp sampling concepts, learn to design effective sampling procedures, and identify characteristic of good sample designs.
02RM702.4	Students will acquire skills in measurement, scaling, data collection methods, questionnaire design, and data processing techniques.
02RM702.5	Students will develop proficiency in statistical analysis, hypothesis testing, non-parametric tests, and report writing for effective research communication.

Course Code:	01AC703
Course Title :	Accounting with tally
Course Outcomes:	
01AC703.1	Students will gain proficiency in utilizing Tally ERP 9 for efficient computerized accounting management.
01AC703.2	Students will demonstrate proficiency in accounting software navigation and usage for comprehensive financial management.
01AC703.3	Understanding permutations, combinations, factorial, and their applications in problem-solving scenarios.
01AC703.4	Efficiently manage payroll systems using software.
01AC703.5	Students will understand and effectively manage statutory deductions, PF contributions, gratuity calculations, and employee loan management in payroll systems



Course Code	05AC702-A
Course Title	Public Finance
Course Outcomes:	
05AC702-A.1	Understand the historical background, concepts, principles, and theories of public finance, including its role in economic development, market failures, and government interventions.
05AC702-A.2	Develop strong analytical skills to assess the economic implications of public finance policies, evaluate fiscal decisions, and analyze empirical data related to government revenue, expenditure, and debt management.
05AC702-A.3	Critically evaluate fiscal policies, tax reforms, budgetary decisions, and public expenditure programs based on their economic efficiency, equity implications, and effectiveness in achieving societal objectives.
05AC702-A.4	Acquire problem-solving abilities to address fiscal challenges, financial imbalances, and policy dilemmas faced by governments at the national, state, and local levels.
05AC702-A.5	Apply economic principles, such as resource allocation, market efficiency, income distribution, and public goods theory, to real-world scenarios and policy debates in the field of public finance.

Semester-VIII

Course Code:	01AC803
Course Title :	Advanced Accounting
Course Outcomes:	
01AC803.1	Makes aware about Banking Operations -Types of accounts - Banking Services - Current Scenario
01AC803.2	Well acquainted for Understanding Risk - Need and Scope of insurance -accounting treatment of general and life insurance company
01AC803.3	To comprehend accounting process of various Kinds of Public utility concerns
01AC803.4	To develop ability to calculate payback period of investment and decision making
01AC803.5	To develop ability to calculate claims against loss of stock and loss of profit



Course Code	02RM802
Course Title	PROJECT PLANNING AND CONTROL
Course Outcome:	
02RM802.1	Students confidence and knowledge to train other professionals in the organization for effective project planning
02RM802.2	students the required awareness and foresight to predict risks and challenges and put in place corrective actions to eliminate or minimize the negative impact on the project outcome
02RM802.3	students the capability and skill to undertake complex projects and complete them successfully, facilitating opportunities for higher roles and responsibilities within the organization
02RM802.4	students the ability and experience to handle projects of any kind in any organization or industry
02RM802.5	students the ability and skill to apply modern methods and techniques to gather information about the progress of a project to ensure seamless completion



Faculty of Education

Department of Education



Programme: Ph.D. in Education

Course Work

CourseCode:	117PH01
CourseTitle:	Research Methodology
Course Outcomes:	
117PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
117PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
117PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
117PH01.4	To explain the art of interpretation and the art of writing research reports.
117PH01.5	Evaluate the role and functioning of computer in research.

Advances in Educational Technology 126PH03

CourseCode:	126PH03
Course Title:	Advances in Educational Technology
Course Outcomes:	
126PH03.1	To enable the research scholar to understand about the meaning nature scope and significance of E.T. and its important components in terms of hardware and software.
126PH03.2	To help the research scholar to distinguish between communication and instruction sothat they can develop and design sound instructional system.
126PH03.3	To acquaint research scholar with levels ,strategies and models of teaching for improvement.
126PH03.4	To enable the scholars to understand about the importance of programmed instructionsand researches in E.T.
126PH03.5	To acquaint the scholars with emerging trends in E.T. along with the resources centersof E.T.



Research and Publication Ethics 117PH03

CourseCode:	117PH03
CourseTitle:	Research and Publication Ethics
Course Outcomes:	
117PH03.1	Students will be able to understand the ethics in conduct of scientific research.
117PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
117PH03.3	Identify research misconduct and predatory publications.
117PH03.4	Understand about the infer the ethical framework and principles.
117PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
117PH03.6	Develop a valid and ethical research report.

Review of Literature 117PH52

CourseCode:	117PH52
CourseTitle:	Review of Literature
Course Outcomes:	
117PH52.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme: M.A. Education

Course Code:	70ED121
Course Title:	Philosophical Foundations of Education- Part-I
Course Outcomes:	
70ED121.1	Contribution of Philosophy to the field of education.
70ED121.2	Contribution various Indian Schools of Philosophy to the field of education.
70ED121.3	Impact of Western Philosophies on Indian Education.
70ED121.4	Contribution of a few of the Great Indian Thinkers.

Course Code:	70ED122
Course Title:	Psychological Foundations of Education Part-I
Course Outcomes:	
70ED122.1	The contribution of different schools of Psychology to Educations.
70ED122.2	Definition, Nature and factors influencing Learning.
70ED122.3	The meaning and nature of higher mental process.
70ED122.4	The meaning measurement and adjustment of personality

Course Code:	70ED123
Course Title:	Sociological Foundations of Education-I
Course Outcomes:	
70ED123.1	Meaning and nature of educational sociology education and social organizations.



70ED123.2	Group dynamics social instructions, social change and the contribution of education to these aspects.
70ED123.3	Meaning of culture and concepts of modernization, westernization and socialization
70ED123.4	CO4. Various social factors and their impact on education Scheme of Studies

Course Code:	70ED124
Course Title:	Methodology of Educational Research & Educational Statistics–I
Course Outcomes:	
70ED124.1	Sources from where Knowledge could be obtained
70ED124.2	Nature, scope and limitations of educational research
70ED124.3	Modalities necessary for formulating research problem
70ED124.4	Sources for obtaining the data, analyzing and drawing for solving an educational problem.

Course Code:	70ED-125
Course Title:	Information and Communication Technology in Education
Course Outcomes:	
70ED125.1	Develop the professional ability in ICT, understand the impact of ICT
70ED125.2	Explain the various educational resources ,describe the various assessment techniques
70ED125.3	Explain ways to create online community understand the scope of ICT and its applications in teaching learning
70ED125.4	Analyze the types of ICT and apply the meaning of education
70ED125.5	Classify the new trends and techniques in education for achieving the goals of effective teaching and learning.



CourseCode:	70ED221
CourseTitle:	Philosophical Foundations of Education part-II
Course Outcomes:	
70ED221.1	Dependency theory in Education ,values and Indiancontribution
70ED221.2	Concepts related to socialphilosophy of education.
70ED221.3	Nature and source of Knowledge getting process

Course Code:	70ED222
CourseTitle:	Psychological Foundations of Education Part-II
Course Outcomes:	
70ED222.1	Concept of motivation and its relationship to Learning.
70ED222.2	Different theories of learning behaviorist ,cognitive and insight
70ED222.3	Meaning and nature of creativity and its development .Specific needs and traits ofexceptional children

CourseCode:	70ED223
CourseTitle:	Sociological Foundations of Education part-II
Course Outcomes:	
70ED223.1	Social theories with special references to Swadeshi
70ED223.2	Social theories with special references to Swadeshi
70ED223.3	Meaning of culture and concepts of modernization ,westernization and socialization
70ED223.4	Various social factors and their impact on education



CourseCode:	70ED224
CourseTitle:	Methodology of educational research & educational statistics part-II
Course Outcomes:	
70ED224.1	Major approaches that are available for conducting the educational research
70ED224.2	Preparing and communication of result - the research report
70ED224.3	Modalities necessary for formulating research problem.
70ED224.4	Sources for obtaining the data, analyzing and drawing for solving an educational problem

CourseCode:	70ED271
CourseTitle:	SYNOPSIS
Course Outcomes:	
70ED271.1	Proposal Presentation Seminar with project title, Significance of the study, brief review of related studies, research question/objectives/hypotheses study design and/or probable analysis.
70ED271.2	Project Submission ,Seminar for critical, technical and academic discussion with the worked-out project
70ED271.3	Document of the Project report

CourseCode:	70ED321
CourseTitle:	EDUCATIONAL TECHNOLOGY PART-1
Course Outcomes:	
70ED321.1	To enable the students teacher to understand about the meaning, nature, scope and significance of E.T .and its important components in terms of Hardware and Software.
70ED321.2	To help the students teachers to distinguish between communication and instruction so that they can develop and design a sound instructional system



70ED321.3	To acquaint students teachers with levels, strategies and models of teaching for future improvement.
70ED321.4	To enable the students teachers to understand about the importance of program instructions and research in E.T.
70ED321.5	To acquaint the student teachers with emerging trends in ET along with the resources centers of E.T.

CourseCode:	70ED322
CourseTitle:	Curriculum Studies part-I
Course Outcomes:	
70ED322.1	To acquire the knowledge of curriculum planning and alignment
70ED322.2	To understand the dimensions of knowledge and cognitive processes
70ED322.3	To analyze the curriculum and pedagogy as envisaged by various educational pioneers
70ED322.4	To understand the planning, management and support practices of pedagogy
70ED322.5	To evaluate the effectiveness of students learning outcomes and learning

CourseCode:	70ED323-A
CourseTitle:	Teacher Education
Course Outcomes:	
70ED323-A.1	To enable the students to understand the meaning ,scope, objectives of teacher educationand its development in India.
70ED323-A.2	To develop an understanding of the student about various modalities use for teachers, teacher educators and educational administrators for different levels of Education.
70ED323-A.3	To acquaint the students with the various aspects of student-teaching program prevailing in the country.
70ED323-A.4	To enable the students to understand the prevailing trends in teacher education andagencies to develop and implement the concerned policies in India



70ED323-A.5	To develop in the students and understanding about the important research findings in teacher education
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CourseCode:	70ED323-B
CourseTitle:	Education of the children with special needs– Part-I
Course Outcomes:	
70ED323B.1	Enable students to understand RPWD Act and educational implications of learning
70ED323B.2	Make students to comprehend learning resources and strategies for inclusive pedagogy
70ED323B.3	Enable student to understand the concept of universal design for learning (UDL) in the context of inclusive education
70ED323B.4	Create awareness on inclusive learning environments for successful inclusive education
70ED323B.5	Encourage students to understand curriculum and the importance of guidelines given by National Curriculum Framework and its significance

CourseCode:	70ED323-C
CourseTitle:	Educational Measurement and Evaluation - Part-I
Course Outcomes:	
70ED323C.1	Comprehend the concept, meaning and nature of measurement and evaluation.
70ED323C.2	Understand the relationship between measurement and evaluation.
70ED323C.3	Acquire knowledge about various tools of measurement and evaluation in existence
70ED323C.4	Develop skills on using psychological test for measurement and evaluation.
70ED323C.5	Get hands on SPSS to learn various statistical measurement and its analysis



CourseCode:	70ED-371
CourseTitle:	Review of literature
Course Outcomes:	
70ED-371.1	It provides theories, ideas, explanations or hypothesis which may prove useful in the formulation of a new problem. It indicates whether the evidence already available to solves the problem adequately without requiring further investigation. It avoids thereplication
70ED371.2	It provides the sources for hypothesis. The researcher can formulate research hypothesis On the basis of available studies. It suggests method, procedure, sources of data and statistical techniques appropriate to the solution of the problem
70ED371.3	It locates comparative data and findings useful in the interpretation and discussion of results. The conclusions drawn in the related studies maybe significantly compared and may be used as thesubject for the findings of the study.
70ED371.4	It helps in developing experts and general scholarship of the investigator in the areainvestigated
70ED371.5	It contributes towards the accurate knowledge of the evidence or literature in ones area of activity is a good avenue towards making oneself. This knowledge is an assetever afterwards, whether one is employed in an institution of higher learning or a research organization

CourseCode:	70ED421
CourseTitle:	Educational Technology-- Part-II
Course Outcomes:	
70ED421.1	To help the students teachers to distinguish between communication and instruction so that they can develop and design a sound instructional system.
70ED421.2	To acquaint students teachers with levels, strategies and models of teaching for future improvement.
70ED421.3	To enable the students teachers to understand about the importance of programmedinstructions and researches in E.T
70ED421.4	To acquaint the student teachers with emerging trends in ET along with the resources centers of E.T.



Course Code:	70ED422
Course Title:	Curriculum Studies- Part-II
Course Outcomes:	
70ED422.1	To understand the dimensions of knowledge and cognitive processes
70ED422.2	To analyze the curriculum and pedagogy as envisaged by various educational pioneers
70ED422.3	To understand the planning, management and support practices of pedagogy
70ED422.4	To evaluate the effectiveness of students _learning outcome Lectures

Course Code:	70ED423-A
Course Title:	Teacher Education part - II:- Part-I
Course Outcomes:	
70ED423-A.1	To enable the students to understand the meaning ,scope, objectives of teacher educations and its development in India.
70ED423-A.2	To develop an understanding of the student about various modalities used for teachers, teacher educators and educational administrators for different levels of Education
70ED423-A.3	To acquaint the students with the various aspects of student-teaching programs, prevailing in the country.
70ED423-A.4	To enable the students to understand the prevailing trends in teacher education and agencies to develop and implement the concerned policies in India
70ED423-A.5	To develop in the students and understanding about the important research findings in teacher education Lectures



CourseCode:	70ED423-B
CourseTitle:	Education of the Children with special needs - Part-II
Course Outcomes:	
70ED423-B.1	Make the students to recognize the concept of Curriculum Adaptation and make plan for inclusive setting
70ED423-B.2	Train students to learn universal design of learning and differentiated learning instruction to engage learners with special needs
70ED423-B.3	Enable students to know about Continuous and Comprehensive Evaluation and its importance Enable students to identify suitable tools and methods of evaluation
70ED423-B.4	Encourage students to aware of provision and exemptions for educational evaluation Lectures

CourseCode:	70ED423-C
CourseTitle:	Educational Measurement and Evaluation - Part-II
Course Outcomes:	
70ED423C.1	Enable to distinct various competencies in standardizing different types of measuring instrument.
70ED423C.2	Familiarize to construct different kinds of tests and tools..
70ED423C.3	Obtain knowledge on statistical concepts, tests , scores and its transformation
70ED423C.4	Assimilate the new trends in evaluation in terms of grading, semester, CCE and onlinetest..
70ED423C.5	Prepare question banks and other self-study materials



CourseCode:	70ED-471
CourseTitle:	Dissertation-viva voce
Course Outcomes:	
70ED471.1	Each prospective teacher educator has to select/develop the research tools/instruments and collect the data pertaining to his/her research problem.
70ED471.2	The Principal /Head shall arrange a Research Colloquium to enable each student give a presentation on adoption/development of research tools/instruments related his/her research.
70ED471.3	the prospective teacher educators have to complete the data analysis, interpretations and submit the dissertation
70ED471.4	To enable each student give a presentation before submission of the dissertation to the university for external evaluation subject to the approval of the Research Advisory Committee.
70ED471.5	To enable to identify research problem/topic ; To help students to formulate research questions, objectives, hypotheses etc. To enable students to make research design or actual plan of work analysis



PROGRAMME - B.Ed

Course code	71ED131
Coursetitle	Education in India status problem and issues
71ED131.1	To cultivate an awareness of the concept of diversity, elucidate the roles of teachers,society, and the community in the universalization of Education.
71ED131.2	To foster comprehension of the concise historical background of Indian Education,particularly with reference to Secondary Education.
71ED131.3	To enhance understanding of the roles and functions of a teacher as envisioned in the National Education Policy (NEP) of 1986 and NEP 2020, and to familiarize students with various projects and schemes at the secondary level in Madhya Pradesh
71ED131.4	To gain insight into the concise historical context of Indian Education, specificallyfocusing on Secondary Education.
71ED131.5	To cultivate insight in to the objectives and scope of Secondary Education and teacher education, and to foster an awareness of professional ethics.

Coursecode	71ED132
Coursetitle	Childhood and Growing up
71ED132.1	To develop an understanding of different aspects of a child physical, motor, socialand emotional development.
71ED132.2	To understand the developmental process of children with diverse abilities in social,cultural and political context
71ED132.3	To build sensitivity towards children's developmental needs and capabilities, withintheir socio-cultural context.
71ED132.4	To develop as sensitivity and critical understanding of the different social/ educational/ cultural/ political realities at the core of the exploration into childhood
71ED132.5	To build an interdisciplinary framework ,to interpret, analyze ,observations and inter Educational from cross culture psychology. To develop critical deconstruction of significant events that media high lights and creates during childhood



Coursecode	71ED133
Coursetitle	LEARNING AND TEACHING
71ED133.1	CO1: To reflect on their own implicit understanding of the nature and kinds of learning; Gain an understanding of different theoretical perspectives on learning with a focus on cognitive views of learning as well as social–constructionist theories;
71ED133.2	Develop an understanding about differential learning needs of learners To become aware of different contexts of learning and situate schools as a special environment for learning
71ED133.3	Explore the possibilities of an understanding of processes in human cognition and meaning– making themes basis for designing learning environments and experiences at school Develop understanding about the concept of teaching and pedagogy from various perspectives
71ED133.4	CO4: Explore teaching strategies to address diversity of students in a classroom. Appreciate the critical role of learners based on differences and contexts in making meanings, and hence draw out implications for schools and teachers.

Course code	71ED134
Coursetitle	Curriculum Development & School
71ED134.1	To acquaint students with the nature and types of curriculum Analyze text book and related educational material in context of aims and objective of education and learning outcome
71ED134.2	Analyze curriculum framework according to NCF Design and development of effective curriculum. And model
71ED134.3	Assess and evaluate curriculum students will gain knowledge about effective instructional strategies and assessment techniques
71ED134.4	student will be exposed to ethical considerations and professional standards related to curriculum they will explore strategies for sequencing content selecting appropriate material and diverse teaching method



Coursecode	71ED171
Coursetitle	MICROTEACHING AND TEACHING METHODS
71ED171.1	To enable Students to responds to a variety of Maxims of Teaching.
71ED171.2	To develop the teaching skills of Students.
71ED171.3	To develop the teaching methods skill
71ED171.4	To develop the teaching methods in class situation and the uses of teaching methods

Course code	71ED172
Course title	Pre internship

Course code	71ED173
Coursetitle	Execution of the lesson in the actual classroom situation
71ED173.1	

Course code	OSDG01
Course title	Sustainable Development Goals (SDGs)
OSDG101.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development
OSDG101.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
OSDG101.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resources.
OSDG101.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations



	of an argument for solution.
OSDG101.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programmes and processes.

Coursecode	71ED231
Coursetitle	Language across the Curriculum
71ED231.1	Aim of the Course Language is the medium for comprehending ideas, for reflection and thinking, as well as for expression and communication.
71ED231.2	Enhance in gain facility in the language of instruction is thus a vital need of student-teachers, irrespective of the subjects are as that they are going to teach.
71ED231.3	This course is visualized as arrange of primarily text-based language activities, which will aid in strengthening the ability to 'read', 'think', 'discuss and communicate' as well as to 'write' in the language of instruction.
71ED231.4	It is likely that student teachers will begin the programme with different levels of language ability hence group work that supports different levels of learning as envisaged as central feature of this course.
71ED231.5	To cultivate insight in to the objectives and scope of Secondary Education and teacher education ,and to foster an awareness of professional ethics

Coursecode	71AR 233-A
Course title	Hindi Teaching
71AR 233-A.1	To enable Students to respond to a variety of Maxims of Teaching.
71AR 233-A.2	To master the different techniques ,devices ,the Language structure, sounds and vocabulary..
71AR 233-A.3	To distinguish between different approaches and methods of teaching Hindi and their use in the classroom.
71AR 233-A.4	Acquire the basic skills of language learning. Plan and execute of different types of lessons in prose, poetry according to classroom situations.



71AR 233-A.5	To appreciate the importance and use of suitable audio-visual aids in classroom situations and To know the Principles of curriculum construction.
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Course code	71AR235-A
Course title	Sanskrit Teaching
71AR235 -A.1	To enable Students to responds to a variety of Maxims of Teaching.
71AR235 -A.2	To develop the teaching skills of Students To master the different techniques, devicesof the language structure, sounds and vocabulary..
71AR235 -A3	To distinguish between different approaches and methods of teaching Sanskrit andtheir use in the classroom

71AR235 -A.4	Acquire the basic skills of language learning. Plan and execute of different types oflessons in prose, poetry according to classroom situations.
71AR235 - A.5	To appreciate the importance and use of suitable audio-visual aids in classroom situations. To know the principles of curriculum construction.

Course code	71AR234-A
Course title	English Teaching
71AR234- A.1	To master the different techniques, devices of the Second language structure, sounds and vocabulary. To understand the status of English language.
71AR234- A.2	To distinguish between different approaches and methods of teaching English and their use in the classroom. Acquire the basic skills of language learning.
71AR234- A.3	Plan and execute of different types of lessons in prose, poetry according to classroom situations .To appreciate the importance and use of suitable audio - visual aids in classroom situations.
71AR234- A.4	To know the principles of curriculum construction
71ED131. 5	To realize his/her responsibilities as language teacher and pursue towards the aims ofprofessional growth.



Course code	71SC233-B
Course title	Science Teaching
71SC233 -B.1	Understand the nature, scope and importance of science with special reference to secondary school content
71SC233 -B.2	Understand the aims and objectives of teaching science. State the specific behavioral changes under each objective.
71SC233 -B.3	Understand and make use of different approaches & methods of teaching science. Prepare objective based lesson plans and use them in their internship
71SC233 -B.4	Understand and employ several teaching techniques helpful to develop scientific attitude and scientific method
71SC233 -B.5	Plan, use and maintain the science laboratory systematically Understand the principles of text-book construction

Course code	71AR236-A
Course title	Teaching of Social Science
71AR236-A.1	Explain the concept, nature and scope of Social Science. Differentiate between social science and social studies.
71AR236-A.2	Understand the contribution of eminent Social Scientists identify the aims and objectives of teaching social science at secondary level (NCF, 2005)
71AR236-A.3	Develop the skill of preparing behavioral objectives for teaching social science lessons explain
71AR236-A.4	Different approaches and methods of Teaching of social science
71AR236-A.5	Relate the use of modern trends in teaching social science at secondary level differentiate between different approaches of lesson planning
71AR236-A.6	Prepare lesson plans by applying knowledge of planning apply skills in preparation and use of instructional aids for social science teaching.

Course code	71AR239-A/71AR237-A
Course title	Teaching of History/Civics
71AR239 -A.1	Understand meaning, scope and importance of History and civics in the school curriculum.
71AR239 -A.2	Acquire content knowledge of methods of history and civics. Acquire knowledge of aims and instructional objectives of teaching history and civics



71AR239 -A.3	Acquire skills in planning lessons in History and civics Understand and apply the principles of organizing content in the teaching history and civics
71AR239 -A.4	Acquire knowledge about Local, Regional ,National, and World History. Acquire the knowledge of Instructional Material and resources in teaching History and Civics
71AR239 -A.5	Preparing suitable teaching devices &using them & organizing field trips

Course code	71AR240-A/71AR238-A
Course title	Teaching of Geography/Economics
71AR238 .1-	Acquire knowledge about basic facts, concepts, laws, principles and trends in Geography and Economics
71AR238 .2-	Acquire knowledge and understanding of the aims and objectives of Geography and Economics Realize the values of learning geography and Economics
71AR238 .3-	Make use of Audio- visual aids about Geography and Economics Develop skills in equipping the Geography and Economics-(i)Museum (ii)Room (iii)Library
71AR238 .4-	Develop skills in organizing planning-learning experiments and in writing and organizing the lesson plan.
71AR238 -A.5	-Acquire the knowledge of Geography and Economics

Course code	71AR241-A
Course title	Teaching of Commerce
71AR241 -	To introduce student teachers with the methodology of teaching used in-teaching of Commerce in schools.
71AR241 -	To make student teachers aware of the values of Commerce and the relationship of Commerce with other subject.
71AR241 -	To encourage student teachers to use a wide range of teaching techniques in order to enable them to plan their lessons in teaching of commerce
71AR241 -	To acquaint student teachers with the role of teaching aids, textbook, homework, libraries in Commerce. To equip student teachers with the curriculum



Coursecode	71SC236-B
Coursetitle	Teaching of Mathematics
71SC236-B.1	Recall the meaning, nature and scope of mathematics. Acquaint aims and objectives of teaching mathematics in Secondary School level.
71SC236-B.2	Plan teaching in mathematics at micro and macro level. Prepare unit plans ,resourceunit and organize lesson to meet at different classroom situations.
71SC236-B.3	Analyze and evaluate the curriculum of Mathematics at Secondary school level. Apply different approaches and methods of teaching Mathematics in class room situations.
71SC236-B.4	Prepare and use instructional materials in teaching Mathematics. Prepare different kinds of test and understand the comprehensive evaluation.
71SC236-B.5	Participate and organize the different co-curricular activities in Mathematics.

Course code	71SC237-B
Coursetitle	Teaching of Life Science
71SC237-B.1	Understand the Aims, Objectives of teaching Life Science and will be able to state the objectives in behavioral terms
71SC237-B.2	Acquaint with the Resources for teaching Life Science & their effective Utilization. Get exposed to Micro teaching and preparing Resource Unit , Unit Plan & Lesson Plans.
71SC237-B.3	Understand the concept of curriculum, principles of curriculum construction and trends curriculum revision. Be introduced to various methods , approaches & models of teaching life Science and implement them in their teaching practice.
71SC237-B.4	Understand and prepare the different types of test items for the Evaluation of students performance in life science.
71SC237-B.5	Appreciate and inculcate the competencies and commitments needed for a life Science Teacher. Plan & execute various curricular & co-curricular activities related to teaching of life-Science



Course code	71ED-232
Course title	Yoga, Health and Physical Education
71ED-232.1	Understand the significance of Health Education for the all-round development. Maintain and promote good health.
71ED-232.2	Develop the understanding of physical education and its related fields. Acquire the knowledge about the teaching methods of physical education and its activities.
71ED-232.3	Know about the effective organization of physical education activities. Health : Meaning, Aims and Objectives, Importance and Scope. Physical Education: Meaning, Aims and Objectives ,Importance and Scope.
71ED-232.4	Related fields Recreation, Health Education and Education. National and Emotional Integration through Sports and Physical Education. Yoga: Meaning – Astanga Yoga –Significance in Modern Society.
71ED-232.5	Health Service and Supervision. Medical Inspection: Meaning, Procedure and Importance. Personal Care :Skin, Eyes, Ears and Teeth

Course code	71ED-271
Course title	Educational Psychology
71ED-271.1	To know intelligence, mental fatigue, memory of students
71ED-271.2	To know about interest of students
71ED-271.3	To develop personality and know about learning in students
71ED-271.4	To develop creativity, adjustment, attitude, value, anxiety, achievement in students

Coursecode	71ED273-A/71ED273-B
Course title	Chalk making/ Candle making
71ED273-A.1	To develop skills of chalk making and candle making



Course code	71ED274-A
Course title	Food Preservation
71ED274-A	Students will gain knowledge about the meaning and importance of Food preservation

Course code	71ED274-B
Course title	Gardening and Horticulture
71ED274-B	Students will gain knowledge about the place gardening
71ED274-B2	Students will gain knowledge about the site selection for garden irrigation and drainage, method of irrigation

Course code	71ED272
Course title	READING AND REFLECTING ON TEXTS(practical)
71ED272.1	To enable the students to read and response to a variety of text in different ways
71ED272.2	To develop Meta cognitive awareness
71ED272.3	To enhance the capacities as readers and writers by becoming participants in the process of reading
71ED272.4	To enable the student teachers to work on the field and make predictions
71ED272.5	To enable the students check their predictions and then to summarize scheme of studies

Course title	IKS
IKS-i	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name BharatVarsh, ancient Rivers, ancient Universities and ancient agriculture.



IKS-ii	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeet and Natyashashtra etc
IKS-iii	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakshatras, Panchang, Concept of Zero, and Pain points etc.
IKS-iv	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
IKS-v	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites.

Course code	71AR371A/71AR372-A/71AR373-A/71SC371-B/71AR374-A/71AR375-A/71AR376-A/71AR377-A/71AR378-A/71AR379-A/71SC374-B/71SC375-B
Course title	Internship Subject-1st Hindi/English/Sanskrit /Science teaching Subject-2nd- Social Science/Civics/Economics/History/Geography /Commerce teaching/Mathematics/ Life Science teaching
	Interns are expected to engage in observations; co-planning and co-teaching with their mentor teachers and to build their capacity to ward assuming responsibility for extended lead teaching during the semester. Interns are in a period of transition from students to professional teachers. During this transition, they must retain the perspective of a learner as they take on the new and unfamiliar role of a teacher .In terns are expected to take an active role in their own learning and to contribute to the learning of fellow in terms

Coursecode	71ED380
Course title	Unit Plan
71ED380.1	Students will gain knowledge about meaning of Unit Planning and Importance of UnitPlanning
71ED380.2	Students will gain knowledge about Development of Unit Plan Limitations of Unit Planning



Coursecode	71ED-381
Coursetitle	DRAMA AND ART IN EDUCATION
71ED-381.1	Understanding basics of different Art forms, impact of Art forms on the human mind
71ED-381.2	Enhance artistic and aesthetic sensibility among learners to enable them to respond to the beauty in different forms through genuine exploration, experience and free expression
71ED-381.3	Enhance skills for integrating different Art forms across school curriculum at secondary level
71ED-381.4	Enhance awareness of the rich cultural heritage, artists and artisans

Coursecode	71ED-384
Coursetitle	Understanding the Self
71ED-384.1	Students are encouraged to explore and develop through self-reflection a greater insight into their aims of life
71ED-384.2	Strengths and weaknesses and dynamics of formation of identity and a true individuality. Students also develop a capacity for social-relational sensitivity, effective communications skills and ways to create harmony within one's own self and society.
71ED-384.3	The workshops are also aimed at equipping the students with positive attitudes, attributes and skills that help in facilitating the personal growth of their own students while teaching. To help student teachers discover and develop open mind, the attitude of a self-motivated learner, having self-knowledge and self-restraint.
71ED-384.4	To help student teachers develop the capacity for sensitivity, sound communication s skills and ways to establish peace and harmony.
71ED-384.5	To develop the capacity of facilitate personal growth and social skills in their own students



Course code	71ED-383
Course title	Understanding of ICT
71ED-383.1	Develop skill in handling computer and using word documents
71ED-383.2	Develop skill in computation, analysis and interpretation of data by using Excel Spreadsheets. Understand the Educational implications of Power Point Presentation and its use in classroom
71ED-383.3	Understand the applications of Information Technology in the field of teacher Education programme and training.
71ED-383.5	Understand the applications of Information and communication Technology in the field of Browsing the Internet and down loading in teacher education

Course code	71ED-382
Course title	WORKING WITH COMMUNITY
71ED-382.1	Acquaint the student teachers with the factors working within the society, community i.e. knowledge of social realities
71ED-382.2	Develop the dignity of labor among student teachers
71ED-382.3	Arouse their interest in the social and economic reconstruction of the country
71ED-382.4	Make the student-teacher aware with the educational problems and needs of the society
71ED-382.5	Prepare youth for sustainable development ,develop the personality of the student-teacher through community service



Course code	71ED-431
Course title	Gender, School and Society
71ED-431.1	To acquaint the student teachers with the concept to gender roles in society and their challenges.
71ED431.2	To develop an understanding of the inequality and disparities in equal opportunities in education in societal context.
71ED431.3	To enable the student teachers to critically examine the stereo types and rethink their beliefs
71ED431.4	To help student teachers to develop abilities to handle notion of gender and sexuality

Course code	71ED-432
Course title	Educational Technology & ICT
71ED-432.1	Understand the computer peripherals and its organization in computer system
71ED-432.2	Develop skill in handling computer and use in word documents
71ED-432.3	Develop skill in computation, analysis and interpretation of data by using excel spreadsheets
71ED-432.4	Understand the educational implications of power point presentation and its use in classroom context
71ED-432.5	Understand the applications of information technology in the field of teacher education programme and training

Course code	71ED-433
Course title	CREATING AN INCLUSIVE SCHOOL
71ED- 433	Understand the concept of disability ,identify the different types of children with special needs



71ED- 433.2	abhiyan) and RTE Act, 2009 understand different pedagogical and assessment techniques for inclusion of CWSN
71ED-433	the schools. Design and apply remedial instruction procedures for enhancing learning among children
71ED- 433.4	Identify the children of special needs. Understand the nature of special needs their psycho- educational characteristics and functional limitation
71ED- 433.5	Familiarize with assessment and placement procedure for children with special needs. Develop understanding about accommodating special needs in regular classroom

Coursecode	71ED-434
Coursetitle	School Management
71ED-434 .1	To enable Students to responds to a variety of Maxims of Teaching and to carry out educational futures
71ED-434 .2	To develop the teaching skills of students and to reflect and conserve basic values.
71ED-434 .3	To manage social change and profit by experience to carry out modernization
71ED-434 .4	To realize national integration and to form character and values.

Coursecode	71ED-435
Coursetitle	Educational Research
71ED-435.1	Acquire the knowledge of concept to research and educational research.
71ED-435.2	Understand the concept of basic, applied and Educational research and their differences. Understand the meaning, significance and scope of Educational research
71ED-435.3	Become aware of Educational research problems in different areas in schools



71ED-435.4	Acquire the knowledge of steps involved and tools used in Educational research
71ED-435.5	Acquire the skills of conducting Educational research and to develop the skills of interpreting and reporting the findings of Educational research

Coursecode	71ED436-A
Coursetitle	A-Value Education
71ED436-A.1	Understand the concept and types of values.
71ED436-A.2	Understand the meaning and basic-theories of axiology .Get an insight into the strategies of inculcation of values among children.
71ED436-A.3	Develop awareness about the different agencies working in the sphere of value education
71ED436-A.4	Develop skills and techniques needed to teach value education
71ED436-A.5	Understand the role of the teacher in value education

Coursecode	71ED436-B
Coursetitle	B—Environmental Education
71ED436-B.1	Understand the concept, significance, scope and terminologies, objectives and programs of environmental education.
71ED436-B.2	Develop awareness about the various types of pollution, ecological imbalances and life and contributions of environmental activities.
71ED436-B.3	Interpret the environmental legislation in conservation and protection of the environment
71ED436-B.4	Understand the role of governmental and non-governmental agencies in environmental education
71ED436-B.5	Apply the methods of teaching and evaluation in environmental education.



Coursecode	71ED436-C
Coursetitle	C-Guidance and Counseling in Schools
71ED436-c.1	Understand the principles, scope and need of guidance and counseling in schools
71ED436-C.2	Acquaint himself with nature of different problems faced by children in context of learning and development
71ED436-C.3	Understand the acquisition and process of learning in children with special needs



Faculty of Agriculture Science and Technology



Department of Agriculture Engineering and Food Technology



Programme:

B.Tech. (Agricultural Engineering)

Semester-I

Course Code:	22MS121
Course Title:	Engineering Mathematics –I
Course Outcomes:	
AE 101.1	Define and understand the concept of matrix, formulation. types of matrices and operation of matrix. Differentiate between different types of matrices
AE 101.2	Use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics. Cayley Hamilton theorem, solution of linear equation.
AE 101.3	Define and compute partial derivatives of functions of several variables, Define Taylor and Maclaurine curvature homogenous function and Euler's theorem, Apply the chain rule to compute derivatives of composite functions involving multiple variables,
AE 101.4	14 Apply integration techniques, including substitution, integration by parts, and partial fractions. Application of double and triple integral and volume and surface of revolution.
AE 101.5	Understand the scalar and vector point function, gradient and their physical interpretation Sketch direction fields to visualize the behavior of solutions, apply first- order ODEs to model and analyze various phenomena.

Course Code:	22PH122
Course Title:	Engineering Physics
Course Outcomes:	
AE 102.1	To explain the how magnetic domain effect and contribute to the overall magnetic behavior of a material. Understanding of the principles governing the behavior of magnetic materials, and they should be able to apply, analyze and solve problems related to magnetism in various contexts.
AE 102.2	To understand and solve the Schrödinger equation for a free particle. A comprehensive understanding of the behavior of particles in one and three dimensions enabling them to analyze and solve problems in a wide range of quantum systems.
AE 102.3	Understand the electronic band structures for different solid materials and phenomenon of superconductivity and effect of temperature on superconductors.
AE 102.4	Understanding the in-depth concepts pertaining to the various mechanisms involved for exhibiting laser light and detailed explanation of the formation of different types of Maser and Laser. Understanding of Holographic



	technique to produce 3D image of an object.
AE 102.5	Understanding of structure and light propagation mechanism in an optical fiber and understanding the concept of illumination and laws of illumination and its related terms.

Course Code:	22PH123
Course Title:	Engineering Chemistry
Course Outcomes:	
AE 103.1	Apply the concept of hardness of water, its units and identify temporary and permanent hardness
AE 103.2	Describe the concept of fuels, lubricants, characteristics of good fuel, calorific value and determine of calorific value by bomb calorimeter.
AE 103.3	Explain and apply the concept of classification of polymers, types of polymerizations, mechanism of polymerization and determination of molecular weight of polymers.
AE 103.4	Explain the concept of properties and application of lipids, proteins, carbohydrates and vitamins
AE 103.5	Apply principle of IR and UV-VIS spectroscopy and explain Analytical methods f like TGA, DTA and DSC, analytical applications of radioactive materials.

Course Code:	22ME124
Course Title:	Thermodynamics, Refrigeration and Air conditioning
Course Outcomes:	
AE 104.1	Analyze thermodynamic properties and laws to solve problems in heating, expansion, and steady flow processes.
AE 104.2	Evaluate the efficiency of different cycles like Carnot, Otto, diesel, and dual cycles, applying entropy principles.
AE 104.3	Apply refrigeration principles to design systems using various cycles and refrigerants, including absorption refrigeration.
AE 104.4	Design and analyze refrigeration systems, including cold storage plants, and understand psychometrics for air conditioning applications.
AE 104.5	Demonstrate proficiency in air conditioning principles, design methods, load calculations, and equipment selection for diverse applications.



Course Code:	22CE125
Course Title:	Surveying and levelling
Course Outcomes:	
AE 105.1	Understand a solid foundation in the fundamental principles and concepts of surveying, including the geometry of measurements, coordinate systems, and basic surveying instruments.
AE 105.2	Acquired the knowledge of types compass and measure ring the bearing through compass and filed area measurement.
AE 105.3	Understanding and acquired the knowledge of plane tables survey, along with its various methods and its accessories
AE 105.4	Students should be capable of creating topographic maps and plans using survey data, contour lines, and elevation data.
AE 105.5	Students should become proficient in the use of surveying instruments such as total stations, the doilite, levels, and GPS equipment. Imparts the knowledge on modern surveying instruments.

Course Code:	22ME175
Course Title:	Engineering Drawing
Course Outcomes:	
AE 106.1	Apply first and third angle projection methods effectively, demonstrating understanding of drawing scales and principles of orthographic projections
AE 106.2	Proficiently utilize reference planes to determine points and lines in space, along with auxiliary planes for true shapes of oblique surfaces.
AE 106.3	Demonstrate competence in isometric projection, surface development of solids, and preparation of working drawings.
AE 106.4	Exhibit proficiency in creating sectional drawings of machine parts and understanding riveted joints and welding symbols.
AE 106.5	Demonstrate mastery in identifying and representing various types of threads, nuts, bolts, screws, and fasteners.



Course Code:	22SC126
Course Title:	Principles of Soil Science
Course Outcomes:	
AE 107.1	To learn the general introduction of soil, classification, components, rocks, formation and weathering and its profile.
AE 107.2	To understand the major factors affecting the process of weathering. Soil physical properties of different soil types of various locations of India, there colour variations, nutrient content and physical, chemical and biological variation.
AE 107.3	To interpret the soil-water plant relationship and factors affecting them. Soil/Air, its distribution with respect to soil and earth. Soil temperature, availability of different types of microbes in different temperature.
AE 107.4	To identify various soil cations, anions, Silicate clay structures, and colloids. To be able to classify the different microbes present in soil.
AE 107.5	The course aims to equip participants with a comprehensive understanding of utilizing saline and sodic water for crop production, emphasizing strategies to mitigate adverse effects on soil and plants.

Course Code:	22ME127
Course Title:	Engineering Mechanics
Course Outcomes:	
AE 108.1	Understanding of term Mechanics and its classification.
AE 108.2	Compute the Centroid, Center of Gravity, moment of inertia of a body.
AE 108.3	Understanding the Friction, its types and nature.
AE 108.4	Analyzing the Simple Framed structure and Trusses.
AE 108.5	Understanding the basics of strength of material.



Semester-II

Course Code:	22MS221
Course Title:	Engineering Mathematics –II
Course Outcomes:	
AE 201.1	Understand the importance of ordinary differential equations first order and first degree.
AE 201.2	Understand series solution, solutions of bessels and legenders differential equations.
AE 201.3	Understand and apply the importance of ordinary differential equations in higher order and first degree.
AE 201.4	Understand fourier series and complex analysis.
AE 201.5	Students will create the concept of Partial Differential Equations in higher order.

Course Code:	22EV222
Course Title:	Environmental Sciences & Disaster Management
Course Outcomes:	
AE 202.1	To overview of environment science and impact of technology on environment and ecosystem also.
AE 202.2	To explain about different natural resources such as water resources, forest resources and Energy resources.
AE 202.3	To acquired the knowledge of different types of pollution.
AE 202.4	To explain about Current environmental global issues
AE 202.5	To explain about Definition, concept and types of disaster management, as well as Role of NGOs

Course Code:	22MT223
Course Title:	Entrepreneurship Development and Business Management
Course Outcomes:	
AE 203.1	Identify the concepts of Entrepreneurship Development and Business Management
AE 203.2	Discriminate the expertise in Business Management and application of Business Management in company Business
AE 203.3	Practice the basics of Business Management through various tools and techniques available.
AE 203.4	Estimate the analysis of Entrepreneurship Development and their application in Entrepreneurship Development
AE 203.5	Asses the budget and budgetary control methods and application of its knowledge in preparation of budget.



Course Code:	22CE 224
Course Title:	Fluid Mechanics and Open Channel Hydraulics
Course Outcomes:	
AE 204.1	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
AE 204.2	Analyze fluid motion using Lagrangian / Eulerian methods, study flow lines and particle acceleration.
AE 204.3	Differentiate between laminar/turbulent flow, study pipe flow, energy losses, configurations, and pipe phenomena
AE 204.4	Apply Euler's/Bernoulli's equations, understand Venturimeter, Orifice meter, and implications of momentum equations.
AE 204.5	Apply dimensional analysis and similitude.

Course Code:	22ME225
Course Title:	Theory of machines
Course Outcomes:	
AE 205.1	Students analyze complex mechanisms using graphical methods to determine velocity and acceleration, optimizing mechanical systems in practical applications."
AE 205.2	Understanding gear types, laws of gearing, sliding velocity, involute and cycloidal profiles, spur gear characteristics, interference, and helical gear basics.
AE 205.3	Analyzing velocity ratio via tabular method, turning moment diagrams, fluctuation coefficients, flywheel dynamics, belt drives, materials, sizing, and power transmission considerations."
AE 205.4	Exploring chain drives, dry friction laws, pivot and collar friction, disc and cone clutches, rolling friction, anti-friction bearings, and governor types.
AE 205.5	Understanding friction effects, force curve control, governor characteristics (sensitivity, stability, hunting, iso-chronism, power, and effort), static and dynamic balancing.



Course Code:	22ME226
Course Title:	Workshop Technology and Practice
Course Outcomes:	
AE 206.1	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
AE 206.1	Acquired proficiency in using hand tools. Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.
AE 206.1	Comprehensive understanding and proficiency in casting processes, center lathe construction, accessories, shapers, work holding devices, tools, and operations.
AE 206.1	Mastery in identifying and operating pillar and radial drilling machines, understanding work and tool holding devices, performing main operations, and analyzing drill types.
AE 206.1	Proficiency in understanding and utilizing column & knee type universal milling machines, plain milling cutters, and performing essential milling operations effectively.

Course Code:	22ME227
Course Title:	Strength of Materials
Course Outcomes:	
AE 207.1	Understanding of basic mechanics and material behavior through topics such as stress, strain, direct and shear stress, free body diagrams and Poisson's ratio.
AE 207.2	Understanding elastic constants, their interrelationships, and their impact on volume changes in materials.
AE 207.3	Understanding and applying energy principles to solve stress and strain problems, including gradual and sudden force applications and utilizing Mohr circle for complex stress analysis for stress problems.
AE 207.4	Ability to analyze and predict the slope, deflection, and internal forces in beams using integration methods, moment area theorems, and conjugate beam method.
AE 207.5	To analyze and design structural elements like beams, columns, and connections considering stability and deflection under various loading conditions



Course Code:	22CA228
Course Title:	Web Designing and Internet Applications
Course Outcomes:	
AE 208.1	Students will gain a solid understanding of the basic principles of web design, including layout, typography, color theory, and user interface design using HTML, CSS.
AE 208.2	Students will learn various techniques for designing navigation bars, such as using menus, dropdowns and navigation icons, to create user-friendly and easy-to-navigate websites.
AE 208.3	Students will learn about the history and development of the internet, starting from its origins in ARPANET, www and web tool
AE 208.4	Students will be able to declare variables, assign values, and manipulate data using functions. How to interact with users through JavaScript using various methods such as alert, confirm, and prompt to display messages, obtain user input, and confirm actions.

Course Code:	22HO322
Course Title:	Principles of Horticultural crops and Plant Protection.
Course Outcomes:	
AE 301.1	To understand about scope, Soil and Climatic requirements and Improved varieties of Horticultural crops.
AE 301.2	Students will have the ability to apply the Knowledge of Site selection including Nursery raising techniques and different Planting Methods.
AE 301.3	Student will be able to Understand Macro and Micro Propagation techniques including several Hi-Tech advanced practices of Horticultural crops.
AE 301.4	Understanding about Different concepts of Fertilizers and Irrigation methods including fertigation.
AE 301.5	Idea on Garden tools and Different Post Harvest practices, Insects Pests and Diseases and their management.

Course Code:	22AN323
Course Title:	Principles of Agronomy
Course Outcomes:	
AE 302.1	Students acquaint will familiar with the knowledge of Agronomy and its scope and importance and know the seed and importance of plant population in the field and nutrient use efficiency
AE 302.2	Students will be able to do basic agronomic operations like sowing, fertilizer application, irrigation etc.
AE 302.3	Students will be able to schedule agronomy practices in a crop.
AE 302.4	Students will able to acquaints knowledge about Water resources in India and water relationship with soil and plant and irrigation and its method and



	importance of irrigation.
AE 302.5	Learn basic cost estimation techniques for agricultural structures, considering materials, labor, and equipment requirements.

Course Code:	22SD324
Course Title:	Communication Skills and Personality Development
Course Outcomes:	
AE 303.1	Students' grammatical accuracy will be improved, leading to clearer and more effective communication in both academic and professional contexts.
AE 303.2	Students' abilities will develop to comprehend, analyze, and interpret spoken and written language
AE 303.3	Students' abilities will develop to effectively communicate information in written form
AE 303.4	Students' ability will be enhanced to participate actively and constructively in group discussions and debates
AE 303.5	Students' abilities will be developed to effectively plan, deliver, and engage an audience through spoken communication.

Course Code:	22MS321
Course Title:	Engineering Mathematics - III
Course Outcomes:	
AE 304.1	Understand the concept of discretization and its application to solving differential equations, apply finite difference methods to approximate derivatives and integrals, Recognize the stability and consistency properties of different difference schemes. By the end of the course, students should have a solid understanding of these topics and be able to apply their knowledge to solve a variety of mathematical and computational problems.
AE 304.2	By the end of the course, students should have a comprehensive understanding of interpolation techniques, their applications, and the considerations involved in choosing the most appropriate method for a given set of data.
AE 304.3	By the end of the course, students should be proficient in applying numerical techniques to solve problems related to derivatives, integrals, difference equations, and ordinary differential equations. They should also be able to critically evaluate the methods based on accuracy, stability, and computational efficiency.
AE 304.4	By the end of the course, students should be proficient in using Laplace transformation to solve ordinary and simultaneous differential equations. They should also be able to interpret the physical meaning of solutions and analyze the stability and transient responses of systems represented by Laplace-transformed equations
AE 304.5	By the end of the course, students should be proficient in conducting various



	statistical tests, interpreting results, and applying hypothesis testing techniques to real-world problems. They should also be able to choose appropriate tests based on the nature of the data and the research question.
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Course Code:	22CE325
Course Title:	Soil Mechanics
Course Outcomes:	
AE 305.1	Introduction to Soil Mechanics and Stress Distribution
AE 305.2	Shear Strength and Laboratory Testing
AE 305.3	Compaction of Soils and Field Methods
AE 305.4	Consolidation of Soils and Settlement Analysis
AE 305.5	Earth Pressure and Slope Stability Analysis

Course Code	22CE326
Course Title:	Theory of Structures.
Course Outcomes:	
AE 306.1	Understand the basic concept of design and various loads and BIS codes and design the riveted, bolted and welded joints.
AE 306.2	Understand the basic concept of designing steel structural elements and design various tension and compression members.
AE 306.3	Design of flexural members i.e. beams and plate girders and steel roof truss.
AE 306.4	Understand the design concept of singly and doubly reinforced beam section for flexure, shear, bond and torsion.
AE 306.5	Understand the design concept of flanged sections, slabs, columns, foundations, retaining walls and silos.



Course Code:	22ME327
Course Title:	MACHINE DESIGN
Course Outcomes:	
AE 307.1	Apply fundamental principles to design mechanical components considering material properties and design considerations.
AE 307.2	Analyze different types of loads and stresses, determining appropriate factors of safety for design selections.
AE 307.3	Design various mechanical joints and connections, including threaded fasteners, welded connections, and mechanical couplings.
AE 307.4	Evaluate the performance of power transmission elements like belts, gears, and screw motion mechanisms in mechanical design.
AE 307.5	Select and apply suitable anti-friction bearings for machine design applications, considering load and speed requirements.

Course Code:	22ME328
Course Title:	HEAT & MASS TRANSFER
Course Outcomes:	
AE 308.1	Explain different modes of heat transfer and Calculate heat transfer for one-dimensional steady state conduction in solids.
AE 308.2	Discuss various correlations of natural and forced convection, Explain and solve heat transfer problems in forced and natural convection.
AE 308.3	Discuss mechanism and various laws associated with Thermal radiation. Find out shape factors for the various geometries and evaluate the rate of heat exchange between them.
AE 308.4	Define, classify and analyze the performance of heat exchanges such as parallel flow, counter flow and cross flow heat exchangers. Discuss various boiling and condensation regimes.
AE 308.5	Define, classify and analyze the Steady state molecular diffusion in fluids at rest and in laminar flow, Flick_s law, mass transfer coefficients.



Course Code:	22EE329
Course Title:	Electrical Machines and Power Utilization
Course Outcomes:	
AE 309.1	Understand the fundamental knowledge of basic principles of machines.
AE 309.2	Understand the principle, working, and tests of a Single-Phase transformer
AE 309.3	Understand the principle, working, and performance characteristics of DC machines (generator, and motor). Tests associated with DC machines.
AE 309.4	Understand the starting and speed control of the DC motor with the necessary knowledge of the three-phase Induction machine and single-phase Induction machine.
AE 309.5	Analyze the principle and working of various single-phase motors, measurement of three-phase power, and different types of connections of AC circuits.

Semester-IV

Course Code:	22CE421
Course Title:	Building Construction and Cost Estimation
Course Outcomes:	
AE 401.1	Understand the various engineering properties of different construction materials i.e. cement, concrete, steel etc.
AE 401.2	Understand the applications of different building components i.e. lintels, arches, stair cases etc. and also various types of engineering works included in the construction of a structure.
AE 401.3	Learn about different types of agricultural buildings, their applications and design theory.
AE 401.4	Understand the different types of estimates and factors affecting the costs of a building and cost analysis.
AE 401.5	Specify the different measurement and pricing techniques, calculating benefit to cost ratios and thus the feasibility of a project.



Course Code:	22ME471
Course Title:	Auto CAD Applications
Course Outcomes:	
AE 402.1	Students will gain proficiency in using Computer-Aided Design (CAD) software for creating 2D and 3D drawings
AE 402.2	Students understands the modify II, layer commands, dimension, hatch & gradient, drawing format and how to print in different page format.
AE 402.3	Students will be able to create drawings of agricultural machinery and build their projects as per industry standards.

Course Code:	22AE423
Course Title:	Tractor and Automotive Engines
Course Outcomes:	
AE 404.1	Students able to apply able to compare and contrast conventional (fossil fuels) and non- conventional (renewable) energy sources used for powering agricultural machinery.
AE 404.2	Students understanding of different tractor types and how internal combustion engines, categorized as Compression Ignition (CI) and Spark Ignition (SI), are classified based on their operating principles.
AE 404.3	S t u d e n t s understand the importance of clean air and explore air cleaning technologies as well as fuel supply system including fuel air ratio calculation.
AE 404.4	Students able to understand the function of carburetor and injector also know about governor system to control the rated rpm of tractor.
AE 404.5	Students gain the knowledge about different tractor system



Course Code:	22HO524
Course Title:	Engineering Properties of Agricultural Produce
Course Outcomes:	
AE 405.1	Analyze the various engineering properties of grains, fruits, and vegetables (e.g., shape, size, density, porosity, thermal properties, friction properties, rheological properties, electrical properties).
AE 405.2	Apply the knowledge of engineering properties to design and develop equipment for post-harvest handling, processing, and storage of agricultural produce
AE 405.3	Evaluate the effects of different handling and processing operations on the quality and safety of agricultural produce.
AE 405.4	Applying engineering principles to solve problems related to food processing. This could involve designing or selecting appropriate equipment, optimizing processes for efficiency, or minimizing losses.
AE 405.5	Apply the knowledge to Measurement Techniques for determining the various engineering properties of agricultural produce and modeling and simulating the behavior of agricultural produce during handling and storage.

Course Code:	22AE425
Course Title:	Watershed Hydrology
Course Outcomes:	
AE 406.1	A comprehensive course on watershed development should blend theoretical knowledge with practical skills, preparing students to contribute effectively to sustainable resource hydrology and environmental conservation.
AE 406.2	Overall, the course should equip students with the knowledge and skills necessary to assess, plan, and manage watersheds sustainably, considering the diverse factors that influence their health and productivity.
AE 406.3	The end of the course, students should be well-equipped with the theoretical and practical knowledge needed to contribute effectively to sustainable water hydrology within watersheds. They should understand the complexities of water budgets, be familiar with a range of conservation technologies, and be capable of implementing and integrating these measures in diverse contexts.
AE 406.4	The end of the course, students should be equipped with the knowledge and skills necessary to plan and implement integrated watershed hydrology strategies that consider the diverse needs of the community while maintaining ecological balance and sustainability.
AE 406.5	Upon completing the course, students should be well-prepared to actively contribute to the planning, execution, and evaluation of watershed hydrology programs, incorporating principles of sustainability, community participation, and effective project manage.



Course Code:	22AE426
Course Title:	Irrigation Engineering
Course Outcomes:	
AE 407.1	Analyze major irrigation projects (impact, water, use) in India.
AE 407.2	Design & assess water measurement, open channels & on-farm structures
AE 407.3	Understand underground pipes, design & land grading for water efficiency
AE 407.4	Master soil properties, water movement & measurement for optimal irrigation
AE 407.5	Calculate crop water needs & design surface methods for efficient use

Course Code:	22AE427
Course Title:	Sprinkler and Micro irrigation Systems
Course Outcomes:	
AE 408.1	Analyse adaptability, design, evaluate performance of sprinkler irrigation systems for efficient water management
AE 408.2	Compare micro irrigation systems, design drip systems considering water-soil-plant relationships, optimize water and nutrient delivery
AE 408.3	Master in hydraulics and maintenance of drip systems for efficient operation and longevity
AE 408.4	Evaluate advantages and limitations of fertigation, design effective injection strategies for optimal crop nutrition.

Course Code:	22EE428
Course Title:	Fundamentals of Renewable Energy Sources
Course Outcomes:	
AE 409.1	Understand concepts, limitations, and classification of renewable energy sources. Compare them with non-renewable sources.
AE 409.2	Analyze solar energy potential, conversion technologies (thermal & photovoltaic), and economic considerations.
AE 409.3	Explain wind energy principles, wind turbine types, power generation, and wind farm operation.
AE 409.4	Explore bio-energy via biomass conversion, gasification, biogas production, and utilization technologies.



Semester-V

Course Code:	22AE521
Course Title:	Tractor Systems and Controls
Course Outcomes:	
AE 501.1	Students understand tractor transmission system, need, function, types, construction and working principle of different types of clutches.
AE 501.2	Students acquire the knowledge about working principle of gear box, differential system of tractor and braking mechanism.
AE 501.3	Students acquire a comprehensive understanding of the principles, components, and functioning of steering systems of tractor as well as hydraulic system.
AE 501.4	Students enhancing the knowledge about tractor power outlets, traction and function of tire and its construction.
AE 501.5	Students gain the knowledge about tractor mechanics, deciphering the engine test codes, ergonomically and safety considerations in Tractor.

Course Code:	22AE522
Course Title:	Farm machinery and power engineering
Course Outcomes:	
AE 502.1	Understand the classification criteria for various farm machines and evolution of farm mechanization.
AE 502.2	Understand hitching systems and control mechanisms of farm machinery.
AE 502.3	Students understands about tillage equipment's and its uses, students calculate required draft power.
AE 502.4	Assess field efficiency through the calculation of field capacities.
AE 502.5	Students gain the knowledge to select and optimize materials and heat treatment processes for designing and building durable and functional agricultural machinery.

Course Code:	22AE523
Course Title:	Agricultural Structures and Environmental Control
Course Outcomes:	
AE 503.1	Understand and assess the environmental requirements of different agricultural operations, including crops, livestock, and storage needs.
AE 503.2	Acquired the knowledge of the design basic agricultural structures considering factors like functionality, building materials, structural integrity, and cost- effectiveness.
AE 503.3	Develop the ability to critically assess and integrate sustainable design principles into agricultural structures.
AE 503.4	Applying engineering principles to solve problems related to technical



	drawings, plans, and specifications for the construction of agricultural structures according to relevant building codes and safety standards.
AE 503.5	Learn basic cost estimation techniques for agricultural structures, considering materials, labor, and equipment requirements.

Course Code:	22HO524
Course Title:	Post-Harvest Engineering of Cereals, Pulses and Oil Seeds
Course Outcomes:	
AE 504.1	Understand the conceptual knowledge about importance and scope of food processing, post-harvest losses, principles and methods of food processing.
AE 504.2	Acquired the knowledge of types of raw materials used in Food Processing, along with its physical and chemical characteristics.
AE 504.3	Understanding the unit operations involved in processing cereals, pulses, and oilseeds. This includes cleaning, grading, drying, storage, milling, and packaging.
AE 504.4	Applying engineering principles to solve problems related to post-harvest handling and processing. This could involve designing or selecting appropriate equipment, optimizing processes for efficiency, or minimizing losses during storage.
AE 504.5	Learning about the working principles and selection of machinery used for processing these crops. Students will gain an understanding of different types of dryers, cleaners, mills, and other equipment.

Course Code:	22AE525
Course Title:	Soil & Water Conservation Engineering
Course Outcomes:	
AE 505.1	Understanding Soil Erosion
AE 505.2	Quantifying and Predicting Soil Loss.
AE 505.3	Controlling Water Erosion.
AE 505.4	Reclaiming Gullies and Ravines.
AE 505.5	Mitigating Wind Erosion.



Course Code:	22AE526
Course Title:	Watershed Planning and Management
Course Outcomes:	
AE 506.1	A comprehensive course on watershed development should blend theoretical knowledge with practical skills, preparing students to contribute effectively to sustainable resource management and environmental conservation.
AE 506.2	Overall, the course should equip students with the knowledge and skills necessary to assess, plan, and manage watersheds sustainably, considering the diverse factors that influence their health and productivity.
AE 506.3	The end of the course, students should be well-equipped with the theoretical and practical knowledge needed to contribute effectively to sustainable water management within watersheds. They should understand the complexities of water budgets, be familiar with a range of conservation technologies, and be capable of implementing and integrating these measures in diverse contexts.
AE 506.4	The end of the course, students should be equipped with the knowledge and skills necessary to plan and implement integrated watershed management strategies that consider the diverse needs of the community while maintaining ecological balance and sustainability.
AE 506.5	Upon completing the course, students should be well-prepared to actively contribute to the planning, execution, and evaluation of watershed management programs, incorporating principles of sustainability, community participation, and effective project management.

Course Code:	22AE527
Course Title:	Drainage Engineering
Course Outcomes:	
AE 507.1	Understand the fundamentals of drainage, identify drainage problems, and design surface drainage systems.
AE 507.2	Comprehend the principles of subsurface drainage, investigate design parameters, and derive drain spacing equations.
AE 507.3	Design subsurface drainage systems, select appropriate drainage materials and pipes, and implement layout, construction, and installation techniques.
AE 507.4	Analyze drainage structures & vertical drainage, bio and mole drains and manage salt balance



Course Code:	22AE528
Course Title:	Renewable Power Sources
Course Outcomes:	
AE 508.1	Students analyze energy scenario in India and identify conventional & non-conventional resources. Evaluate renewable energy options like solar, wind, biomass, and hydro, and discuss energy efficiency & security.
AE 508.2	Students understanding Understand biogas technology, design & operate biogas plants, and calculate biogas yield. Evaluate power generation from biogas and analyze potential of utilizing waste for biogas production.
AE 508.3	Design & select biogas plants, understand their operation & maintenance, and analyze performance. Design & implement solar thermal systems and understand principles & operation of solar photovoltaic systems.
AE 508.4	Students Analyze design & operation of central receiver & distributed solar power plants. Understand OTEC, MHD, hydrogen fuel cell technology, and analyze their potential & challenges.
AE 508.5	Students understand wind energy conversion system, biomass gasification & dendro thermal power generation and understand fuel cell technology & parameters.

Semester-VI

Course Code:	22CA621
Course Title:	Computer Programming and Data Structures
Course Outcomes:	
AE 601.1	Able to describe understand the fundamental concepts of programming languages and its types. Student will explain the core concept of C. Demonstrate familiarity with standard library functions and their usage. Role of compiler and interpreter and datatypes. Describe variables and operators in the C language.
AE 601.2	Gain proficiency in control flow structures for decision making and looping. Understand the scope and visibility of variables within programs. concepts of passing arguments to functions and returning values
AE 601.3	Able to describe one- and two-dimensional Array. Fundamental concepts of pointer, structure and union
AE 601.4	Able to describe data structure and its types. Understand the stack and queue. Infix, prefix and postfix expression. Conversion from infix to postfix.
AE 601.5	Able to describe linked lists and various operations



Course Code:	22AE622
Course Title:	Farm Machinery and Equipment II
Course Outcomes:	
AE 602.1	To equip the students with a comprehensive understanding of various aspects crucial to efficient pest management in agriculture.
AE 602.2	Students gain a comprehensive understanding of the essential tools and techniques for weed management and fertilizer application in agricultural intercropping systems.
AE 602.3	Students understanding of various aspects related to the efficient harvesting of crops. Through theoretical teachings and practical demonstrations, students will delve into harvesting methods, terminology, and the intricacies of different harvesting equipment.
AE 602.4	Students will enhance their knowledge of threshing equipment, particularly combine harvesters and threshers. The course will cover factors influencing thresher performance, enabling students to optimize operational efficiency.
AE 602.5	Students will possess a comprehensive understanding of root crop diggers, with a focus on potato and groundnut harvesting. Additionally, they will study cotton harvesting mechanisms, including cotton pickers and strippers, along with maize harvesting combines. Introduction to vegetables and fruit harvesting equipment and tools.

Course Code:	22AE623
Course Title:	Post-Harvest Engineering of Horticultural Crops
Course Outcomes:	
AE 603.1	Explain about concept of post-harvest engineering of horticulture crop along with its importance.
AE 603.2	Explain the basic concept of freezing and chilling of food along with different types of freezing equipment's.
AE 603.3	Acquired the knowledge for packaging o food products along with different types of applicable packaging material for horticulture products.
AE 603.4	Explain the concept of food preservation along with different types of food preservation.
AE 603.5	Explain about importance of post-harvest management and also quality attribute of finished product.



Course Code:	22AE624
Course Title:	Water Harvesting and Soil Conservation Structures
Course Outcomes:	
AE 604.1	Students will Understand principles, techniques, and issues of water harvesting.
AE 604.2	Students will learn Design farm ponds, tanks, and percolation ponds; Implement nala bunds for water conservation.
AE 604.3	Design permanent structures for soil erosion control; Implement check dams and drop spillways for gully control.
AE 604.4	Perform hydrologic, hydraulic, and structural design; understand the applicability and design criteria of drop and box-type inlet spillways.
AE 604.5	Design chute and drop inlet spillways; Evaluate design criteria and limitations of SAF stilling basin.

Course Code:	22AE625
Course Title:	Groundwater, Wells and Pumps
Course Outcomes:	
AE 605.1	Understand groundwater dynamics & well behavior
AE 605.2	Explore well types, design, drilling, & completion
AE 605.3	Analyze aquifer parameters, well impact, & recharge strategies
AE 605.4	Select, install, & maintain water lifting devices (pumps)
AE 605.5	Design & optimize pumps including advanced types

Course Code:	22AE678
Course Title:	Tractor and Farm Machinery Operation and Maintenance
Course Outcomes:	
AE 606.1	Students' familiarity with different makes and models, safe driving practices, and proper hitching techniques for mounted and trailed implements.
AE 606.2	Students understands the scheduled maintenance procedures, common problems, and how to use appropriate tools for general and specific maintenance tasks.
AE 606.3	Students gain hands-on experience operating tillage tools like moldboard and disc plows, adjusting them for field conditions, and understanding different field patterns.



Course Code:	22AE626
Course Title:	Dairy and Food Engineering
Course Outcomes:	
AE 607.1	Understand the conceptual knowledge about importance and scope of food processing, methods of food processing and gain a thorough understanding of fundamental unit operations in food processing, including homogenization, pasteurization, thermal processing, evaporation, freezing, and drying.
AE 607.2	Acquired the knowledge of the design principles and selection criteria for equipment used in various processes, such as pasteurizers, sterilizers, evaporators, dryers, and packaging machinery.
AE 607.3	Develop the ability to design layouts for dairy and food processing plants, considering factors like product flow, equipment placement, and hygiene.
AE 607.4	Applying engineering principles to solve problems related to food processing. This could involve designing or selecting appropriate equipment, optimizing processes for efficiency, or minimizing losses.
AE 607.5	Apply engineering principles to solve problems encountered during food processing and storage as well as gain an understanding of emerging technologies in the food industry, like bioengineering and advanced packaging etc.

VII Semester

Course Code:	22AE570, 22AE774, 22AE773, 22AE772, 22AE771 and 22AE871
Course Title:	STUDENT READY (Training Programs)
Course Outcomes:	
AE 701.1	Students will gain a strong understanding of the entrepreneurial process, from ideation and business planning to marketing and financial management.
AE 701.2	Through hands-on training and internships, students will develop the practical skills needed to start and run their own businesses.
AE 701.3	The program will help students develop the confidence and self-reliance necessary to succeed as entrepreneurs.
AE 701.4	Students will gain a deeper understanding of the challenges and opportunities facing rural communities.
AE 701.5	The program aims to equip students with the skills and knowledge they need to become successful entrepreneurs and create jobs for themselves and others.



Semester-VIII

Course Code:	29AE873-B
Course Title:	Tractor Design and Testing
Course Outcomes:	
AE 803.1	Students able to apply engineering principles to design balanced, stable agricultural tractor and theories behind traction, allowing you to design for optimal power transfer to the ground.
AE 803.2	Students analyze and design various clutch mechanisms or minimizing friction losses by understanding rolling friction and anti-friction bearings and design steering mechanism.
AE 803.3	Students understand of agricultural tractor engines, focusing on the unique design considerations for components like cylinders, pistons, and crankshafts and designing the operator's seat and controls.
AE 803.4	: Students gain hands-on knowledge in evaluating tractor performance as per BIS code and standards.

Course Code:	29AE821-B
Course Title:	Remote Sensing and GIS Applications
Course Outcomes:	
AE 802.1	Understand the basic components of remote sensing, its advantages and limitations, and its potential use in assessing and monitoring land and water resources.
AE 802.2	Gain knowledge of aerial photography, including types and scales of aerial photographs, stereoscopic vision, air-photo interpretation, and satellite remote sensing techniques.
AE 802.3	Learn about image classification, resolutions, digital data analysis, image enhancement, information extraction, and the use of microwave remote sensing.
AE 802.4	Understand GIS fundamentals, including spatial data sources, entities, structures, map projections, data input methods, editing, and integration of spatial data.
AE 802.1	Apply remote sensing and GIS techniques for effective management of land and water resources.



Course Code:	29AE874-A
Course Title:	Food Plant Design and Management
Course Outcomes:	
AE 802.1	Understand the location, selection and design of food plants.
AE 802.2	Interpret the salient features of various food processing plants.
AE 802.3	Understand the knowledge about finance and food business management.
AE 802.4	Understand the knowledge about finance and food business management.
AE 802.1	Understand the knowledge about the various policies and preparation of feasibility report.



Food Technology

Semester – I

Course Code:	54ME124
Course Title :	Engineering Drawing & Graphics
Course Code	Course Outcomes
54ME124.1	Understand the Knowledge of Orthographic Projection
54ME124.2	Acquire the Knowledge of dimensioning and riveted joint
54ME124.3	Understand the Preparation of welded joint
54ME124.4	Apply the knowledge of Square headed and hexagonal nuts and bolts
54ME124.5	Acquire the Knowledge of Application of computers for design

Course Code:	54EE127
Course Title :	Electrical Engineering
Course Code	Course Outcomes
54EE127.1	Understand the knowledge of Basic AC fundamental Principles and Various Circuit Connections.
54EE127.2	Understand the knowledge of Construction and Working of the Transformer.
54EE127.3	Understand the Construction and Working of Single-Phase Induction Machines, Poly-Phase Induction Machines, and DC Machines.
54EE127.4	Evaluate the Concepts of DC Motors, and Power Economics.
54EE127.5	Gain knowledge of the Measuring Instruments and Protection Scheme, and Electric Wiring.

Course Code:	54BI126-A
Course Title :	Elementary Biology
Course Code	Course Outcomes
54BI126-A.1	Describe the diversity of Life and theories of its Origin.
54BI126-A.2	Explain the basics of Botany and Zoology.
54BI126-A.3	Acquired the knowledge for Morphology of Frog.
54BI126-A.4	Explain the internal organ system of Frog.
54BI126-A.5	Demonstrate approach towards Lower Botany.



Course Code:	54MS126-B
Course Title :	Elementary Mathematics
Course Code	Course Outcomes
54MS126- B.1	Apply mathematical concepts and principles to perform computations for food Sciences.
54MS126-B.2	Create, use and analyze mathematical representations and mathematical relationships
54MS126-B.3	Communicate mathematical knowledge and understanding to help in the field of technology in food.
54MS126-B.4	Explain the relationship between the derivative of a function as a function and the notion of the derivative as the slope of the tangent line to a function at a point.
54MS126- B.5	Distinguish between linear, nonlinear, partial and ordinary differential equations.

Course Code:	54PH123
Course Title :	Engineering Physics
Course Code	Course Outcomes
54PH123.1	Through this chapter students correlate the property of surface tension with different natural phenomena. Students understand the concept of capillarity in liquids. They are able to relate surface tension and capillarity.
54PH123.2	Understand the properties of light like, Interference, Principle of Superposition & Application of Interference.
54PH123.3	Acquire skills to identify and apply formulas of diffraction, type of diffraction and its application.
54PH123.4	Understand the applications of polarization in design and working of Nicol Prism.
54PH123.5	Gain knowledge on working of solid state & Gas LASER and their applications in various fields.



Course Code:	54FT130
Course Title :	Introduction to Food Science and Technology
Course Code	Course Outcomes
54FT130.1	Overview of basic definition of food science, food technology and evolution of food along with its nutritional values.
54FT130.2	Explain the basic concept of different unit operations that involve for processing of raw material along with introduction of equipment.
54FT130.3	Acquired the knowledge basic technical terms that is necessary for Calculation of total heat and total calories in food.
54FT130.4	Explain the concept of importance of food preservation along with its different types.
54FT130.5	Explain about overview of storage for storing of fruits, vegetable and grain along with its designing aspect and packaging of finished product.

Course Code:	54EV129
Course Title :	Environmental Sciences & Disaster Management
Course Code	Course Outcomes
54EV129.1	To overview of environment science and impact of technology on environment and ecosystem also.
54EV129.2	To explain about different natural resources such as water resources, forest resources and Energy resources.
54EV129.3	To acquire the knowledge of different types of pollution.
54EV129.4	To explain about Current environmental global issues
54EV129.5	To explain about Definition, concept and types of disaster management, as well as Role of NGOs

Course Code:	54MB122
Course Title :	General Microbiology
Course Code	Course Outcomes
54MB122.1	Describe diversity of microorganisms, bacterial cell structure and function, microbial growth and metabolism, and the ways to control their growth by physical and chemical means
54MB122.2	Explain the basic genetic systems of bacteria, bacteriophage and plasmids
54MB122.3	Acquired the knowledge for operating Microscope.
54MB122.4	Explain the role of microorganisms in food production and preservation, and their ability to cause food-borne infections
54MB122.5	Demonstrate practical skills in fundamental microbiological techniques.



Course Code:	SDG-101
Course Title :	Sustainable Development Goals (SDGs)
Course Code	Course Outcomes
SDG-101.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
SDG-101.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
SDG-101.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
SDG-101.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
SDG-101.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programmes and processes.

Course Code:	54ME125
Course Title :	Workshop Technology
Course Code	Course Outcomes
54ME125.1	Acquire the knowledge about Introduction to basic materials and instruments used in mechanical workshop
54ME125.2	Acquired proficiency in using hand tools. Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.
54ME125.3	Practice on Carpentry work
54ME125.4	Operational skill development of Machinery: Introduction to various workshop machines (1) Lathe, (2) Milling machine, (3) Shaper and planner, (4) Drilling and boring machine, (5) Grinder and (6) CNC machines; Length of cut, feed, depth of cut, RPM, cutting speed, time, time allowances;
54ME125.5	Learning about Estimation of machining time for different lathe operations



Semester II

Course Code:	54FT221
Course Title :	Food Chemistry of Macronutrients
Course Code	Course Outcomes
54FT221.1	Explain the Properties of Water and its impact at Food
54FT221.2	Explain the Dispersed system of Food.
54FT221.3	Acquired the knowledge for Carbohydrates processing.
54FT221.4	Acquired the knowledge for Lipids and Fat processing.
54FT221.5	Acquired the knowledge for Oil Refining and processing.

Course Code:	54FT222
Course Title :	Food Microbiology
Course Code	Course Outcomes
54FT221.1	Recall the history of microorganisms in food and Explain the factors that affect microbial growth in food.
54FT221.2	Identify the microorganisms found in food.
54FT221.3	Compare various physical and chemical methods used in the control of microorganisms.
54FT221.4	Cultivate and enumerate microorganisms from various food samples.
54FT221.5	Illustrate the role of microorganisms in food safety.

Course Code:	54EE226
Course Title :	Basic Electronics Engineering
Course Code	Course Outcomes
54EE226.1	Explain the concept of semiconductor material, diode and its applications.
54EE226.2	Understanding the concept of Different electronic components and their working principles.
54EE226.3	Explain the principle, construction and working of Electronics circuits such as differential amplifier and operational amplifier.
54EE226.4	Introduction of Voltage regulators its type, Boolean algebra and A/D, D/A converters.
54EE226.5	Introducing the concept of Generalized Instrumentation and different measuring instruments.



Course Code:	54CA224
Course Title :	Computer Programming and Data Structures
Course Code	Course Outcomes
54CA224.1	Able to describe basic components like Memory input output devices, microprocessor hardware and software.
54CA224.2	Able to describe Algorithms and flow-charts. Student will explain the core concept of C Ability to write programs that solve problems and perform various operations using the C programming language.
54CA224.3	At the end of this chapter the student will use Array and Function in programs. Proficiency in using decision-making structures (if, else, switch) and loops (for, while, do-while) for program control.
54CA224.4	Able to describe the syntax rules, data types, variables, and operators in the C language.
54CA224.5	Able to describe Standard library functions, managing input and output, decision making fundamental concepts including arrays, linked lists, stacks, queues,

Course Code:	54MS227
Course Title :	Engineering Mathematics –I
Course Code	Course Outcomes
54MS227.1	Define and understand the concept of matrix, formulation, types of matrix and operation of matrix .Differentiate between different types of matrices
54MS227.2	Use matrices to represent and solve systems of linear equations. Explore more advanced topics, such as linear transformations, matrix norms, and applications in optimization and computer graphics. Cayley Hamilton theorem, solution of linear equation.
54MS227.3	Define and compute partial derivatives of functions of several variables, Define taylor and maclurine curvature homogenous function and eulers theorem, Apply the chain rule to compute derivatives of composite functions involving multiple variables,
54MS227.4	Apply integration techniques, including substitution, integration by parts, and partial fractions. Application of double and triple integral and volume and surface of revolution.
54MS227.5	Understand the scalar and vector point function, gradient and their physical interpretation Sketch direction fields to visualize the behavior of solutions, Apply first-order ODEs to model and analyze various phenomena.



Course Code:	54ME225
Course Title :	Fluid Mechanics
Course Code	Course Outcomes
54ME225.1	Grasp fluid properties (density, viscosity, surface tension) and understand static principles (pressure laws, buoyancy).
54ME225.2	Analyze the Fluid flow and Classification,
54ME225.3	Learning about Flow through orifices, mouthpieces, notches and weirs;
54ME225.4	Acquire the knowledge about Dimensional analysis
54ME225.5	Acquire the knowledge about Turbines and pumps

Course Code:	54FT223
Course Title :	Food Thermodynamics
Course Code	Course Outcomes
54FT223.1	Grasp fundamental thermodynamic concepts, systems, energy forms, and basic processes.
54FT223.2	Acquire the knowledge about Second law of thermodynamics
54FT223.3	Understanding about the Thermodynamic cycles
54FT223.4	Learning about Psychometry
54FT223.5	Acquire the knowledge about Three stages of water

Course Code:	54AE228
Course Title :	Post-Harvest Engineering
Course Code	Course Outcomes
54AE228.1	Overview of postharvest technology: Concept and importance of Post Harvest Engineering.
54AE228.2	Explain the basic concept of cleaning and grading of grain after harvesting process along with their equipment.
54AE228.3	Acquire the knowledge for grain separator and grain drying theory.
54AE228.4	Explain the concept of paddy parboiling, their methods and briefly discuss about pulse and oil milling.
54AE228.5	Explain about different types of material handling equipment that applicable for convey of grain.



Course Title:	Fundamental of Indian Knowledge System
Course Outcomes (CO):	
CO- IKS.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
CO- IKS.II	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
CO- IKS.III	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
CO- IKS. IV	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
CO- IKS. V	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Semester – III

Course Code:	54MS321
Course Title :	Engineering Mathematics-II
Course Code	Course Outcomes
54MS321.1	Student will define the concept of matrices.
54MS321.2	Student will define the concept of limit continuity and functions.
54MS321.3	Student will define the concept of partial differential equation.
54MS321.4	Student will understand application of partial differential equation.
54MS321.5	Student will understand statistical methods and application in food processing calculations

Course Code:	54FT322
Course Title :	Fundamentals of Food Processing
Course Code	Course Outcomes
54FT322.1	Understand the knowledge of sources, types and perishability of food products.
54FT322.2	Acquired the knowledge of preservation of food by application heat.
54FT322.3	Acquired the knowledge of preservation of food by low temperature.
54FT322.4	Understand the knowledge of preservation of food by irradiation, chemicals and fermentation.
54FT322.5	Apply the knowledge of various non-thermal preservation methods of food.



Course Code:	54FT323
Course Title :	Processing Technology of Milk & Milk Products
Course Code	Course Outcomes
54FT323.1	Understand the knowledge of production and processing scenario of milk, composition of milk, role of cooperatives and food technologists.
54FT323.2	Acquired the knowledge of planning and layout of dairy plant.
54FT323.3	Understand the knowledge of basic concept and theory of heat exchanger.
54FT323.4	Understand the knowledge of various thermal processing methods, homogenization, centrifugation and lactic acid fermentation.
54FT323.5	Apply the knowledge of types of milk, coagulated milk products, spray drying and packaging of milk and milk products.

Course Code:	54BT325
Course Title :	Industrial Microbiology
Course Code	Course Outcomes
54BT325.1	Defines the methods of Screening and Preservation of Microbes.
54BT325.2	To enrich the methods of industrial sterilization.
54BT325.3	Describe the Components, working principle and applications of Fermentor.
54BT325.4	To acquire knowledge about Probiotics and its applications.
54BT325.5	To acquire knowledge about Downstream Processing.

Course Code:	54FT324
Course Title :	Processing Technology of Cereals
Course Code	Course Outcomes
54FT324.1	Understanding about Present status and future prospects of cereals and millets; Morphology, physico-chemical properties of cereals, major and minor millets; Chemical composition and nutritive value;
54FT324.2	Acquire the knowledge about paddy processing and rice milling: Conventional milling, modern milling, milling operations, milling machines, milling efficiency; Quality characteristics influencing final milled product; Parboiling; Rice bran stabilization and its methods;
54FT324.3	Acquire the knowledge about Wheat milling: Break system, purification system and reduction system; extraction rate and its effect on flour composition; quality characteristics of flour and their suitability for baking; Corn milling: Dry and wet milling of corn, starch and gluten separation, milling fractions and modified starches
54FT324.4	To acquire the knowledge about processing of Barley: Malting and milling; Oat/Rye: Processing, milling; Sorghum: Milling, malting, pearling; Millets (Pearl millets, finger millets): Processing of millets for food uses; Secondary and tertiary products processing of cereals and millets; By-products processing of cereals and millets;
54FT324.5	Learning about Processing of infant foods from cereals and millets; Breakfast cereal foods: Flaked, puffed, expanded, extruded and shredded.



Course Code:	54ME327
Course Title :	Heat and Mass Transfer in Food Processing
Course Code	Course Outcomes
54ME327.1	Explain different modes of heat transfer and Calculate heat transfer for one-dimensional steady state conduction in solids.
54ME327.2	Explain the phenomenon of transient heat transfer in one dimension. Define, classify and analyze the fins.
54ME327.3	Discuss various correlations of natural and forced convection, understand various correlations of natural and forced convection
54ME327.4	Define, classify and analyze the performance of heat exchanges such as parallel flow, counter flow and cross flow heat exchangers. Discuss various boiling and condensation regimes.
54ME327.5	Students will analyze mass transport phenomena, design separation processes, and apply principles to solve real-world problems in diverse industries.

Course Code:	54FT326
Course Title :	Food Chemistry of Micronutrients
Course Code	Course Outcomes
54FT326.1	Micronutrient Identification: Students will be able to identify and classify essential micronutrients, such as vitamins and minerals commonly found in foods.
54FT326.2	Chemical Structure and Properties: Understand the chemical structures, properties, and reactivity of different micronutrients, including their molecular compositions and functional groups
54FT326.3	Micronutrient Bioavailability: Comprehend the factors affecting the bioavailability of micronutrients, including interactions with other nutrients, food matrices, and factors like pH
54FT326.4	Micronutrient Stability: Evaluate the impact of environmental factors, such as light, temperature, and oxygen, on the stability and degradation of micronutrients in food products
54FT326.5	Nutrient Interactions: Analyze how micronutrients interact with one another and with macronutrients in food, and the consequences of these interactions for overall nutrition.

Course Code:	54FT328
Course Title :	Unit Operations of Food Processing-I
Course Code	Course Outcomes
54FT328.1	To understand concept of size reduction along with different size reduction , used as milling equipment.
54FT328.2	To understand the basic concept of mixing type unit operation and also describe about different mixing equipment that essential any food processing



	industry.
54FT328.3	Acquired the knowledge for mechanical separation type unit operation such as sieving, centrifugation, and sedimentation and filtration technique.
54FT328.4	To understand the concept of different types of filtration techniques according to application of constant pressure and constant time.
54FT328.5	To understand different types of membrane separation techniques along with application of diffusion process.

Course Code:	54FT378
Course Title :	Skill Development (Bakery)- Lab
Course Code	Course Outcomes
54FT378.1	Ability to develop employability skills in the field of bakery.
54FT378.2	Ability to enhance technical knowledge and skills in the field of bakery.
54FT378.3	Ability to assess the quality of bakery products.
54FT378.4	Ability to recall the standards and regulations of bakery industries.
54FT378.5	Ability to demonstrate skills in bakery industries.

Semester-IV

Course Code:	54FT421
Course Title :	Processing Technology of Pulses & Oilseeds
Course Code	Course Outcomes
54FT421.1	Understand the food processing, and nutrition, addressing challenges and optimizing the potential benefits of legumes and oilseeds.
54FT421.2	Knowledge about challenges in pulse milling, optimizes nutritional quality, and develops efficient processing methods for various pulse products.
54FT421.3	Apply the knowledge to enhance soybean products, develop fermented legume variations, optimize oilseed milling processes, and troubleshoot issues in the oil milling industry for improved productivity and quality.
54FT421.4	Understand the traditional oil refining processes, advanced technologies in oilseed processing and their practical applications.
54FT421.5	Understand the value addition processes, utilization of by-products and ways to create high-value food products from oilseed meals and residues.

Course Code:	54FT422
Course Title :	Food Biochemistry and Nutrition
Course Code	Course Outcomes
54FT422.1	Define the nutrition and healthy diet planning concepts.
54FT422.2	Explain the importance of nutrition.
54FT422.3	Describe the elements of nutrients.
54FT422.4	Summarize the deficiencies of nutrition.
54FT422.5	Explain the digestion, absorption and transports in blood circulation of nutrients.



Course Code:	54FT423
Course Title :	Unit Operations of Food Processing-II
Course Code	Course Outcomes
54FT423.1	Explain about concept of evaporation along with its principle and different properties of liquor for analysis of mass and energy balance.
54FT423.2	Explain the basic concept of different types of evaporator which is also called evaporation equipment's that's are essential any food processing industry along with their feeding mechanism.
54FT423.3	Acquired the knowledge for food freezing system with analysis to effect of freezing on the quality of food product and also discuss about Plank's law for freezing time.
54FT423.4	Explain the concept of cooking of food along with different types of cooking and also discuss about pasteurization process in detail.
54FT423.5	Explain about different types of thermal heat treatment in food such as sterilization, blanching and canning etc.

Course Code:	54FT424
Course Title :	Food Biotechnology
Course Code	Course Outcomes
54FT424.1	Understanding the basic modules of Microbial genetics, mechanism of replication and transformation.
54FT424.2	Explain the basics genetic systems of bacteria, bacteriophage and plasmids.
54FT424.3	Acquired the knowledge for Recombinant DNA technology.
54FT424.4	Explain the role of microorganisms in Genetic Engineering.
54FT424.5	Demonstrate practical skills in modifying the plants with Recombinant techniques.

Course Code:	54FT425
Course Title :	Food Refrigeration and Cold Chain
Course Code	Course Outcomes
54FT425.1	Fundamentals of thermodynamics, refrigerating capacity, and coefficient of performance in refrigeration systems.
54FT425.2	Analysis of air and vapor refrigeration cycles, selection of operating temperatures, and system efficiencies.
54FT425.3	Interpretation of vapor compression cycles, including diagrams, superheating, sub cooling, and system optimization.
54FT425.4	Operations of ice production, cold storage design, refrigerated transport logistics, and system security and efficiency.
54FT425.5	Factors affecting comfort, design and operation of air-conditioning systems, and load calculations for cooling requirements.



Course Code:	54FT426
Course Title :	Processing of Spices and Plantation Crops
Course Code	Course Outcomes
54FT426.1	Understand the knowledge of production and processing scenario of spice, flavor and plantation crops and its scope..
54FT426.2	Acquired the knowledge of Post-harvest technology, composition, processed products of major spices.
54FT426.3	Acquired the knowledge processing and utilization of all minor spices.
54FT426.4	Understand the knowledge of post-harvest technology for tea, coffee, cocoa, vanilla and annatto processing.
54FT426.5	Apply the knowledge of the extraction techniques, functional packaging and utilization of various byproducts of spice and plantation crops.

Course Code:	54FT477
Course Title :	Skill Development (Cereals and Pulses Processing)- Lab
Course Code	Course Outcomes
54FT477.1	Ability to develop employability skills in the field of cereals and pulses.
54FT477.2	Ability to enhance technical knowledge and skills in the field of cereals and pulses.
54FT477.3	Ability to assess the quality of cereals and pulses products.
54FT477.4	Ability to recall the standards and regulations of cereals and pulses industries.
54FT477.5	Ability to demonstrate skills in cereals and pulses industries.

Semester-V

Course Code:	54FT526
Course Title :	Bakery, Confectionery and Snack Products
Course Code	Course Outcomes
54FT526.1	Understand the knowledge of processing, equipment, packaging, storage and quality testing of bakery products.
54FT526.2	Acquired the knowledge of processing, equipment, packaging, storage and quality testing of confectionery and chocolate products.
54FT526.3	Analyze the product quality characteristics, defects, causes and corrective measures of confectionery and chocolate products
54FT526.4	Understand the knowledge of processing, equipment, packaging, storage and quality testing of snack foods.
54FT526.5	Understand the knowledge of processing, equipment, packaging, storage and quality testing of snack food seasonings.



Course Code:	54FT525
Course Title :	Food Process Equipment and Design
Course Code	Course Outcomes
54FT525.1	Overview of the different types of the material, material fabrication and their properties that should withstand without any rupture.
54FT525.2	Explain the basic concept of designing analysis of pressure vessel, different types of heat exchanger and designing analysis of evaporator.
54FT525.3	Acquired the knowledge for Design of agitators and separators.
54FT525.4	Explain the concept of Design of freezing equipment and different types of dryer that used in food processing industry.
54FT525.5	Explain about concept of Design of material handling equipment that applicable for convey of grain.

Course Code:	54FT524
Course Title :	ICT Applications in Food Industry
Course Code	Course Outcomes
54FT524.1	Acquire the knowledge of the computerization in food industry and SCADA
54FT524.2	Acquire the basic and advances knowledge of internet, and programming in MATLAB
54FT524.3	Acquire the basic of toolboxes useful to food industry and computational food dynamics
54FT524.4	Acquire the basic and advance knowledge of GAMBIT, FLUENT AND LABVIEW Software
54FT524.5	Acquire the basic and advance knowledge of Creating Vis and sub Vis.

Course Code:	54FT577
Course Title :	Industrial Training-I
Course Code	Course Outcomes
54FT522.1	Safety Assurance: Demonstrate a comprehensive understanding of safety protocols and regulatory compliance in the processing of meat and poultry, ensuring the production of products free from contaminants and pathogens.
54FT522.2	Quality Control Proficiency: Acquire the skills to implement effective quality control measures throughout the processing chain, ensuring consistent product quality, flavor, and texture.
54FT522.3	Technical Competence: Develop technical expertise in various processing methods, such as curing, smoking, cooking, and packaging, to meet industry standards and consumer expectations.
54FT522.4	HACCP Implementation: Apply Hazard Analysis and Critical Control Points (HACCP) principles to identify, assess, and control potential hazards, thereby enhancing the overall safety and integrity of processed meat and poultry products.
54FT522.5	Innovation and Product Development: Explore and implement innovative processing techniques to diversify product offerings, meeting market demands and consumer preferences while considering sustainability and efficiency in production.



Course Code:	54FT521
Course Title :	Processing Technology of Fruits and Vegetables
Course Code	Course Outcomes
54FT521.1	Describe fruit and vegetable production in India and their various processing and preservation methods.
54FT521.2	Acquired the knowledge of supply chain, processing methods, and preservation techniques essential in the fresh fruit and vegetable industry.
54FT521.3	Understand the canning techniques, equipment, quality control measures, and the ability to produce safe and high-quality canned products.
54FT521.4	Knowledge, skills, and regulatory understanding needed to prepare and preserve a wide range of fruit-based products while ensuring compliance with FSSAI standards.
54FT521.5	Explain in brief about scientific knowledge of manufacturing of various value added products.

Course Code:	54FT576
Course Title :	Skill Development (Confectionary)- Lab
Course Code	Course Outcomes
54FT576.1	Ability to develop employability skills in the field of confectionary.
54FT576.2	Ability to enhance technical knowledge and skills in the field of confectionary.
54FT576.3	Ability to assess the quality of confectionary products.
54FT576.4	Ability to recall the standards and regulations of confectionary industries.
54FT576.5	Ability to demonstrate skills in confectionary industries.

Course Code:	54FT523
Course Title :	Instrumental Techniques in Food Analysis
Course Code	Course Outcomes
54FT523.1	Acquire the knowledge about Basic of Food quality analysis and quality parameter
54FT523.2	Understanding the various Principles of Chromatography and separation techniques used in food quality assessment along with the operational skill development of HPLC
54FT523.3	Understanding the various Principles of Immune-assay techniques in food analysis and various advance techniques i.e. infra-red remote thermometry, radiation thermometers, FTIR measurements
54FT523.4	Acquire the knowledge about Rapid microbiological methods and Electronic noses and tongues
54FT523.5	Understanding the application and working principle of chemically sensitive semiconductor devices along with the biosensor used in food industry



Course Code:	54FT527
Course Title :	Marketing Management and International Trade
Course Code	Course Outcomes
54FT527.1	Understanding about various concept and function of marketing management along with Concepts of marketing-mix, elements of marketing-mix; Market structure and consumer buying behaviour: micro- and macro-environments; Marketing research and marketing information systems; Market measurement, market forecasting, market segmentation, targeting and positioning; Allocation and marketing resources; Marketing planning process;
54FT527.2	Learning about Product policy and planning: Product-mix, product line, product life cycle; New product development process; Product brand, packaging, services decisions; Marketing channel decisions; Retailing, wholesaling and distribution; Pricing decisions; Price determination and pricing policy of milk products in organized and unorganized sectors of dairy industry; Promotion-mix decisions;
54FT527.3	Understanding about Advertising its Objectives, budget and advertising message, media planning, personal selling, publicity, sales promotion; World consumption of food: Patterns and types of food consumption across the globe;
54FT527.4	Knowledge about various concept of international marketing and world food trade practices along with consumption pattern of food in entire world
54FT527.5	Knowledge of working ,function and objectives of various national and international organization related with international trade

Semester- VI

Course Code:	54FT626
Course Title :	Food Additives and Preservatives
Course Code	Course Outcomes
54FT626.1	Acquire the knowledge about Basic of food additives, their toxicology and safety evaluation
54FT626.2	Understanding about the function and role of different Food colors and dyes used in processed food
54FT626.3	Understanding the function of various natural and artificial food colorants and food preservatives used in processed food
54FT626.4	Acquire the knowledge about mechanism and function of various food additives in processed food
54FT626.5	Acquire the knowledge about, mechanism of enzymes in food processing and other additives (Acidity regulators and Emulsifiers) used as a flavor and taste enhancers in food products.



Course Code:	54FT623
Course Title :	Food Packaging Technology and Equipment's
Course Code	Course Outcomes
54FT623.1	Develop a thorough understanding of the principles and concepts underlying food packaging, including material science, design considerations, and preservation techniques.
54FT623.2	Acquire hands-on experience with state-of-the-art packaging equipment, gaining technical proficiency in operating and maintaining machinery used in the food packaging industry.
54FT623.3	Learn the principles of quality control and assurance in food packaging, ensuring products meet industry standards, comply with regulations, and maintain high levels of safety and integrity.
54FT623.4	Explore and develop innovative packaging solutions that enhance shelf life, optimize storage conditions, and improve overall product quality, taking into consideration consumer preferences and sustainability.
54FT623.5	Gain knowledge of food safety regulations and industry standards, ensuring the ability to design packaging solutions that comply with local and international requirements.

Course Code:	54FT627
Course Title :	Food Quality, Safety, Standards and Certification
Course Code	Course Outcomes
54FT623.1	Understand the knowledge of quality attributes and measurement of defects in various food samples.
54FT623.2	Understand the knowledge of various factors influencing sensory Measurements and analysis of flavor in various food samples.
54FT623.3	Analyze of different sensory tests in various food samples
54FT623.4	Evaluate the Physical, chemical and microbial quality in various food samples.
54FT623.5	Apply the knowledge of the QMS, QSS, Quality circles, SQC, ISO system and HACCP and their certification procedures.

Course Code:	54FT622
Course Title :	Food Plant Sanitation
Course Code	Course Outcomes
54FT622.1	Understand the knowledge of GMP, SOP, GLP, Sanitation Laws and Regulations and Guidelines.
54FT622.2	Acquired the knowledge of HACCP, QA, cleaning compounds, handling and storage precautions in sanitation.
54FT622.3	Acquired the knowledge of Sanitary Design and its Construction for Food Processing and Dairy Plants.
54FT622.4	Understand the knowledge of Sanitation in Meat and Poultry and Fruit and Vegetable Processing Plants.
54FT622.5	Understand the knowledge of Mycology of Beverage manufacture and sanitation in Alcoholic and Non-alcoholic Beverage Plants.



Course Code:	54FT624
Course Title :	Processing of Fish and Marine Products
Course Code	Course Outcomes
54FT422.1	Develop an understanding of the factors influencing the quality of fish and marine products, including freshness, texture, flavor, and nutritional content.
54FT422.2	Acquire proficiency in various seafood processing techniques such as Freezing canning, smoking, and drying, considering the specific requirements of different fish species.
54FT422.3	Implement effective quality control measures throughout the seafood processing chain, ensuring consistency and compliance with industry standards.
54FT422.4	Explore opportunities for value addition and product innovation in seafood processing, developing the ability to create marketable and unique marine products.
54FT422.5	Manage and navigate the regulatory landscape governing seafood processing, including international standards, certifications, and local health regulations.

Course Code:	54FT621
Course Title :	Processing Technology of Beverages
Course Code	Course Outcomes
54FT621.1	Gain proficiency in the application of different processing techniques, including pasteurization, fermentation, carbonation, and blending, based on the type of beverage.
54FT621.2	Understand the selection and quality assessment of raw materials such as fruits, grains, and water, considering their impact on the final product.
54FT621.3	Develop an understanding of hygiene and sanitation practices critical to preventing contamination during beverage processing.
54FT621.4	Implement quality control measures at various stages of production, including sensory evaluations and laboratory testing, to ensure product consistency and compliance with standards.
54FT621.5	Acquire knowledge about production and processing of miscellaneous beverages.

Course Code:	54FT628
Course Title :	Instrumentation and Process Control in Food Industry
Course Code	Course Outcomes
54FT628.1	Acquire the knowledge about fundamental of instrumentation and measurement
54FT628.2	Understanding the various engineering parameter, Various instruments and Control system used in food industry
54FT628.3	Understanding the process control in instrumentation and measurement
54FT628.4	Familiarize with the various Transducers elements and controllers
54FT628.5	Understanding the working of Computer-based monitoring and control system in food processing.



Course Code:	54FT679
Course Title :	Skill Development (Milk and Milk Products)- Lab
Course Code	Course Outcomes
54FT679.1	Ability to develop employability skills in the field of milk and milk processing.
54FT679.2	Ability to enhance technical knowledge and skills in the field of milk and milk processing.
54FT679.3	Ability to assess the quality of milk and milk products.
54FT679.4	Ability to recall the standards and regulations of milk and milk processing industries.
54FT679.5	Ability to demonstrate skills in milk and milk processing industries.

Course Code:	54FT625
Course Title :	Sensory Evaluation of Food Products
Course Code	Course Outcomes
54FT625.1	Gain a comprehensive understanding of the principles underlying sensory evaluation, including the human sensory system, perception mechanisms, and psychological factors influencing taste, smell, texture, and appearance.
54FT625.2	Learn various sensory evaluation methodologies and testing techniques used in the food industry, including discrimination tests, descriptive analysis, consumer testing, and preference mapping.
54FT625.3	Acquire knowledge of experimental design principles and statistical analysis techniques relevant to sensory testing, ensuring the validity and reliability of sensory evaluations.
54FT625.4	Explore the correlation between sensory attributes and consumer preferences. Understand how sensory evaluations influence product development, marketing strategies, and the overall success of food products in the market.
54FT625.5	Gain skills in managing sensory panels, including panel selection, training, and monitoring. Understand the importance of panel consistency and reliability in obtaining accurate sensory data.

Course Code:	54FT722-D
Course Title :	Food Laws and regulations
Course Code	Course outcome
54FT722-D.1	Apply knowledge of food laws and regulations to assess and address real-world scenarios related to food safety, labeling, and fair trade practices.
54FT722-D.2	Conduct critical analyses of the impact of food regulations on consumer protection, market integrity, and ethical considerations within the food industry.
54FT722-D.3	Demonstrate a solid understanding of the legal frameworks governing the food industry at local, national, and international



	levels.
54FT722-D.4	Develop skills in identifying and managing risks associated with food production and distribution, considering potential hazards and regulatory requirements.
54FT722-D.5	Recognize how food laws adapt to technological advancements and emerging trends, demonstrating an understanding of innovation and adaptation in the industry.

Semester-VII

CourseCode	54FT721
CourseTitle	Entrepreneurship Development
Course	Course Outcomes
54FT721.1	Describe the Importance, growth, characteristics and qualities of entrepreneur.
54FT721.2	Explain the basics of Entrepreneurships
54FT721.3	Acquired the knowledge for SWOT analysis and Women Entrepreneurship
54FT721.4	Explain the policies of establishment of Food Micro scale
54FT721.5	Explain the Export import of Goods for Food Sector.

Course Code:	54FT771
Course Title :	Skill Development (Fruits and Vegetable Processing)- Lab
Course Code	Course Outcomes:
54FT771.1	Ability to develop employability skills in the field of fruits and vegetable processing
54FT771.2	Ability to enhance technical knowledge and skills in the field of fruits and vegetable processing.
54FT771.3	Ability to assess the quality of fruits and vegetable processing products.
54FT771.4	Ability to recall the standards and regulations of fruits and vegetable processing industries
54FT771.5	Ability to demonstrate skills in fruits and vegetable processing industries.



Course Code:	54FT773
Course Title :	Seminar
Course Code	Course Outcomes:
54FT773.1:	Relate different components of food technology, skills and scientific techniques followed in various food business/industry.
54FT773.2	Understand hands on expertise in their relevant fields.
54FT773.3	Analyze the skills and knowledge required for a particular job function
54FT773.4	Get exposure to advanced manufacturing and analytical tools to evaluate complex engineering problem.
54FT773.5	Bridge the gap between academia and ever-changing demand driven industrial business scenario to develop the need of industry with the polarization paradigm

Course Code:	54FT772
Course Title :	Industrial Training-II
Course Code	Course Outcomes:
54FT772.1	To expose the students to actual working environment and enhance their knowledge and technical skills.
54FT772.2	To instill the good qualities of integrity, responsibility and self-confidence.
54FT772.3	To enhance technical knowledge from quality and production department.
54FT772.4	To develop employability skills, intellectual skills, core of key skills and personal attributes
54FT772.5	To develop knowledge about how organizations work.

**Semester-VIII**

Course Code:	54FT871
Course Title :	Research Project
Course Code	Course Outcomes:
54FT871.1:	Introduction: Understand general area of research and summarize along with performing work
54FT871.2	Review of the Literature: Suggest some theoretical framework to be explained further in this chapter along with describes and analyzes previous research on the topic.
54FT871.3	54FT871.2: Materials and Methods: Describe and justifies the data gathering method.
54FT871.4	Result and Discussion: Analyze data and discuss about findings in relation to the theoretical framework introduced in the review of literature
54FT871.5	Summary and Conclusions: Discuss about significant progress of already collecting data including suggestions for further research.

Department of Horticulture



Programme

Ph.D(Horticulture)

Course Code:	151HORT02
Course Title:	Advances in Horticulture
Course Outcomes:	
151HORT02.1	Students will acquire advanced knowledge in production and total quality management in fruit crops
151HORT02.2	To ability to understand the current scenario and advanced production technology of vegetable crops.
151HORT02.3	Student able to know the advance scientific production technology of commercial flower crops
151HORT02.4	Understand the advance cultural practices in vegetable production.
151HORT02.5	To elaborates the knowledge in special horticulture practices under protected cultivation for flower crops.

Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research.
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research
151PH03.3	Identify research misconduct and predatory publications
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report
151PH03.6	Develop a valid and ethical research report

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies



M. Sc (Horticulture) in Vegetable Science

Semester-I

Course Code:	VSC- 501
Course Title:	Production of Cool Season Vegetable Crops
Course Outcomes:	
VSC- 501.1	To Understand the Production technology of bulb and tuber crops
VSC- 501.2	Ability to know the package and practices of Cole crops
VSC- 501.3	Student able to know the scientific production technology of root crops
VSC- 501.4	Understand the Package of practices peas and beans
VSC- 501.5	Toelaborates the Production technologyof leafy vegetable crops

Course Code:	VSC- 503
Course Title:	Growth and Development of Vegetable Crops
Course Outcomes:	
VSC- 503.1	Students will identify the role of phyto hormones and different cellularstructures in Vegetable production.
VSC- 502.2	Students will review physiology of phytohormones functioning in Vegetablecrops
VSC- 503.3	Students will determine the role of light, temperature, photo period, Co2, O2, and othergasses on growth and development of vegetable crops
VSC- 503.4	Students will locate physiology of dormancy and germination of vegetable seed, tubers and bulbs
VSC- 503.5	Students will apply different grafting techniques in Vegetable crops

Course Code:	VSC- 511
Course Title:	Organic Vegetable Production
Course Outcomes:	
VSC- 511.1	To identify the importance and principles of organic farming in vegetable crops
VSC- 511.2	Ability to know the Organic production of vegetable crops
VSC- 511.3	Student able to know the managing soil fertility of vegetable crops
VSC- 511.4	Understand the Composting methods to maintain the soil sustainability
VSC- 511.5	Understand the certification and export of organic vegetable crops



Course Code:	PGS 501
Course Title:	Library and Information Services
Course Outcomes:	
PGS 501.1	Able to understand about various concepts of Library, its functions, objective and connect foundational concepts, theories, and principles of information organization and access to professional contexts

Course Code:	PGS 502
Course Title:	Technical writing and communication
Course Outcomes:	
PGS 502.1	Learning the various form of scientific writing and implementing skills for Formulation of research based documents
PGS 502.2	Acquisition of technical communication skill and articulate in English (verbal as writing)

Course Code:	FLS 510
Course Title:	Protected Cultivation of Flower Crops
Course Outcomes:	
FLS 510.1	Knowledge on types, design and principles of protected structures
FLS 510.2	Thorough understanding of specific design and exction of protected structures as well as structural comments
FLS 510.3	Thorough understanding of principles of microclimate management and crop management
FLS 510.4	Develop the required skill for production management of valuable flower crop production
FLS 510.5	Acquire skills on microclimate management , production management



Course Code:	STAT-502
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT-502.1	This course will help students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study
STAT-502.2	It can be used to find the best solution to any problem be it simple or complex
STAT-502.3	Concept of correlation, various correlation coefficients- Pearson's correlation coefficient, Spearman's rank correlation coefficient, partial correlation coefficient and Multiple correlation coefficient
STAT-502.4	To understand the process of hypothesis testing and its significance. Testing of hypothesis using Non-Parametric tests like Median test, Runs test, U test, Kruskal Wallis test etc. and ability to use them judiciously for the testing of given data
STAT-502.5	Apply the different sampling methods for designing and selecting a sample from a population. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA

Course Code:	VSC 510
Course Title:	Systematic of vegetable crops
Course Outcomes:	
VSC 510.1	To understand basic significance of systematics and crop diversity. Principles and methods of classification including ICBN
VSC 510.2	Students will have the ability to apply the knowledge gained about origin, evolution and distribution of vegetable crops
VSC 510.3	Student will be able to Understand Botanical and Morphological description of vegetable crops
VSC 510.4	Understanding on Cytological levels of vegetable crops
VSC 510.5	Idea on Molecular markers in various Vegetable crops



Course Code:	FLS 508
Course Title:	Turf grass Management
Course Outcomes:	
FLS 508.1	Student will employ the knowledge about the prospects and basic requirements of turf industry
FLS 508.2	Student will recall the prospects and basic requirements of turf industry. Gain an understanding of the physiological, genetic, and environmental factors affecting turf grass growth and development
FLS 508.3	Student will recall the major cultural practices of mowing, irrigation and fertilization for turf grasses, and the supplementary cultural practices of cultivation, topdressing, rolling, use of wetting agents and use of plant growth regulators
FLS 508.4	Understanding on Establishment and maintenance of turfs for playgrounds, residential and public parks, turfing of Govt. and Corporate office gardens
FLS 508.5	Demonstrate competencies in the application of technical practices, processes, procedures, and skills necessary to meet the expectations of turf industries

Semester-II

Course Code:	PGS 504
Course Title:	Basic Concepts in Laboratory Techniques
Course Outcomes:	
PGS 504.1	Student will learn about basic instrumentation, its principles, working and use. They will learn about Making solutions of different concentrations, learn acid base interaction. Also, student will learn about Procedural outline of various experiments. Student will learn about Basics of plant tissue culture and seed viability testing

Course Code:	FLS 506
Course Title:	Indoor Plants and Interiors aping
Course Outcomes:	
FLS 506.1	Appraise a critical knowledge about the Interiors aping
FLS 506.2	Appraise a critical knowledge about the taxonomic identification of different types of indoor plants that are specifically used for interior landscaping
FLS 506.3	To impart knowledge and skill on cultural methods, management and nursery standards
FLS 506.4	To impart knowledge and skill on specialized gardens including miniature gardens and plant stand
FLS 506.5	The students will be apprised of creation of vertical gardens and have a thorough understanding of its history and maintenance



Course Code:	PGS 502
Course Title:	Intellectual Property and Its Management in Agriculture
Course Outcomes:	
PGS 502.1	Students will be able to understand Historical perspectives and need for the introduction of Intellectual Property Right
PGS 502.2	Students will be able to understand National Biodiversity protection initiatives. Convention on Biological Diversity
PGS 502.3	Students will be able to understand Research Collaboration Agreement, License agreement

Course Code:	FLS 507
Course Title:	Nursery Management for Ornamental Plants
Course Outcomes:	
FLS 507.1	To develop basic and advance knowledge in the information about the importance and present scenario of nursery industry
FLS 507.2	To understand the principles and methods of asexual propagation and nursery management in ornamental crops
FLS 507.3	To impart knowledge and develop understanding about micro propagation techniques for mass production of quality planting stock
FLS 507.4	The students will be able to gain knowledge about different growing structures for nursery raising and develop their skill on it
FLS 507.5	Students become able to understand about nursery and its type, Nursery act, PPV&FR act and Quarantine system
FLS 507.6	Students will be able to address Hi- tech Nursery and garden center

Course Code:	VSC 504
Course Title:	Principles of vegetable breeding
Course Outcomes:	
VSC 504.1	To understand about importance, history and evolutionary aspects of vegetable breeding and its variation from cereal crop breeding
VSC 504.2	Students will have the ability to apply the knowledge of various selection procedures to be implemented for breeding of vegetable crops
VSC 504.3	Student will be able to Understand about Heterosis breeding
VSC 504.4	Understanding about mutation and polyploidy breeding
VSC 504.5	Idea on Ideotype breeding



Course Code:	VSC 502
Course Title:	Production of Warm Season Vegetable Crops
Course Outcomes:	
VSC 502.1	To Understand the Production technology of fruit vegetable crops
VSC 502.2	Ability to know the package and practices of beans crops
VSC 502.3	Student able to know the scientific production technology of cucurbits
VSC 502.4	Understand the Package of practices tuber crops
VSC 502.5	To elaborates the Production technology of leafy vegetable crops

Course Code:	VSC 507
Course Title:	Protected cultivation of Vegetable crops
Course Outcomes:	
VSC 507.1	To recall the scope and importance of protected cultivation, it's Principles, design and orientation
VSC 507.2	Students should understand different types of protected structures for cultivation of vegetable crops.
VSC 507.3	Students will demonstrate the effect of different environmental factors and it's manipulation for cultivation of vegetable crops
VSC 507.4	Students understand the concepts of nursery raising techniques i.e. Hi-Tech vegetable production in protected structures by using different types of media
VSC 507.5	Students understand the various cultivation practices of Vegetables in Protected structures
VSC 507.6	Students understand the concepts of various problems related to Protected structures and Economics of Greenhouses

Course Code:	STAT 512
Course Title:	EXPERIMENTAL DESIGNS
Course Outcomes:	
STAT 512.1	Understand of basic concepts of design of experiments. Introduction to planning valid and economical experiments within given resources
STAT 512.2	Analyze completely randomized design, Randomized block design, Latin square design. The conditions and circumstances under which results of the experiment are valid should be extensive
STAT 512.3	Understand and compute Full and confounded factorial designs with two and three levels. Fractional factorial designs with two levels
STAT 512.4	Understand the purpose for balanced incomplete block design, resolvable designs and their applications. Split and Strip plot design will help students to know the applications of DOE and learn and apply these techniques in the field experiment



Course Code:	VSC 509
Course Title:	Production of Underutilized Vegetable Crops
Course Outcomes:	
VSC 509.1	To Understand the Production technology of stem and bulb crops
VSC 509.2	Ability to know the package and practices of cole and salad crops
VSC 509.3	Student able to know the scientific production of leafy vegetables
VSC 509.4	Understand the Package of practices gourds and melons
VSC 509.5	To elaborates the Production of Yam and beans crops

Semester-III

Course Code:	VSC 591
Course Title:	Master Seminar
Course Outcomes:	
VSC 591.1	Students will design professional orientation on the topic with their choice of interest which will helps in development of academic and social sector pertaining to vegetablescience

Course Code:	VSC- 599
Course Title:	Master's Research (Research/Thesis)
Course Outcomes:	
VSC- 599.1	Prepare various research activities related to concern field and compose manuscript i.e., synopsis related to particular topic
VSC- 599.2	Propose research methodology tools for conducting research on selected topic of vegetable science field of horticulture and prepare Final manuscript i.e., Thesis

Course Code:	PGS 505
Course Title:	Agricultural Research, Research Ethics and Rural Development Programmes
Course Outcomes:	
PGS 505.1	Identify the history, levels of research, economic and social welfare through researchprogramme
PGS 505.2	Apply the functioning, role and significant of regional, national and international research
PGS 505.3	Asses the agricultural research, research ethics with operating and safety of laboratory
PGS 505.4	Analyze the various development programmes and their functioning with its impacton agricultural development
PGS 505.5	Evaluate the role and functioning of panchayati raj, NGO and evaluation of differentrural development program

**Semester-IV**

Course Code:	VSC- 599
Course Title:	Master's Research (Research/Thesis)
Course Outcomes:	
VSC- 599.1	Prepare various research activities related to concern field and compose manuscript i.e., synopsis related to particular topic
VSC- 599.2	Propose research methodology tools for conducting research on selected topic of vegetable science field of horticulture and prepare Final manuscript i.e., Thesis



Department of Plant Breeding & Genetics



Programme

Ph.D.in Genetics and Plant Breeding (GPB)

Course Work

CourseCode:	117PH01
CourseTitle:	Research Methodology
Course Outcomes:	
117PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
117PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
117PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
117PH01.4	To explain the art of interpretation and the art of writing research reports.
117PH01.5	Evaluate the role and functioning of computer in research.

CourseCode:	132PH02
CourseTitle:	Advances in Genetics & Plant Breeding
Course Outcomes:	
132PH02.1	Students are able to understand historical perspective need for conservation taxonomical classification and center of origin and plant genetic resources.
132PH02.2	Students are able to learn about biometrical genetics, models designs and system and the mitochondrial genomes and complexity.
132PH02.3	To understand about the karyotyping chromosome painting introgressions, mapping, distance hybridization and allopolyploids.
132PH02.4	Students are learn about trisomics breeding behavior and location of gene, allelic interactions and telocentric method of mapping.
132PH02.5	Students are gain knowledge about self-incompatibility and male sterility and comparison of genome sequence using tools of bioinformatics.



CourseCode:	117PH03
CourseTitle:	Research and Publication Ethics
Course Outcomes:	
117PH03.1	Students will be able to understand the ethics in conduct of scientific research.
117PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
117PH03.3	Identify research misconduct and predatory publications.
117PH03.4	Understand about the infer the ethical framework and principles.
117PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.

CourseCode:	117PH52
CourseTitle:	Review of Literature
Course Outcomes:	
117PH52.1	Students will able to produce his/her research outcome on writing areview of literature in respect of recent trends and technologies.



Programme

M.Sc. (Ag) in Genetics & Plant breeding

Semester-I

Course Code:	GPB 501
Course Title:	Principle of Genetics
Course Outcomes:	
GPB501.1	To understand basic principles of heredity and variation.
GPB501.2	Students will have the ability to apply the knowledge gained about Mendelian population, Random mating population and Hardy-Weinberg equilibrium.
GPB501.3	Student will be able to understand genetic material, Gene isolation, synthesis and cloning
GPB501.4	Understanding on genomics and proteomics, mutation and gene expression.
GPB501.5	Idea on DNA extraction and PCR amplification.

Course Code:	GPB 502
Course Title:	Principles of Plant Breeding
Course Outcomes:	
GPB502.1	The knowledge of this course will enable the student to know Patterns of Evolution, Centre of Origin, and Agro-biodiversity with their significance.
GPB502.2	The knowledge of this course will enable the student to know Genetic basis of breeding, variability, its components and combining ability.
GPB502.3	The knowledge of this course will enable the student to know breeding methods, different hybridization techniques for genomic reshuffling in self-pollinated crops.
GPB502.4	The knowledge of this course will enable the student to know breeding methods, different hybridization techniques for genomic reshuffling in cross-pollinated crops.
GPB502.5	The knowledge of this course will enable the student to know breeding methods, different hybridization techniques for genomic reshuffling in asexually/ clonally propagated crops



Course Code:	GPB 503
Course Title:	Fundamentals of Quantitative Genetics
Course Outcomes:	
GPB503.1	Students will get knowledge Introduction and historical background of quantitative genetics.
GPB503.2	Students will have the ability to apply the knowledge gained about designs for plant breeding experiments.
GPB503.3	Student will be equipped with the knowledge of association analysis.
GPB503.4	Student will be able to explain various mating designs.
GPB503.5	Students will get knowledge on QTL mapping.

Course Code:	GPB 501
Course Title:	Principle of Genetics
Course Outcomes:	
GPB501.1	To understand basic principles of heredity and variation.
GPB501.2	Students will have the ability to apply the knowledge gained about Mendelian population, Random mating population and Hardy-Weinberg equilibrium.
GPB501.3	Student will be able to understand genetic material, Gene isolation, synthesis and cloning
GPB501.4	Understanding on genomics and proteomics, mutation and gene expression.
GPB501.5	Idea on DNA extraction and PCR amplification.

Course Code:	GPB 510
Course Title:	Seed Production and Certification
Course Outcomes:	
GPB 510.1	Student will be able to understand seed quality concept and Genetic purity in seed production.
GPB 510.2	Students will have the ability to apply the knowledge gained about nucleus seed production and its maintenance
GPB 510.3	To understand principles of seed production in different crops
GPB 510.4	Student will be able to understand hybrid seed production of crop plants.
GPB 510.5	Students will get knowledge on seed certification and minimum Seed Certification Standards (MSCS) for different crops.



Course Code:	GPB 501
Course Title:	Principle of Genetics
Course Outcomes:	
GPB501.1	To understand basic principles of heredity and variation.
GPB501.2	Students will have the ability to apply the knowledge gained about Mendelian population, Random mating population and Hardy-Weinberg equilibrium.
GPB501.3	Student will be able to understand genetic material, Gene isolation, synthesis and cloning
GPB501.4	Understanding on genomics and proteomics, mutation and gene expression.
GPB501.5	Idea on DNA extraction and PCR amplification.

Course Code:	GPB 511
Course Title:	Crop Breeding I (Kharif Crops)
Course Outcomes:	
GPB 511.1	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Rice, Maize, and Small millets.
GPB 511.2	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Pigeon pea, Groundnut, and Other pulses.
GPB 511.3	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Soybean, Castor and Sesame.
GPB 511.4	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Cotton, and Jute.
GPB 511.5	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Sugarcane, Forage crops, and Seed spices.



Course Code:	STAT-502
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT-502.1	This course will help students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study.
STAT-502.2	It can be used to find the best solution to any problem be it simple or complex.
STAT-502.3	Concept of correlation, various correlation coefficients- Pearson's correlation coefficient, Spearman's rank correlation coefficient, partial correlation coefficient and Multiple correlation coefficients.
STAT-502.4	To understand the process of hypothesis testing and its significance. Testing of hypothesis using Non-Parametric tests like Median test, Runs test, U test, Kruskal Wallis test etc. and ability to use them judiciously for the testing of given data.
STAT-502.5	Apply the different sampling methods for designing and selecting a sample from a population. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA.

Course Code:	PGS 501
Course Title:	Library and Information Services
Course Outcomes:	
PGS 501.1	Able to understand about various concepts of Library, its functions, objective and connect foundational concepts, theories, and principles of information organization and access to professional contexts. Bulb and tuber crops.

Course Code:	PGS502
Course Title:	Technical writing and communication.
Course Outcomes:	
PGS502.1	Learning the various form of scientific writing and implementing skills for Formulation of research based documents.
PGS502.2	Acquisition of technical communication skill and articulate in English (verbal as writing)

**Semester- II**

Course Code:	GPB 505
Course Title:	Principles of Cytogenetic
Course Outcomes:	
GPB 505.1	Student will be able to understand Cell cycle and architecture of chromosome.
GPB 505.2	Students will have the ability to apply the knowledge gained about Structural and numerical variations of chromosomes.
GPB 505.3	To understand Fertilization barriers, Polyploidy and genetic problems in crops with apomixes.
GPB 505.4	Student will be able to explain Reversion of autopolyploid to diploids; Genomemapping in polyploidy.
GPB 505.5	Students will get knowledge on Chromosome manipulations

Course Code:	GPB 506
Course Title:	Molecular Breeding and Bioinformatics
Course Outcomes:	
GPB 506.1	Student to know about various molecular tools and approaches for genotyping and their uses in crop improvement.
GPB 506.2	Students will have the ability to apply the knowledge gained about QTLs analysis incrop plants.
GPB 506.3	To understand genome sequencing and nanotechnology.
GPB 506.4	Student will be able to explain recombinant DNA technology and Biotechnologyapplications in crop improvement.
GPB 506.5	Students will get knowledge about International regulations and biosafety issues ofGMOs



Course Code:	GPB 508
Course Title:	Mutagenesis and Mutation Breeding
Course Outcomes:	
GPB 508.1	This course will make the student well versed with the mutation and its history, nature and classification of mutations.
GPB 508.2	This course will make the student well versed with the mutagenic agents and effect of mutations.
GPB 508.3	This course will make the student well versed with the chemical mutagens, their properties and mode of action
GPB 508.4	This course will make the student well versed with the process of observing mutagen effects in M1, M2 and M3 generation.
GPB 508.5	This course will make the student well versed with the use of mutagens in creating oligogenic and polygenic variations and Handling of segregating M2 generations.

Course Code:	GPB 512
Course Title:	Crop Breeding II (Rabi Crops)
Course Outcomes:	
GPB 512.1	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Wheat, Oats and Barley.
GPB 512.2	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Chickpea, and other pulses.
GPB 512.3	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Rapeseed, Mustard, Sunflower and Safflower.
GPB 512.4	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Mesta, minor fibre crops and Forage crops.
GPB 512.5	After completing this course, the student will be able to know about important botanical status and reproductive structures of crops and genetics of Seed spices.



Course Code:	STAT 512
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT 512.1	Understand of basic concepts of design of experiments. Introduction to planning valid and economical experiments within given resources.
STAT 512.2	Analyze completely randomized design, Randomized block design, Latin square design. The conditions and circumstances under which results of the experiment are valid should be extensive.
STAT 512.3	Understand and compute Full and confounded factorial designs with two and three levels. Fractional factorial designs with two levels.
STAT 512.4	Understand the purpose for balanced incomplete block design, resolvable designs and their applications. Split and Strip plot design will help students to know the applications of DOE and learn and apply these techniques in the field experiment.

Course Code:	PGS 503
Course Title:	Intellectual Property and Its Management in Agriculture
Course Outcomes:	
PGS 503.1	Students will be able to understand Historical perspectives and need for the introduction of Intellectual Property Right.
PGS 503.2	Students will be able to understand National Biodiversity protection initiatives. Convention on Biological Diversity.
PGS 503.3	Students will be able to understand Research collaboration Agreement, License agreement.

Course Code:	PGS504
Course Title:	Basic Concepts in Laboratory Techniques
Course Outcomes:	
PGS504.1	Student will learn about basic instrumentation, its principles, working and use. They will learn about Making solutions of different concentrations, learn acid base interaction. Also, student will learn about Procedural outline of various experiments. Student will learn about Basics of plant tissue culture and seed viability testing.



Semester- III

Course Code:	GPB 507
Course Title:	Breeding For Quality and Special Traits
Course Outcomes:	
GPB 507.1	The knowledge of this course will expose the student to know about basic developmental biochemistry and genetics of nutritional improvement of human perspective.
GPB 507.2	The knowledge of this course will expose the student to know about breeding for grain quality parameters and its analysis.
GPB 507.3	Student will be able to understand genetic resource management for sustaining nutritive quality in crops.
GPB 507.4	The knowledge of this course will expose the student to know about breeding for quality improvement, cooking quality and achieve more PUFA in oil crops.
GPB 507.5	The knowledge of this course will expose the student to know about genetic engineering protocols for quality improvement and nutritional genomics and second generation transgenics.

Course Code:	GPB 516
Course Title:	Breeding For Stress Resistance and Climate Change
Course Outcomes:	
GPB 516.1	Students are able to understand concept and impact of climatic change and breeding for abiotic and biotic stress resistance with their classification.
GPB 516.2	Students will have the ability to apply the knowledge gained about Concept of resistance pathogen invasions- Biochemical and molecular mechanisms, gene-for-gene hypothesis.
GPB 516.3	To understand principles of detection of genetically modified crops and seed treatment, packing and seed storage.
GPB 516.4	Students will get knowledge on about the genetic of abiotic stress resistance, genes and genomics in breeding Utilizing MAS procedures deficiency.
GPB 516.5	Students are gain knowledge about the Use of crop wild relatives as a source of resistance to biotic and abiotic factors in major field crops.



Course Code:	GPB 591
Course Title:	Master Seminar
Course Outcomes:	
GPB 591.1	Students will design professional orientation on the topic with their choice of interest which will help in development of academic and social sector pertaining to Genetics and Plant Breeding.

Course Code:	GPB 599
Course Title:	Master's Research (Research/Thesis)
Course Outcomes:	
GPB 599.1	Prepare various research activities related to Genetics and Plant Breeding field and compose manuscript i.e., synopsis related to particular topic.

Course Code:	PGS 505
Course Title:	Agricultural Research, Research Ethics and Rural Development Programmes
Course Outcomes:	
PGS 505.1	Identify the history, levels of research, economic and social welfare through research programme
PGS 505.2	Apply the functioning, role and significance of regional, national and international research.
PGS 505.3	Assess the agricultural research, research ethics with operating and safety of laboratory.
PGS 505.4	Analyze the various development programmes and their functioning with its impact on agricultural development
PGS 505.5	Evaluate the role and functioning of panchayati raj, NGO and evaluation of different rural development programs.

**Semester- IV**

Course Code:	GPB 599
Course Title:	Research/Thesis
Course Outcomes:	
GPB 599.1	Propose research methodology tools for conducting research on selected topic of Genetics and Plant Breeding field and prepare Final manuscript i.e. Thesis



Department of Plant Pathology



M.Sc. (Agri.) Plant Pathology

Semester-I

Course Code:	PL PATH-501
Course Title:	Mycology
Course Outcomes:	
PL PATH 501.1	Describe terminology, concepts importance and somatic characters of fungi
PL PATH 501.2	Demonstrate and understanding life cycle of Stramenopila and protists; Plasmodiophoromycota, Dictyosteliomycota, Acrasiomycota and Myxomycota
PL PATH 501.3	Compare the characters of Kingdom Stramenopila; Hypochytriomycota, Oomycota and Labyrinthulomycota
PL PATH 501.4	Determine the characters of kingdom fungi under Chytridiomycota, Zygomycota, Ascomycota and test them
PL PATH 501.5	Determine the characters of kingdom fungi under Basidiomycota

Course Code:	PL PATH-502
Course Title:	Plant Virology
Course Outcomes:	
PL PATH 502.1	Know physical, structural and chemical properties, transmission nature of plant viruses.
PL PATH 502.2	Detail classification, nomenclature, replication of plant viruses in plant system
PL PATH 502.3	Understand the basic concept of isolation and purification of plant viruses with help of SEM and TEM microscope
PL PATH 502.4	Assess of the risk associated with the presence of viral pathogens and respects the principles of phytosanitary safety in relation to himself and the surrounding environment
PL PATH 502.5	Understand the basic concept of genetic engineering, mechanism of resistance and management of plant viruses



Course Code:	PL PATH-505
Course Title:	Principles of Plant Pathology
Course Outcomes:	
PL PATH 505.1	Describe terminology, concept and importance of plant diseases occurred in the past.
PL PATH 505.2	Develop an understanding about growth, reproduction and role of environment in plant diseases
PL PATH 505.3	Enumerate and explain recognition concept and role of enzymes, toxins, growth regulators in the infection, Phytoalexins, PR proteins, Elicitors
PL PATH 505.4	Develop resistance; <u>R</u> genes; molecular basis for resistance; marker-assisted selection; genetic engineering for disease resistance.
PL PATH 505.5	Determine the most effective principle of disease management for use in the field level.

Course Code:	PL PATH 507
Course Title:	Principles of plant disease management
Course Outcomes:	
PL PATH 507.1	Explain the principles of plant disease management by cultural, physical, biological, chemical, organic amendments and botanical methods
PL PATH 507.2	Describe the disease resistance and molecular approach for disease management
PL PATH 507.3	Understand the role of scientists in plant disease management and concepts of management practices
PL PATH 507.4	Identify the mode of action of antifungal, antibacterial and antiviral chemicals
PL PATH 507.5	Demonstrate the most sustainable, environmentally safe and low-cost principle of disease management among the farmers

Course Code:	STAT-502
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT-502.1	This course will help students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study.
STAT-502.2	It can be used to find the best solution to any problem be it simple or complex.
STAT-502.3	Concept of correlation, various correlation coefficients- Pearson's correlation coefficient, Spearman's rank correlation coefficient, partial correlation coefficient and Multiple correlation coefficients.
STAT-502.4	To understand the process of hypothesis testing and its significance. Testing of hypothesis using non-parametric tests like Median test, Runs test, U test, Kruskal Wallis test etc. and ability to use them judiciously for



	the testing of given data.
STAT-502.5	Apply the different sampling methods for designing and selecting a sample from a population. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA.

Course Code:	PGS 501
Course Title:	Library and Information Services
Course Outcomes:	
PGS 501.1	Able to understand about the origin of Library and information Services
PGS 501.2	Compare and critique approaches to information systems, structures, and standards.
PGS 501.3	Connect foundational concepts, theories, and principles of information organization and access to professional contexts.
PGS 501.4	Design and develop systems and services that provide access to information.
PGS 501.5	Analyze evidence to address information challenges and opportunities.

Course Code:	PGS 502
Course Title:	Technical writing and communication
Course Outcomes:	
PGS 502.1	Technical writing
PGS 502.2	Communication skill-

Semester-II

Course Code:	PL PATH-503
Course Title:	Plant Pathogenic Prokaryotes
Course Outcomes:	
PL PATH-503.1	Describe the importance of Phytopathogenic prokaryotes
PL PATH-503.2	Identify growth, nutrition, virulence, symptoms and dispersal of phytopathogenic prokaryotes
PL PATH-503.3	Revise taxonomy and nomenclature of phytopathogenic prokaryotes
PL PATH-	Understand the general biology of bacteriophages, L form bacteria and



503.4	plasmids
PL PATH-503.5	Identify different types of Bacteriophages, their classification and plan for management of diseases caused by phytopathogenic prokaryotes

Course Code:	PL PATH-504
Course Title:	Plant Nematology
Course Outcomes:	
PL PATH-504.1	Describe nematodes of different phyla and economic importance of nematodes in agriculture
PL PATH-504.2	Differentiate the morphology and classification of plant parasitic nematodes.
PL PATH-504.3	Evaluate the damage and analyze interaction with other organisms
PL PATH-504.4	Assess plant nematode relationship and physiological specialization.
PL PATH-504.5	Develop ecofriendly management practices of damage caused by nematodes.

Course Code:	PL PATH-517
Course Title:	Diseases of Vegetable and Spices Crops
Course Outcomes:	
PL PATH-517.1	Nature, prevalence, factors affecting disease development of tuber, bulb, leafy, crucifer vegetables
PL PATH-517.2	Nature, prevalence, factors affecting disease development of cucurbits and solanaceous vegetables and diseases of crops under protected cultivation
PL PATH-517.3	Symptoms and management of diseases of different root, tuber, bulb, leafy vegetables, crucifers, cucurbits and solanaceous vegetable crops.
PL PATH-517.4	Symptoms, epidemiology and management of diseases of different spice crops such as black pepper, nutmeg, saffron, cumin, coriander, turmeric, fennel, fenugreek and ginger.
PL PATH-517.5	Biotechnological approaches in developing disease resistant transgenic

Course Code:	PL PATH-512
Course Title:	Detection and Management of Seed Borne Pathogens
Course Outcomes:	
PL PATH-512.1	Recognize importance of seed pathology, plant quarantine and SPS under WTO in seed industry
PL PATH-512.2	Interpret the mechanism of seed transmission and seed to plant transmission of pathogen
PL PATH-512.3	Detect the pathogen from seed by advanced techniques and forecast the



	epidemic through seed borne infection
PL PATH-512.4	Estimate the losses due to seed borne diseases and production of healthy seed using suitable and sustainable management practices
PL PATH-512.5	Test the toxic metabolites synthesized in the seed due to infection and its impact on human, animal and plant health

Course Code:	STAT 512
Course Title:	Experimental Designs
Course Outcomes:	
STAT 512.1	Understand of basic concepts of design of experiments. Introduction to planning valid and economical experiments within given resources.
STAT 512.2	Analyze completely randomized design, Randomized block design, Latin square design. The conditions and circumstances under which results of the experiment are valid should be extensive.
STAT 512.3	Understand and compute Full and confounded factorial designs with two and three levels. Fractional factorial designs with two levels.
STAT 512.4	Understand the purpose for balanced incomplete block design, resolvable designs and their applications. Split and Strip plot design will help students to know the applications of DOE and learn and apply these techniques in the field experiment.

Course Code:	PGS 503
Course Title:	Intellectual Property and Its Management in Agriculture
Course Outcomes:	
PGS 503.1	Students will be able to understand Historical perspectives and need for the introduction of Intellectual Property Right.
PGS 503.2	Students will be able to understand National Biodiversity protection initiatives. Convention on Biological Diversity.
PGS 503.3	Students will be able to understand Research collaboration Agreement, License Agreement.

Course Code:	PGS 504
Course Title:	Basic Concepts in Laboratory Techniques
Course Outcomes:	
PGS 504.1	Basic Concept of Laboratory Techniques

**Semester – II**

Course Code:	PL PATH-506
Course Title:	Techniques for Detection and Diagnosis of Plant Diseases
Course Outcomes:	
PL PATH-506.1	Detect the plant pathogens based on different techniques including biochemical microscopic Cultural studies, biological assays, serological, nucleic acid and PCRbased.
PL PATH-506.2	Identify the plant pathogens phenotypically and genotypic ally
PL PATH-506.3	Distinguish the plant pathogens by molecular approaches
PL PATH-506.4	Choose biosensors for detection of plant pathogens
PL PATH-506.5	Select Genotypic tools for detection and diagnosis of plant viruses.

Course Code:	PL PATH-515
Course Title:	Diseases of Field and Medicinal Crops
Course Outcomes:	
PL PATH-515.1	Diagnose various plant diseases with their life-cycles.
PL PATH-515.2	Determine the relationship between pathogens, host and environment
PL PATH-515.3	Minimize the quantitative, qualitative and esthetic losses caused by diseases through suitable management practices
PL PATH-515.4	Develop integrated disease management models/strategies for particular crop.
PL PATH-515.5	Apply professional solution and demonstrate the knowledge & need for sustainable crop protection

Course Code:	PL PATH-516
Course Title:	Diseases of Fruits, Plantation and Ornamental Crops
Course Outcomes:	
PL PATH-516.1	Diagnose various plant diseases with their life-cycles.
PL PATH-516.2	Determine the relationship between pathogens, host and environment
PL PATH-516.3	Minimize the quantitative, qualitative and esthetic losses caused by diseases through suitable management practices
PL PATH-516.4	Develop integrated disease management models/strategies for particular crop.
PL PATH-516.5	Apply professional solution and demonstrate the knowledge & need for sustainable crop protection.



Course Code:	PGS 505
Course Title:	Agricultural Research, Research Ethics and Rural Development Programmes
Course Outcomes:	
PGS 505.1	Identify the history, levels of research, economic and social welfare through research programme
PGS 505.1	Apply the functioning, role and significant of regional, national and international research.
PGS 505.1	Asses the agricultural research, research ethics with operating and safety of laboratory.
PGS 505.1	Analyze the various development programmes and their functioning with its impact on agricultural development
PGS 505.1	Evaluate the role and functioning of panchayati raj, NGO and evaluation of different rural development program.

Course Code:	PL PATH 591
Course Title:	Agricultural Research, Research Ethics and Rural Development Programmes
Course Outcomes:	
PL PATH 591.1	Design professional orientation on the topic with their choice of interest which will help in development of academic and social leadership

Semester – IV

Course Code:	PL PATH 521
Course Title:	Master's Research (Research/Thesis)
Course Outcomes:	
PL PATH 521.1	Prepare various research activities related to Plant Pathology and compose manuscript i.e., synopsis related to particular topic.
PL PATH 521.2	Propose research methodology tools for conducting research on selected topic plant pathology



Department of Soil Science



Programme M.Sc.(Ag.) in Soil Science

Semester-I

Course Code:	Soil 506
Course Title:	Soil Biology and Biochemistry
Course Outcomes:	
21SC623.1	To classification of soil biota, its ecosystem and various interaction occurs with soil organisms
21SC623.2	To learn the various Interactions of Soil microbes with plants
21SC623.3	To understand transformation of nutrients with various interaction of soil organism and formation of humus
21SC623.4	Identification, production, role , importance and use of bio pesticides , organic waste its degradation process and manure application in various crop for sustainable agriculture
21SC623.5	Role, importance , preparation and properties of various organic manure and bio fertilizer if different crop to maintain the sustainability of soil

Course Code:	Soil 509
Course Title:	Soil, Water and Air Pollution
Course Outcomes:	
Soil 509.1	To identify the problems occur in agriculture sector regarding polluted water, air and soil their mode of occurrence and extended level
Soil 509.2	To learn the Nature , sources and effect of various pollutants on fertility, production and productivity of soil and crop including human health
Soil 509.3	Assess the forms and properties of various effluents released from Sewage and different industrial waste their by effect on growth of living organisms
Soil 509.4	Classification and behavior of pesticides in soil, and their effect on soil microorganisms
Soil 509.5	To understand the sources and behavior of released toxic substances affect in Soil, water , Air and human health
Soil 509.6	To understand the sources and reclamation tactics in managing the effect of release of GH gasses contribution and pesticide on reducing Soil, plant, water and Air
Soil 509.7	Risk assessment of polluted soil and reclamation of contaminated Soil, water , Air and human health



Course Code:	Soil 502
Course Title:	Soil Fertility and Fertilizer use
Course Outcomes:	
Soil 502.1	Classification of , their uptake and available forms play a important role in maintaining soil fertility and productivity
Soil 502.2	To understand the mineralization and immobilization of various Nitrogen in soil and plants
Soil 502.3	To understand the mineralization and immobilization of various Phosphorus and potassium in soil and plants
Soil 502.4	To understand the mineralization and immobilization of various secondary nutrients (Ca, Mg and S) in soil and plant
Soil 502.5	To understand the mineralization and immobilization of various Micronutrient (Fe, Mn, Cu, Zn, B, Mo, Ni) content in soil and plants
Soil 502.6	To evaluate the soil test methods used for application of various fertilizers in different crop
Soil 502.7	To understand the principle, concept and importance of SSNM, INM, and fertilizer use efficiency in agriculture
Soil 502.8	To learn the physical, biological and chemical ways to assess the fertility of soil
Soil 502.9	To understand concept of soil health and quality

Course Code:	Soil 505
Course Title:	Soil Erosion and Conservation
Course Outcomes:	
Soil 505.1	To understand the distribution and identification of probes regarding soil erosion in India
Soil 505.2	To identify the types, cause, mechanisms and factor affecting soil and water erosion
Soil 505.3	To understand the cause of wind erosion, its types, mechanisms involved and Factors affecting wind erosion
Soil 505.4	To apply the erosion controlling measures through agronomic and engineering techniques
Soil 505.5	To understand the land capability classification and evaluate the soil conservation strategies under wet land, waterlogged conditions
Soil 505.6	To measure the watershed management techniques



Course Code:	STAT 502
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT 502.1	This course will help students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study
STAT 502.2	It can be used to find the best solution to any problem be it simple or complex
STAT 502.3	Concept of correlation, various correlation coefficients- Pearson's correlation coefficient, Spearman's rank correlation coefficient, partial correlation coefficient and Multiple correlation coefficient
STAT 502.4	To understand the process of hypothesis testing and its significance. Testing of hypothesis using Non-Parametric tests like Median test, Runs test, U test, Kruskal Wallis test etc. and ability to use them judiciously for the testing of given data
STAT 502.5	Apply the different sampling methods for designing and selecting a sample from a population. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA

Course Code:	PGS 501
Course Title:	Library and Information Services
Course Outcomes:	
PGS 501.1	Able to understand about various concepts of Library, its functions, objective and connect foundational concepts, theories, and principles of information organization and access to professional contexts.

Semester-II

Course Code:	Soil 501
Course Title:	Soil Physics
Course Outcomes:	
Soil 501.1	To understand the various physical properties of soil responsible in growth and development of crop in field
Soil 501.2	To understand the distribution of soil of India on basis of soil texture, its formation, analysis techniques and factors affecting it
Soil 501.3	To understand the consistency and plasticity of soil
Soil 501.4	To understand the classification soil structure and factors responsible in affecting it
Soil 501.5	To learn the classification of soil water and its measuring techniques
Soil 501.6	To understand the application of the various laws applied during measurement of running water in soil
Soil 501.7	To understand the different process in managing the field water balance and soil plant atmosphere continuum



Soil 501.8	To understand the components, importance and measurement of air in soil for growth and development of plants
Soil 501.9	To understand the concept, role and measurement of soil temperature

Course Code:	Soil 503
Course Title:	Soil Chemistry
Course Outcomes:	
Soil 501.1	To know the chemical composition in earth crust, soil and in different rocks and minerals
Soil 501.2	To understand and apply the chemical kinetics, equilibrium thermodynamics and chemical equilibrium of elements in soil
Soil 501.3	To learn the classification of soil colloids, origin of charges, fractionation and characterization of OM in soil
Soil 503.4	To understand the concept, principle and working of ion exchange theories and hysteresis of sorption-desorption of oxyanions and ligands
Soil 503.5	To understand the adsorption desorption of N, P and K in soil with basic concept of quantity-intensity relationship of each of them in soil
Soil 503.6	To understand and evaluate the chemistry of soil acidity, its formation, types in surface and subsurface soil
Soil 503.7	To understand the formation, classification, properties and management of salt affected soil
Soil 503.8	To assess the electrochemistry and chemical reaction occur in submerged soil

Course Code:	Soil 504
Course Title:	Soil Mineralogy, Genesis and Classification
Course Outcomes:	
Soil 504.1	To understand the fundamental of crystallography, space lattice, coordination theory, isomorphism and polymorphisms in soil
Soil 504.2	To understand the classification, structure, chemical composition of clay minerals and its interaction with humus, pesticides and heavy metals
Soil 504.3	To determine the various soil formation process, weathering of rocks and minerals and soil profile
Soil 504.4	To recollect the knowledge of soil classification its comparison with modern classification and representation of soil mineralogy in soil map



Course Code:	STAT 512
Course Title:	EXPERIMENTAL DESIGNS
Course Outcomes:	
STAT 512.1	Understand of basic concepts of design of experiments. Introduction to planning valid and economical experiments within given resources.
STAT 512.2	Analyze completely randomized design, Randomized block design, Latin square design. The conditions and circumstances under which results of the experiment are valid should be extensive.
STAT 512.3	Understand and compute Full and confounded factorial designs with two and three levels. Fractional factorial designs with two levels.
STAT 512.4	Understand the purpose for balanced incomplete block design, resolvable designs and their applications. Split and Strip plot design will help students to know the applications of DOE and learn and apply these techniques in the field experiment.

Course Code:	Soil 509
Course Title:	Remote sensing and GIS Technique for soil, water and crop studies
Course Outcomes:	
Soil 509.1	History, concept , principle and application of Remote sensing and GIS system
Soil 509.2	To understand and learn the use of sensor system camera, aerial photographs their processing and interpretation
Soil 509.3	To understand the application of remote sensing and land use techniques for soil survey
Soil 509.4	To understand the significance and sources of the spatial and temporal variability in soil and use of geo statistical techniques of evolution of soil variability
Soil 509.5	To understand the application of GIS for water resources, agriculture, precision farming, disaster management, e governance and ARIS

Course Code:	PGS 502
Course Title:	Technical writing and communication
Course Outcomes:	
PGS 502.1	Learning the various form of scientific writing and implementing skills for Formulation of research based documents.
PGS 502.2	Acquisition of technical communication skill and articulate in English (verbal as writing)



Course Code:	PGS 503
Course Title:	Intellectual Property and Its Management in Agriculture
Course Outcomes:	
PGS 503.1	Students will be able to understand Historical perspectives and need for the introduction of Intellectual Property Right.
PGS 503.2	Students will be able to understand National Biodiversity protection initiatives. Convention on Biological Diversity.
PGS 503.3	Students will be able to understand Research Collaboration Agreement, License agreement

Course Code:	Soil 591
Course Title:	BASIC CONCEPT OF LABORATORY CONCEPT
Course Outcomes:	
Soil 591.1	Students will design professional orientation on the topic with their choice of interest which will helps in development of academic and social sector pertaining to Soil Science and Agricultural Chemistry.

Semester-III

Course Code:	Soil 511
Course Title:	Management of Problem soils and water
Course Outcomes:	
Soil 511.1	Distribution of problematic soils in India
Soil 511.2	To understand the morphological, chemical and biological features of salt affected soils
Soil 511.3	To understand the Management of salt affected soil
Soil 511.4	To understand the origin, nutrient content and management of acidic soil
Soil 511.5	To understand and analysis the quality of irrigation water
Soil 511.6	Application of agronomic practices in maintaining the quality of ground water

Course Code:	Soil 513
Course Title:	Soil Survey and Land use planning
Course Outcomes:	
Soil 513.1	To understand the soil survey, its techniques, types and interpretation in map with the application of remote sensing and geographic information system(GIS)
Soil 513.2	To assess the classification of land capability and irrigability classification its management approaches under agro-ecosystem
Soil 513.3	To understand the concept, management techniques and factor governing present land use cultivation of suitable crops
Soil 513.4	To evaluate and understand the Agro-ecological regions/sub-regions in India its status of LUP and characteristics in relation to crop production



Course Code:	PGS 505
Course Title:	Agricultural Research, Research Ethics and Rural Development Programmes
Course Outcomes:	
PGS 505.1	Identify the history, levels of research, economic and social welfare through research programme.
PGS 505.2	Apply the functioning, role and significant of regional, national and international research.
PGS 505.3	Asses the agricultural research, research ethics with operating and safety of laboratory.
PGS 505.4	Analyze the various development programmes and their functioning with its impact on agricultural development
PGS 505.5	Evaluate the role and functioning of panchayati raj, NGO and evaluation of different rural development program.

Course Code:	Soil 591
Course Title:	Mater Seminar
Course Outcomes:	
Soil 591.1	Students will design professional orientation on the topic with their choice of interest which will helps in development of academic and social sector pertaining to Soil Science and Agricultural Chemistry.

Course Code:	Soil 599
Course Title:	Master Research
Course Outcomes:	
Soil 599.1	Prepare various research activities related to Soil science and Agricultural Chemistry field and compose manuscript i.e., synopsis related to particular topic.

Department Of Agronomy



Programme – Ph.D. Agronomy

Semester-I

Course Code:	134PH01
Course Title:	Research Methodology
Course Outcomes:	
134PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
134PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
134PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
134PH01.4	To explain the art of interpretation and the art of writing research reports
134PH01.5	Evaluate the role and functioning of computer in research

Course Code:	AGRO-134PH02
Course Title:	Advances in Agronomy
Course Outcomes:	
AGRO-134PH02.1	Ph.D. Scholars will able to become philosopher of crop production technology
AGRO-134PH02.1	Scholars will acquainted with soil-plant-water relationship and scheduling of irrigation
AGRO-134PH02.1	Ph.D. scholar's will familiar with the precision agricultural technologies of cereals, pulses and oilseed crops.
AGRO-134PH02.1	Ph.D. scholars of agronomy may become to expert for using of new innovation in crop production e.g. GIS, GPS and remote sensing
AGRO-134PH02.1	Scholars of Ph.D. will become expert in making decision to enhancing crop production

Course Code:	134PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
134PH03.1	Students will be able to understand the ethics in conduct of scientific research
134PH03.2	The student will enable to utilize indexing and citation data bases, open access publications, research



134PH03.3	Identify research misconduct and predatory publications.
134PH03.4	Understand about the infer the ethical framework and principles
134PH03.5	Student will be able to explore plagiarism tools for a valid and ethicalresearch report
134PH03.6	Develop a valid and ethical research report

Course Code:	134PH04
Course Title:	Review of Literature
Course Outcomes:	
134PH04.1	Students will able to produce his/her research outcome on writing a review of literature introspects of recent trends and technologies.



M.Sc Ag Agronomy

Semester-I

Course Code:	Agro - 501 (3+0)
Course Title:	Modern Concept in Crop Production
Course Outcomes:	
Agron 501.1	Impart the modern concepts of crop production including tillage, optimization of plant growth population and planting geometry
Agron 501.2	Discuss about growth regulators and their role in agriculture with plant nutrition and disease tolerance in field crop.
Agron 501.3	Implementation and recognition of organic farming with the concept of ideal plant types.
Agron 501.4	Describe the impact of latest crop management practices on crop productivity and resource use efficiency
Agron 501.5	Analyzing the crop growth analysis along with crop modeling in precision farming.

Course Code:	Agron -502
Course Title:	Principles and Practices Of Soil Fertility and Nutrient Management
Course Outcomes:	
Agron 502.1	To impart knowledge of fertilizer and nutrient and nutrients status of PG students
Agron 502.2	To acquaint skill ness towards application of organic manures for pushing up the production in natural farming
Agron 502.3	Student of PG will able to acquire knowledge in increasing nutrients use efficiency by observing economic aspects. To get knowledge on sustainable agricultural practices such as organic farming.
Agron 502.4	To judge the fertility status in the soil by students
Agron 502.5	To categorize the fertilizers in different groups as per availability of nutrients elements e.g. single, double and multiple nutrients container



Course Code:	Agron- 506
Course Title:	Agronomy of Major Cereals, Pulses
Course Outcomes:	
Agron 506.1	pg students of agronomy will become expert and determine crop husbandry of cereals and pulses crops,
Agron 506.2	pg students acquire knowledge towards nutrition of crops and its quality to develop architectural characteristics.
Agron 506.3	Student may become expert in processing technology of cereals and pulses to increase value.
Agron 506.4	students will be able to become expert for resolving the problems of soil, water and nutrient status
Agron 506.5	students may be acquainted to examine the different new varieties of cereals and pulses

Course Code:	Agron- 511
Course Title:	Cropping systems and sustainable agriculture
Course Outcomes:	
Agron 511.1	1 Students acquainted will be familiar with the knowledge of Cropping systems physical resources, soil and water management in cropping systems
Agron 511.2	Students will be able to acquaint knowledge about Concept of sustainability in cropping systems and farming systems and types of cropping system and its advantages.
Agron 511.3	Students will be able to identify the interactions and allelopathic effects; competition relations and become expert in calculate the monetary returns
Agron 511.4	Students will be able to acquaint knowledge to Crop diversification, role of organic matter in maintenance of soil Fertility, crop residue management and nutrient use efficiency.
Agron 511.5	PG students will become expert in Plant ideotypes for drylands plant growth regulators and their role in sustainability.



Course Code:	SOIL 506
Course Title:	Soil Biology and Biochemistry
Course Outcomes:	
Soil 506.1	They understand about the Diversity of microbes in soil, their ecosystem and life cycle
Soil 506.2	To relate the various interaction of soil microbes with crop and their transformation process in soil.
Soil 506.3	To recollect and implement the knowledge of various methods of biodegradation of pesticides, organic wastes and their use for production of biogas,
Soil 506.4	To practice the manufacturing of various forms of organic manures, and bio fertilizers with its application use and importance in maintaining soil health
Soil 506.5	To practice the manufacturing, application of organic manure and bio fertilizers in soil.

Course Code:	SOIL 508
Course Title:	Soil water and air pollution
Course Outcomes:	
Soil 508.1	To identify the problems occur in agriculture sector regarding polluted water, air and soil their mode of occurrence and extended level
Soil 508.2	To learn the Nature, sources and effect of various pollutants on fertility, production and productivity of soil and crop including human health
Soil 508.3	Assess the forms and properties of various effluents released from Sewage and different industrial waste their by effect on growth of living organisms
Soil 508.4	Classification and behavior of pesticides in soil, and their effect on soil microorganisms
Soil 508.5	To understand the sources and behavior of released toxic substances affect in Soil, water, Air and human health
Soil 508.6	To understand the sources and reclamation tactics in managing the effect of release of GH gasses contribution and pesticide on reducing Soil, plant, water and Air
Soil 508.7	Risk assessment of polluted soil and reclamation of contaminated Soil, water, Air and human health



Course Code:	STAT-502
Course Title:	Statistical Methods for Applied Science
Course Outcomes:	
STAT-502.1	This course will help students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study.
STAT-502.2	It can be used to find the best solution to any problem be it simple or complex
STAT-502.3	Concept of correlation, various correlation coefficients- Pearson's correlation coefficient, Spearman's rank correlation coefficient, partial correlation coefficient and Multiple correlation coefficient
STAT-502.4	To understand the process of hypothesis testing and its significance. Testing of hypothesis using Non-Parametric tests like Median test, Runs test, U test, Kruskal Wallis test etc. and ability to use them judiciously for the testing of given data.
STAT-502.5	Apply the different sampling methods for designing and selecting a sample from a population. Compare the pairs of treatment means using different methods when null hypothesis is rejected in ANOVA.

Course Code:	PGS 501
Course Title:	Library and Information Services
Course Outcomes:	
PGS 501.1	Able to understand about various concepts of Library, its functions, objective and connect foundational concepts, theories, and principles of information organization and access to professional contexts

Course Code:	PGS 502
Course Title:	Technical writing and communication.
Course Outcomes:	
PGS 502.1	Learning the various form of scientific writing and implementing skills for Formulation of research based document,
PGS 502.2	Acquisition of technical communication skill and articulate in English (verbalas writing)



Semester-II

Course Code:	Agron 503
Course Title:	Principles and practices of weed management
Course Outcomes:	
Agro 503.1	Define weeds, its intensity and crop weed competition to make student expert in the weed science.
Agro 503.2	Students may acquire knowledge to herbicide classification based on Chemical, physiological mode and mechanism of action Of herbicides.
Agro 503.3	Students may acquire knowledge about herbicide structure and weed control through use of nano-herbicides and bio-herbicides, myco-herbicides and degradation of herbicide
Agro 503.4	Student will acquaint knowledge about principles and method of weed control and management.
Agro 503.5	PG students of Agronomy will become to expert in integrated weed management practices.

Course Code:	Agron - 504
Course Title:	Principles and practices of water management
Course Outcomes:	
Agron 504.1	P.G. student will become expert in water management to calculate the water use efficiency (WUE).
Agron 504.2	Acquired knowledge about water drainage system
Agron 504.3	Draw suitable figure of 90° V, notch to major quantity of flowing irrigation water.
Agron 504.4	To evaluate the performance of tensiometer for determination of moisture tension in experimental field.
Agron 504.5	Acquire knowledge to differentiate irrigation methods, systems and drainage methods.



Course Code:	Agron- 513
Course Title:	Principles and Practices of Organic Farming
Course Outcomes:	
Agron-513.1	Student may become expert in organic farming as well as about the organic production technology for pushing up the field through organicfarming.
Agron-513.2	The knowledge gained by student through this course will be use in making decision so nutrient dose, choice of manures and method of application etc.
Agron-513.3	Student will get to know about different processing techniques of agricultural waste products as NADED, FYM, Vermicompost etc.
Agron-513.4	Student will know different cropping and farming system like integrated farming system. To get knowledge on sustainable agricultural practices such as organic farming
Agron 513.5	P.G. student will able to acquaint with the modern knowledge about, certification, labelling and accreditation on procedure for organic farming.

Course Code:	Agron 512
Course Title:	Dry land farming and watershed management
Course Outcomes:	
Agron 512.1.	Students will become to define dryland farming and its constraints.
Agron 512.2	students will become to differentiate dryland farming and rainfed farming
Agron 512.3.	Pg students acquainting knowledge to calculate catchment and command area.
Agron 512.4	students of pg able to evaluate concept of conservation of tillage
Agron 512.5.	Students will become as expert to design water harvesting tank under the watershed management technology



Course Code:	APP 501
Course Title:	Principles of plant physiology
Course Outcomes:	
App 501.1.	PG students will familiar with the knowledge of plant physiology.
App 501.2	Students will able to acquaints knowledge about anti transparent to checkthe loss of water
App 501.3	Students will become expert to calculate the daily plant growth by recording the growth data taken by auxanometer
App 501.4	Students will able to acquaint knowledge to distinguish between osmosisand diffusion process.
App 501.5	PG students will become expert in soil plant water relationship

Course Code:	STAT 512
Course Title:	Experimental Designs
Course Outcomes:	
STAT 512.1	Understand of basic concepts of design of experiments. Introduction to planning valid and economical experiments within given resources
STAT 512.2	Analyze completely randomized design, Randomized block design, Latin square design. The conditions and circumstances under which results of theexperiment are valid should be extensive
STAT 512.3	Understand and compute Full and confounded factorial designs with two andthree levels. Fractional factorial designs with two levels.
STAT 512.4	Understand the purpose for balanced incomplete block design, resolvable designs and their applications. Split and Strip plot design will help students to know the applications of DOE and learn and apply these techniques in the field experiment



Course Code:	PGS 503
Course Title:	Intellectual Property and Its Management in Agriculture
Course Outcomes:	
PGS 503.1:	Students will be able to understand Historical perspectives and need for the introduction of Intellectual Property Right.
PGS 503.2:	Students will be able to understand National Biodiversity protection initiatives. Convention on Biological Diversity.
PGS 503.3:	Students will be able to understand Research Collaboration Agreement, License agreement

Course Code:	PGS 504
Course Title:	Basic Concept in laboratory
Course Outcomes:	
PGS504.1	Student will learn about basic instrumentation, its principles, working and use. They will learn about Making solutions of different concentrations, learn acid base interaction. Also, students will learn about Procedural outline of various experiments. Student will learn about Basics of plant tissue culture and seed viability testing

Semester-III

Course Code:	Agron 591
Course Title:	Research/Thesis
Course Outcomes:	
Agron 599.1.	Prepare various research activities related to Agronomy field and compose manuscript i.e., synopsis related to particular topic.



Course Code:	PGS 505
Course Title:	Agricultural Research, Research Ethics and Rural Development Programs
Course Outcomes:	
PGS 505.1	Identify the history, levels of research, economic and social welfare through research programme.
PGS 505.2	Apply the functioning, role and significant of regional, national and international research.
PGS 505.3	Asses the agricultural research, research ethics with operating and safety of laboratory.
PGS 505.4	Analyze the various development programmes and their functioning with its impact on agricultural development
PGS 505.5	Evaluate the role and functioning of panchayati raj, NGO and evaluation of different rural development program

Semester-IV

Course Code:	Agron 599
Course Title:	Research/Thesis
Course Outcomes:	
Agro599.1	Propose research methodology tools for conducting research on selected topic of field of Agronomy and prepare Final manuscript i.e. Thesis

Department of Agricultural Science



Programme B.Sc. (Hons.) Ag

Semester I

Course Code:	21AN127
Course Title:	Agriculture Heritage
Course Outcomes:	
21AN127.1	Students acquaint will familiar with the knowledge of basics of agricultural heritage.
21AN127.2	Students will able to acquaints about Concept of Importing knowledge of sustainable agriculture for boosting agriculture production.
21AN127.3	Students will able to introduce the students with ancient Indian agriculture.
21AN127.4	Students will able to acquaint knowledge on green revolution
21AN127.5	Acquainting with knowledge on modern agriculture technology for boosting production

Course Code:	21SD124
Course Title:	COMPREHENSION AND COMMUNICATION SKILLS IN ENGLISH
Course Outcomes:	
21SD124.1	Students will be able to use the grammar and frame the sentences effectively.
21SD124.2	Students will be able to read and listen effectively and attentively.
21SD124.3	Vocabulary of students will be enhanced as well as they will learn the use of modals.
21SD124.4	Students will become Professional in writing skills which will further help them in building their curriculum vitae, job application and many more.
21SD124.5	Students will become aware of Indian writings.

Course Code:	21MS126-B
Course Title:	Elementary Mathematics
Course Outcomes:	
21MS126-B.1	Recognize to drive a linear relationship from a straight line graph.
21MS126-B.2	Illustrate circle can even be a valuable tool when gardening, as they help determine how much space plants need to grow around them.



21MS126-B.3	Demonstrate algebraic facility with algebraic topics including linear, quadratic, exponential, logarithmic, and trigonometric functions.
21MS126-B.4	Determine the continuity and differentiability of a function at a point and on a set; Solve problems in a range of mathematical applications using the derivative or the integral.
21MS126-B.5	Assess matrices are used for taking seismic surveys.

Course Code:	21GP121
Course Title:	Fundamentals of Genetics
Course Outcomes:	
21GP121.1	Students are able to explain the basic principles of heredity, variation, and cell division and their significance in plant breeding.
21GP121.2	Students are able to understand on sex determination and sex linkage, linkage, crossing over with their role in plant breeding.
21GP121.3	Students are able to explain mutation, mutation induction and mutation detection with their benefits in crop improvement.
21GP121.4	Students are able to explain qualitative and quantitative traits, Polygenes and continuous variations and multiple factor hypothesis
21GP121.5	Students are gain knowledge about the fundamental concept of cytoplasmic inheritance, Genetic disorders, Nature, structure and replication of genetic material with their role in crop breeding.

Course Code:	21SC122
Course Title:	Fundamental of Soil Science
Course Outcomes:	
21SC122.1	To learn the general introduction of soil, classification, components, rocks, formation and weathering and its profile.
21SC122.2	To understand the major factors affecting the process of weathering. Soil physical properties of different soil types of various locations of India, there colour variations, nutrient content and physical, chemical and biological variation.



21SC122.3	To interpret the soil-water plant relationship and factors affecting them. Soil Air, its distribution with respect to soil and earth. Soil temperature, availability of different types of microbes in different temperature.
21SC122.4	To identify various soil cations, anions, Silicate clay structures, and colloids. To be able to classify the different microbes present in soil.
21SC122.5	To recollect the role of Organic matter in maintaining the soil fertility and health, components of organic matter, its importance, and factors responsible in reducing it .

Course Code:	21EV125
Course Title:	Fundamentals of Agronomy
Course Outcomes:	
21EV125.1	Students acquaint will familiar with the knowledge of Agronomy and its scope and importance and know the seed and importance of plant population in the field and nutrient use efficiency.
21EV125.2	Students will able to acquaints knowledge about Water resources in India and water relationship with soil and plant and irrigation and its method and importance of irrigation.
21EV125.3	Students will able to identify the weed and agronomical problem create by the weed and its management and allopathic effects of weeds on crop.
21EV125.4	Students will able to acquaint knowledge to crop growth and development of crop and factors affecting the growth and development plant ideotypes and its concept crop rotation and its principles.
21EV125.5	Students will able to acquaint knowledge to Adaptation and distribution of crops crop management technologies of crop in problematic areas harvesting and threshing of crops

Course Code:	21NC129
Course Title:	Human Values & Ethics
Course Outcomes:	
21NC129.1	A student will be able to interpret the Human Values & Ethics.
21NC129.2	A student will be able to describe the self-Exploration Awareness & self-satisfaction.
21NC129.3	A student will be able to explain the Decision making, motivation, sensitivity.



21NC129.4	A student will be able to discuss the success, self-service & Ethical lives.
21NC129.5	A student will be able to describe the Positive spirit, attachment and detachment.

Course Code:	21BI126-A
Course Title:	Introductory Biology
Course Outcomes:	
21BI126-A.1	Students will be able to understand the fundamental concept of biology.
21BI126-A.2	Understand the diversity and evolution of living organisms.
21BI126-A.3	Students will be able to understand the morphology of flowering plants and able to describe the plants in Botanical language.
21BI126-A.4	Student understand different types of plants, classification, identification, and nomenclature
21BI126-A.5	It gives an Accounts of Role of animals in agriculture.

Course Code:	21FO123
Course Title:	Introduction to Forestry
Course Outcomes:	
21FO123.1	The students will have the ability to apply the knowledge gained in basic terms related to forestry, forest classification, methods of natural regeneration and silent's features of Indian Forest Policies
21FO123.2	The students will have the ability to apply the knowledge gained about afforestation, maintenance and different methods of thinning applied in forest crops
21FO123.3	The students will have the ability to apply the knowledge in field of forest mensuration-diameter, height and volume estimation of trees
21FO123.4	The students will have the ability to apply the knowledge in field of agro forestry, different types and models to be adopted as per the agroclimatic zone
21FO123.5	The students will have the ability to apply the knowledge in field of cultivation practices including nursery and plantation management with reference to Vindhyan region



Course Code:	21NC177
Course Title:	Physical Education & Yoga practice
Course Outcomes:	
21NC177.1	A student will able to interpret about the introduction of Physical Education and its Features and of factors in Physical Education with the Knowledge of Teaching of skills of Football , Badminton.
21NC177.2	A student will able to discuss about the Components of physical fitness and strength with the knowledge of Teaching of skills of Basketball, Kabaddi,
21NC177.3	A student will able to discuss about the Components of physical fitness and strength with the knowledge of Teaching of skills of Badminton.
21NC177.4	A student will able to discuss about the Components of physical fitness and strength with the knowledge of Teaching of skills of Tennis.
21NC177.5	A student will able to differentiate about the Teaching and learning-relationship of sports and physical education and student will able to measure about the Construction and laying out of the track and field

Course Code:	21EX128
Course Title:	Rural Sociology & Educational Psychology
Course Outcomes:	
21EX128.1	Agriculture extension activity is a transfer of technology for rural and urban peoples both, rural sociology & Educational Psychology one of major aspect of extension course in which students will understand about rural sociology, society, and the importance of society in agriculture extension.
21EX128.2	How rural and urban society differs from each other and how its work, students will analyze about social group, social stratification, class and cost system and their role in agriculture extension. in rural context
21EX128.3	Students also need to understand about rural concept, social value, attitude; concepts are importance in agriculture extension. Students need to know about all these, students also will learn about social change and institution.
21EX128.4	Psychology is a major aspect of learning activity so in this course students also will understand about educational psychology.
21EX128.5	Students learn about Intelligence, Personality these are a major factor in agriculture extension and all though come from extension teaching which students will learn in this particular course.



Semester-II

Course Code:	21EN224
Course Title:	Fundamentals of Entomology
Course Outcomes:	
21EN224.1	Relate & recall basic terms, facts & concepts of insect_s external morphologyimportant insect-pest.
21EN224.2	Emphasize the concepts and analytical approaches in anatomy, physiology andbiology of insects.
21EN224.3	Acquired the knowledge of ability to categorize insects based on basic ecological, behavioral, morphological, physiological, or developmental attributes.
21EN224.4	Gain knowledge to examine insects deeply within a biological level of analysis and make strategies for successful pest management strategy.
21EN224.5	Understand about different families and orders of class Insecta which causeeconomic losses or benefits for mankind.

Course Code:	21SD225
Course Title:	Communication Skills and personality Development
Course Outcomes:	
21SD225.1	Analyze basic communication skills.
21SD225.2	Students will know about intercultural communication skills.
21SD225.3	Interpersonal communication skills that will improve knowledge and personality.
21SD225.4	Students will analyze public speaking communication skills.
21SD225.5	Indian Writing in English

Course Code:	21HO222
Course Title:	Fundamentals of Crop Physiology
Course Outcomes:	
21HO222.1	Students will be able to understand the fundamental concept of crop physiology.
21HO222.2	Students will be able to understand the structure of plant cell, cell organelles andtheir function and internal activities of plant.
21HO222.3	Students will be able to understand the general process of photosynthesis andrespiration.
21HO222.4	It gives an account of the plant hormone and their role in plant growth and development.
21HO222.5	It gives an account of physiological aspects of growth and development.



Course Code:	21EV227
Course Title:	Environmental Studies & Disaster management
Course Outcomes:	
21EV227.1	Student will have ability to apply the gained knowledge about the basic concept of environmental science, different types of natural resources, their utilization and impact on environment, causes of degradation and depletion and methods of their conservation
21EV227.2	Student will have ability to apply the knowledge of structural and functional components of different types of ecosystems and ecological succession. different levels of biodiversity, values, hotspots, threats of biodiversity and their measures of conservation.
21EV227.3	Student will have ability to apply the knowledge of different types of pollution, their sources, impact on environment and basics of their control measures. different sources of solid wastes and their management specifically to urban areas.
21EV227.4	Student will have ability to learn about the basic concept of sustainable development, different methods of water conservation. He will also learn about the different acts related to environmental conservation and different social issues.
21EV227.5	Student will have ability to learn different types of disasters, their sources, impacts and also will apply the gained knowledge in disaster management with coordination to government bodies and NGOs.

Course Code:	21EC229
Course Title:	Fundamentals of Agricultural Economics
Course Outcomes:	
21EC229.1	Identify the concept and meaning of economics, basic concept of economics and agricultural economics
21EC229.2	Express the various economic principles economics and basic theories with their application
21EC229.3	Apply of cost concepts and laws of returns principles in agricultural economics
21EC229.4	Analyze about the national income, current policies and programmes on population control.
21EC229.5	Asses the money and banking, types of banks and credit creation policy with their functions.



Course Code:	21GP226
Course Title:	Fundamentals of plant breeding
Course Outcomes:	
21GP226.1	Student will be able to understand about plant breeding- introduction, historical concepts, objectives, reproduction, self – incompatibility and male sterility.
21GP226.2	Students will have the ability to apply the knowledge gained about component of Genetic variation, Genetic basis and breeding methods in self- pollinated crops.
21GP226.3	To understand Concepts of population genetics, development of inbred lines and hybrids, composite and synthetic varieties.
21GP226.4	Student will be able to understand Breeding methods in asexually propagated crops, polyploidy in relation to plant breeding and mutation breeding.
21GP226.5	Students will get knowledge on breeding for important biotic and abiotic stresses, DNA markers and Intellectual Property Rights

Course Code:	21PP223
Course Title:	Fundamentals of Plant Pathology
Course Outcomes:	
21PP223.1	Know the history, importance, concepts and cause of (living, non-living and environmental) cause of plant diseases.
21PP223.2	Understand the fungi, bacteria, viruses, nematodes and phanerogamic plant parasites.
21PP223.3	Discuss about Bacteria, Mollicutes and Viruses with their microscopic characters
21PP223.4	Acquaintance with nematodes and phanerogamic plant parasites and loss caused by them.
21PP223.5	Isolation/diagnosis of plant pathogenic microorganisms and methods of their management.

Course Code:	21HO221
Course Title:	Fundamental of Horticulture
Course Outcomes:	
21HO221.1	Apply the knowledge of horticulture in terms of its definition branches, importance/scope and classification.
21HO221.2	Ability to understand about plant vegetative propagation/structure including different Principles of Horticulture
21HO221.3	Understand the major causes of unfruitfulness, role of pollinators and pollinizers in pollination , usefulness of fertilization and parthenocarpy in horticultural crops.



21HO221.4	Understand the concept of garden type and parts lawn making practices along with medicinal aromatic , spices and condiments plants.
21HO221.5	Understand the concept of plants bio-regulators as advancement and different irrigation and fertilizers application methods.

Course Code:	21MS228
Course Title:	Statistical Methods
Course Outcomes:	
21MS228.1	Students to know the applications of Statistics and learn and apply these techniques in the agriculture field of their study.
21MS228.2	A probability distribution is a statistical model that shows the possible outcomes of a particular event or course of action as well as the statistical likelihood of each event.
21MS228.3	Students should be able to understand and compute various statistical measures of correlation, fitting of curve and regression.
21MS228.4	Analysis of data pertaining to attributes and to interpret the results. Compare the pairs of treatment means using different methods when null hypothesis is rejected in
	ANOVA.
21MS228.5	Sampling provides the tolls/ techniques for selecting a sample of elements from a target population keeping in mind the objectives and nature of population.

Semester-III

Course Code:	21EN328
Course Title:	Principles of Integrated Pest and Disease Management
Course Outcomes:	
21EN328.1	Students knowledgeable about different category of insect pest and diseases. Definition and history of IPM, Their concept and principles and Tools of IPM.
21EN328.2	Students are skilled in determining pest levels and Calculation of ETL and EIL, their importance in IPM, Economic Importance of insect pest and disease and methods of detection and diagnosis of insect pest and disease.
21EN328.3	To be able to address different methods of control of insect pest and disease, their positive and negative impact and Host Plant Resistance and its advantage and disadvantage.
21EN328.4	Gain knowledge to about Ecological management of crop improvement, convention insecticides and surveying and forecasting for insect pest monitoring and make strategies for successful pest management strategy.



21EN328.5	To Understands about Safe use of insecticides, poisoning, first aid and antidotes and their effect on plants, animals and environment. Different IPM module for different Crops. Implications on using IPM.
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Course Code:	21EC324
Course Title:	Agricultural Finance and Co-Operation
Course Outcomes:	
21EC324.1	Define the agricultural finance, agricultural credits and credit analysis.
21EC324.2	Express the sources of agricultural finance and nationalization of commercial banks.
21EC324.3	Interpret higher financing institutions – RBI, NABARD, ADB, IMF, WorldBank, Insurance.
21EC324.4	Analyze about the financial statements and preparation of project reports
21EC324.5	Asses the about the meaning and concept of Agricultural Cooperation.

Course Code:	21CS325
Course Title:	Agriculture Informatics
Course Outcomes:	
21CS325.1	Knowledge and anatomy of computer including Operating Systems and networking.
21CS325.2	Able to describe MS Office like MS Word, MS Excel, MS Access and Ms PowerPoint.
21CS325.3	Able to describe audio visual aids for smart learning and communication process.
21CS325.4	Knowledge of World Wide Web (www) and internet their Concepts and components and use of Information and Communication Technology in Agriculture.
21CS325.5	Able to describe preparation of contingent crop-planning using IT tools. Smartphone
	Apps in Agriculture for farm advises, market price, postharvest management. Agriculture Expert System, Soil Information Systems for supporting Farm decisions



Course Code:	21BT321
Course Title:	Agricultural Microbiology
Course Outcomes:	
21BT321.1	Student will understand the basic microbial groups and study characteristics of prokaryotes and eukaryotes. To know the structure and various physical and chemical growth requirements of bacteria.
21BT321.2	To understand the bacterial genetics and mode of genetic recombination.
21BT321.3	To highlight the role of soil microorganisms in soil fertility and plant growth promotion by nutrient mobilization of elements through geochemical cycle.
21BT321.4	To students will understand the concepts of biological nitrogen fixation, free, associative and symbiotic association.
21BT321.5	Student will understand the agriculture residue degradation or conversion to useful product.

Course Code:	21GN329
Course Title:	Crop Improvement – I (Kharif Crops)
Course Outcomes:	
21GN329.1	Students will have able to learn importance of wild relative to produce new varieties of kharif crops.
21GN329.2	Students will have able to learn Gene preservation method for further use to improve kharif crops.
21GN329.3	Students will have able to learn to apply breeding method to improve kharif crops.
21GN329.4	Students will have able to learn identification of resistance gene relate to kharif crop with high yield potential against Pest and pathogen and utilization genes.
21GN329.5	Students will have able to understand new genetic approaches to achieve a definite ideotype of kharif crop.

Course Code:	21AN323
Course Title:	Crop production technology - (Kharif Crops)
Course Outcomes:	
21AN323.1	The UG students introduce about soil and climatic conditions of vindhya region for crop production.
21AN323.2	Student will become expert to know the crop production technology of kharif cereals crop



21AN323.3	Student acquired knowledge about scientific pulse crops production packages and practices.
21AN323.4	UG students acquainted knowledge about oilseeds crop production and oil extractions process.
21AN323.5	Students of UG classes gain knowledge on fiber and forage crops with the familiar relationship.

Course Code:	21EX322
Course Title:	Fundamental of agriculture extension
Course Outcomes:	
21EX322.1	Understanding the fundamentals of extension education, extension systems in India.
21EX322.2	Insight in to programme planning and rural development efforts, extension administration.
21EX322.3	Knowledge on different extension methods and approaches used for transfer of agricultural technology.
21EX322.4	Provide an opportunity to visit different organizations involved in extension activities and rural development work.
21EX322.5	Acquaintance on practical skills in preparation of different extension teaching methods.

Course Code:	21HO327
Course Title:	Production Technology for vegetables and spices
Course Outcomes:	
21HO327.1	Recognize the Importance of vegetables & spices in human nutrition and national economy, kitchen gardening, brief about origin, area, climate, soil, improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation.
21HO327.2	Weed management, harvesting and yield, physiological disorders, of important vegetable and spices (Tomato, Brinjal, Chilli, Capsicum, Cucumber, Melons, Gourds, Pumpkin, French bean)
21HO327.3	Peas; Cole crops such as Cabbage, Cauliflower, Knol-khol.
21HO327.4	Bulb crops such as Onion, Garlic; Root crops such as Carrot, Raddish, Beetroot; Tubercrops such as Potato.
21HO327.5	Understand the concept of production technology of Leafy vegetables such as Amaranth, Palak, Perennial vegetables.



Course Code:	21AE326
Course Title:	Farm Machinery and Power Engineering
Course Outcomes:	
21AE326.1	Students will understand the current status and importance of farm power in India, identify and explain different sources of farm power, describe the working principles of IC engines, and compare two-stroke and four-stroke cycle engines.
21AE326.2	Students will be able to identify and explain the functions of various IC engine components, understand IC engine terminology, describe different systems of IC engines, and troubleshoot common issues.
21AE326.3	Students will understand power transmission systems in tractors, identify different types of tractors and their applications, analyze the cost-effectiveness of tractor power and attached implements, and optimize tractor performance.
21AE326.4	Students will be able to identify and explain primary and secondary tillage implements, understand hill agriculture and suitable implements, describe implements for intercultural operations, and select appropriate tillage implements for specific soil and crop conditions.
21AE326.5	Students will understand sowing and planting equipment, plant protection equipment, harvesting and threshing equipment, and optimize the use of agricultural equipment for efficient crop management.

Semester-IV

Course Code:	21AN422
Course Title:	Crop production technology II (Rabi crops)
Course Outcomes:	
21AN422.1	Student will become expert to know the crop production technology of kharif cereals crop.
21AN422.2	Student acquired knowledge about scientific pulse crops production packages and practices.
21AN422.3	UG students acquainted knowledge about oilseeds crop production and oil extractions process.
21AN422.4	Student acquired knowledge about scientific sugar crop and medicinal crops production packages and practices.
21AN422.5	Students of UG classes gain knowledge on aromatic and forage crops with the familiar relationship.



Course Code:	21HO426
Course Title:	Diseases of Field & Horticultural Crops & their Management-I
Course Outcomes:	
21HO426.1	Define various terminology used in the course
21HO426.2	Identify various plant diseases and life-cycles of Rabi season crops
21HO426.3	Isolate/detect different plant pathogens from infected plant parts and soil
21HO426.4	Minimize the losses caused by diseases through suitable management practices
21HO426.5	Develop integrated disease management models/strategies for particular crop

Course Code:	21EC429
Course Title:	Farm Management, Production and Resources Economics
Course Outcomes:	
21EC429.1	Define the principles of farm management, production function and different input-output relationships.
21EC429.2	Analyze the cost concept, types of costs and different income measures
21EC429.3	Interpret the farm business analysis, farm inventory, balance sheet, profit and loss accounts for practical purpose
21EC429.4	Apply the risk, uncertainty, farm planning and budgeting in farm production.
21EC429.5	Discusses to natural resource economics and agricultural economics.

Course Code:	21SC423
Course Title:	Manure Fertilizer and Soil Fertility Management
Course Outcomes:	
21SC423.1	This subject will give general introduction on Organic farming and practices involved in making organic field through organic fertilizers, its classification, use and importance
21SC423.2	To know about INM, FCO, fertilizer storage orders. Various types of chemical fertilizer and its manufacturing processes, use, advantages, disadvantages, and nutrient content in it.
21SC423.3	Students will learn regarding nutrient classification, its criteria of essentiality, deficiency, symptoms, functional role in crop production, and disease occur from them. Nutrients transport method in plants, nutrient cycle of macro and micro nutrients.



21SC423.4	It gives knowledge in various techniques for Evaluation of soil health, indicator plants and its symptoms in different crops during rainfed and irrigated condition.
21SC423.5	Help in Calculating the Nutrient use efficiency of different nutrients.

Course Code:	21AE428
Course Title:	Protected cultivation and secondary Agriculture
Course Outcomes:	
21AE428.1	Recognize the Green house technology: Introduction, Types of Green Houses; Plant response to Greenhouse environment, Planning and design of greenhouses, Design criteria of green house for cooling and heating purposes.
21AE428.2	Green house equipment, materials of construction for traditional and low cost greenhouses. Irrigation systems used in greenhouses, typical applications, passive solar green house, hot air green house heating systems, green house drying. Cost estimation and economic analysis.
21AE428.3	Important Engineering properties such as physical, thermal and aero & hydrodynamic properties of cereals, pulses and oilseed, their application in PHTequipment design and operation.
21AE428.4	Drying and dehydration; moisture measurement, EMC, drying theory, various drying method, commercial grain dryer (deep bed dryer, flat bed dryer, tray dryer, fluidized bed dryer, recirculatory dryer and solar dryer).
21AE428.5	Material handling equipment; conveyer and elevators, their principle, working and selection

Course Code:	21 HO424
Course Title:	Production Technology for Ornamental Crops, MAPs and Landscaping
Course Outcomes:	
21 HO424.1	Student understand about the importance and scope of ornamental plants, medicinal and aromatic plants including landscaping
21 HO424.2	Ability to understand production technology of importance cut flower like rose, gerbera, carnation, lillium and orchid under protected conditions as well as gladiolus,



	tuberose, chrysanthemum under open condition
21 HO424.3	Ability to understand package of practices for loose flowers like marigold and jasmine under open condition.
21 HO424.4	To elaborate production technology of important medicinal and Aromatic plants
21 HO424.5	Observing students and knowledge about Processing and value addition in ornamental crops and MAPs produce.

Course Code:	21AN427
Course Title:	Rain fed Agriculture and Watershed Management
Course Outcomes:	
21AN427.1	To impart knowledge about Rainfed Agriculture and Watershed Management and also know about the problem and prospect of rainfed agriculture.
21AN427.2	To acquaint skillness towards soil and climatic condition in india and soil and water conservation Practices
21AN427.3	To acquaint skillness towards drought management and its mitigation through foliar application of hormones on crops
21AN427.4	Students may become expert to apply soil and water conservation Practices and efficient utilization of water through soil and crop management practices.
21AN427.5	To impart knowledge about demonstrate the water harvesting techniques and crop planning for aberrant weather conditions

Course Code:	21AN430
Course Title:	Introductory Agro meteorology & Climate Change
Course Outcomes:	
21AN430.1	Students will have a comprehensive understanding of the fundamental principles of agricultural meteorology
21AN430.2	Students will be able to explain the nature and properties of solar radiation, including the solar constant, analyze atmospheric temperature and their implications for agricultural practices.
21AN430.3	Students will possess a comprehensive understanding of the energy balance of the Earth and its significance for agricultural systems. Students will also be proficient in describing precipitation mechanisms



21AN430.4	Students enhancing the knowledge of the monsoon's mechanism and its critical importance in Indian agriculture. To develop strategies to mitigate the adverse effects of extreme weather events on agriculture
21AN430.5	Students will be proficient in weather forecasting techniques, including various types of forecasts and their applications in agriculture.

Course Code:	21AE421
Course Title:	Introductory Soil and Water Conservation Engineering
Course Outcomes:	
21AE421.1	Students will be able to explain the fundamental concepts of soil and water conservation, identify the causes and agents of soil erosion, and understand the importance of conserving these natural resources.
21AE421.2	Students will gain knowledge of the different forms of water erosion, learn to classify gullies, and apply control measures. They will also be able to estimate soil loss using the Universal Soil Loss Equation and employ various soil loss measurement techniques.
21AE421.3	Students will understand and apply the principles of erosion control, including contouring, strip cropping, contour bunding, graded bunding, bench terracing, and designing grassed waterways.
21AE421.4	Students will learn about various water harvesting techniques and understand the mechanics of wind erosion and the different types of soil movement caused by wind.
21AE421.5	Students will be able to explain the principles of wind erosion control and implement effective control measures to mitigate wind erosion and conserve soil.

Semester-V

Course Code:	21EN530
Course Title:	Pest of Crops and Stored grain and their Management
Course Outcomes:	
21EN530.1	Understand the damage symptoms and systematic positions of various insect pest and non-insect pest.
21EN530.2	Acquired the knowledge about different crop-based insect pest, understanding their nature of the damage, identifying weak links in their life cycle, and utilizing economic and ecofriendly techniques of management in a compatible manner in order to maintain the pest population at levels below those causing economic injury/damage.
21EN530.3	Assess the causes of grain deterioration during storage by mechanical,



	chemical physical and biological factors.
21EN530.4	Advocate the sustainable ecofriendly integrated pest management strategies of insect pest and non-insect pest.
21EN530.5	Gain knowledge about different methods of storage and preservation the quality of grain and protect them from pests and other potential contaminant.

Course Code:	21EC525
Course Title:	Agricultural Marketing, Trade and Prices
Course Outcomes:	
21EC525.1	Identify the different types of agricultural markets and agricultural marketing concept
21EC525.2	Express the product life cycle, pricing and marketing promotional strategies 3.
21EC525.3	Interpret the marketing function under exchange, physical and facilitating functions and marketing channel in the market
21EC525.4	Examine the marketing efficiency and price spread with role of govt. institution and public institute in agricultural Market .
21EC525.5	Evaluate the marketing risk and trade with international trade and need for agricultural price policy.

Course Code:	21HO528
Course Title:	Diseases of Field & Horticultural Crops & their Management-II
Course Outcomes:	
21HO528.1	Define various terminology used in the course
21HO528.2	Diagnose various plant diseases with their life-cycles of Kharif season crops
21HO528.3	Determine the relationship between pathogens, host and environment
21HO528.4	Minimize the quantitative, qualitative and esthetic losses caused by diseases through suitable management practices
21HO528.5	Develop integrated disease management models/strategies for particular crop



Course Code:	21AG527
Course Title:	Intellectual Property Rights
Course Outcomes:	
21AG527.1	Students will develop understanding of intellectual property. Learn about different organizations of world trade and trade related IPR.
21AG527.2	To impart the skills in patenting. Understanding of application procedure and execution.
21AG527.3	Understanding the role of UPOV. Know about UPOV criteria of new plant varieties and its registration procedure.
21AG527.4	Know about registration of new plant varieties under PPV and FR act in India. Understanding of traditional knowledge as IPR.
21AG527.5	Student will have insight about need of conservation. Learn about important treaties in this regard.

Course Code:	21AH521
Course Title:	Livestock and Poultry Management
Course Outcomes:	
21AH521.1	Livestock's role in national economy, reproduction in farm animals, housing for different livestock and poultry.
21AH521.2	Management of calves, growing heifers and milch animals. Management of sheep, Goat and Swine . Incubation, hatching and brooding . Management of grower and layers .
21AH521.3	Important Indian and exotic breeds of cattle, Buffalo, sheep, goat, swine and poultry.
21AH521.4	Classification of feedstuffs. Proximate principles of feed, nutrients and their functions. Feed ingredients for ration for livestock and poultry.
21AH521.5	Feed supplements and feed additives. Feeding of livestock and poultry. Introduction of livestock and poultry diseases. Prevention (including vaccination schedule) and control of important diseases of livestock and poultry.



Course Code:	21SC623
Course Title:	Problematic soils and their management
Course Outcomes:	
21SC623.1	To learn the various problems occurs in Indian soils in maintain optimum nutrient availability and soil health, its sources with its area of distribution as per agro climatic zones of India.
21SC623.2	To learn the various amelioration techniques for reclamation of different problematic soil for maintain proper soil health, its fertility and productivity.
21SC623.3	To understand the various criteria of irrigation water suitable for maintaining optimum label of nutrient availability and high productivity in agriculture sector.
21SC623.4	To assess the use of GIS system in locating the problematic soil. Land Suitable classification for different agricultural and nonagricultural activates.
21SC623.5	Distribution of various problematic soils on the basis of Agro climatic zones of India

Course Code:	21AN524
Course Title:	Principles of Seed Technology
Course Outcomes:	
21AN524.1	Student will be able to understand seed quality concept and Genetic purity in seed production, different classes of seed.
21AN524.2	Students will have the ability to apply the knowledge gained about foundation and certified seed production in different crops, seed certification and minimum Seed Certification for different crops.
21AN524.3	To understand principles of detection of genetically modified crops and seed treatment, packing and seed storage
21AN524.4	Student will be able to understand seed marketing and promotional media.
21AN524.5	Students will get knowledge on role of WTO and OECD in seed marketing, marketing strategies.



Course Code:	21 HO523
Course Title:	Production Technology for Fruit and Plantation Crops
Course Outcomes:	
21 HO523.1	Ability understand about importance and scope of industries which are working under fruit and plantation crops are crucial under preservation and packaged food production.
21 HO523.2	Students understand about how different types of fruits and plantation crop rootstocks are important under its commercial scale.
21 HO523.3	Understand the production technologies for the cultivation of major fruit crops.
21 HO523.4	Understand the concept of package and practices of minor fruit crops.
21 HO523.5	Understand the concept of production technology of plantation crops.

Course Code:	21AE522
Course Title:	Renewable Energy and Green Technology
Course Outcomes:	
21AE522.1	Classification of Energy Sources - Identify and classify different energy sources, including renewable and non-renewable sources, and understand their contributions to the agricultural sector.
21AE522.2	Biomass Utilization - Understand the conversion of biomass into biofuels, including bioethanol and biodiesel, and apply this knowledge to develop sustainable energy solutions for agricultural applications.
21AE522.3	Biogas and Bioenergy Production - Explain the principles of biogas production, including anaerobic digestion and gasification, and understand the applications of biogas, bio-alcohol, biodiesel, and biooil as bioenergy resources. Additionally, introduce solar energy collection and application.
21AE522.4	Solar Energy Gadgets - Design, install, and operate solar energy gadgets, including solar cookers, solar water heaters, and solar dryers, for agricultural and rural development applications.
21AE522.5	Solar and Wind Energy Systems - Understand the principles of solar photovoltaic systems, solar drying, solar ponds, and solar distillation, and apply this knowledge to design and install sustainable energy systems. Additionally, introduce wind energy principles and applications.



Semester-VI

Course Code:	21EN626
Course Title:	Management of Beneficial Insects
Course Outcomes:	
21EN626.1	As an entrepreneur, students can pursue apiculture, sericulture, and lac culture based on their agroclimatic zone.
21EN626.2	Acquire Knowledge of commercial methods of rearing, equipment, seasonal management, insect pest and disease and important species for commercial use of honey bee.
21EN626.3	Learn about silk culture equipment, recurring techniques, and troubleshooting during culturing.
21EN626.4	Acquire knowledge of identification of different lac insects their distribution, host and market value of their byproducts
21EN626.5	Acquire knowledge of identification of different bio control agents (Predator, Parasite and Parasitoids) and their use for sustainable pest management.

Course Code:	21AN627
Course Title:	Crop Improvement –II (Rabi Crops)
Course Outcomes:	
21AN627.1	Students will have able to learn importance of wild relative to produce new varieties of Rabi crops.
21AN627.2	Students will have able to learn Gene preservation method for further use to improve Rabi crops.
21AN627.3	Students will have able to understand the breeding methods, objectives, and identification of resistance gene relate to Rabi crop with high yield potential against Pest and pathogen and utilization genes.
21AN627.4	Students will have able to understand about different hybrid seed production methods used in different rabi crops.
21AN627.5	Students will have able to understand new genetic approaches to achieve a definite ideotype of Rabi crop.



Course Code:	21MT624
Course Title:	Entrepreneurship Development and Business communication
Course Outcomes:	
21MT624.1	This course makes able to develop entrepreneurial skill competencies among the students.
21MT624.2	Students will understand the concept of entrepreneur and process entrepreneurship and business development plans.
21MT624.3	Students on various aspects of enterprise building starting from identification of business opportunities, developing business plans, strengthening entrepreneurial competencies and acquiring skills in managing a small venture.
21MT624.4	Understand various schemes supporting entrepreneurship, Opportunity to sharpen entrepreneurial competencies. Students will know the role and assistance by various promotional organizations. Learn about abilities that contribute to top performance. Think creative and innovative.
21MT624.5	Entrepreneurship will be able to create value. Students are able to create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through 1) company formation (for-profit); 2) social innovation (nonprofit); or 3) intellectual property licensing.

Course Code:	21BT621
Course Title:	Fundamentals of Plant Biochemistry and Biotechnology
Course Outcomes:	
21BT621.1	To acquaint knowledge on the applications and scope of biochemistry, classification, composition, properties, structural formula, occurrence, of carbohydrates. reducing and non-reducing sugar.
21BT621.2	To gain basic knowledge of structure properties of biomolecules lipids and proteins
1BT621.3	To provide comprehensive understanding of classification, nomenclature and action of enzymes. To gain basic knowledge of structure of nucleic acids
21BT621.4	Synthesis pathways of biomolecules and regulations and basics of plant tissue culture.
21BT621.5	To understand the techniques, concepts and applications of plant biotechnology and various recombinant methods



Course Code:	21AN623
Course Title:	Geoinformatics, Nano-technology and Precision Farming
Course Outcomes:	
21AN623.1	Student may become expert in precision farming.
21AN623.2	Students will able to acquaint with crop discrimination and yield monitoring by demonstration.
21AN623.3	To get knowledge on GPS and its component with functions.
21AN623.4	Students get knowledge to choose nano technology for higher production of field crops.
21AN623.5	Students gain knowledge through use of nano technology in seed, water, fertilizer, plant protection for scaling, up farm productivity.

Course Code:	21HO625
Course Title:	Post-Harvest management and value addition of fruits and vegetables.
Course Outcomes:	
21HO625.1	Understand the importance of Post-Harvest processing of fruits and vegetables, extent and possible causes of post Harvest losses.
21HO625.2	Acquired the knowledge of free harvest factors affecting post harvest quality. Concepts of maturity and ripening including respiration concept.
21HO625.3	Interpret harvesting, handling, storage and value addition of fruits and vegetables
21HO625.4	Familiarize with different principles and methods of preservation and preserved food items as jam, jelly etc.
21HO625.5	Comprehend the concepts of preservation from tomato produce, different methods of drying and dehydration including packaging



Course Code:	21AN628
Course Title:	Principles of Organic Farming
Course Outcomes:	
21AN628.1	Students acquaint will familiar with the knowledge in organic farming as well as about the organic production technology for pushing up the field through organicfarming.
21AN628.2	Student will able to acquaint with the modern knowledge about, certification, labeling and accreditation procedure for organic farming.
21AN628.3	To recall knowledge on Initiatives taken by Government (central/state), NGOs andother organizations for promotion of organic agriculture.
21AN628.4	To get knowledge on marketing, export potential of organic products and different processing techniques of agricultural waste products as NADED, FYM, Vermicomposting etc.
21AN628.5	To demonstrate different integrated farming systems among the students.

Course Code:	21FT629
Course Title:	Principles of Food Science and Nutrition
Course Outcomes:	
21FT629.1	Students understanding of fundamental principles and phenomena governingfood properties and behaviors.
21FT629.2	Students will gain a deep understanding of the molecular structures, functional roles, and interactions of essential nutrients and bioactive compounds in foods.
21FT629.3	Students will understand the roles of bacteria, yeast, and molds in food spoilageand the production of fermented foods, preparing them to apply microbial knowledge in food safety and production settings.
21FT629.4	Students will be proficient in applying various techniques including heat, low temperature, chemicals, radiation, and drying to enhance food safety and shelf life.
21FT629.5	Students will comprehend how carbohydrates, fats, and proteins are metabolized for energy, enabling them to design balanced and modified diets.

**Semester-VII**

Course Code:	21 AG771
Course Title:	RAWE & AIA
Course Outcomes:	
21 AG771.1	The students were given rigorous orientation and familiarization on various issues aproblems expected on farmers_ field and hence gain competence and confidence fo solving problems related to agriculture and allied sciences. It has been implemented adopted villages under the supervision of scientists
21 AG771.2	The Rural Agricultural Work Experience (RAWE) provides exposure to agriculturalstudents to the natural setting of the village situations. Work with the farm familiesidentify their problems and make use of various extension tools for transferring the latest agricultural technologies
21 AG771.3	The students also get opportunity to study the various on-going schemes related to agriculture and rural development and participate in their implementation.
21 AG771.4	students will aware about basic learning skill about plant protection, and theremanagement
21 AG771.5	The students also gained first-hand information on industries during attachment wiidentified Agri-based industries.

Module

Course Code:	21SC877
Course Title:	Agricultural Waste Management
Course Outcomes:	
21SC877.1	This subject will give general introduction on Organic farming and practices involved in making organic field through organic fertilizers, its classification, use
21SC877.2	To know about the role and importance of INM, FCO, fertilizer storage orders inpackaging and marketing of organic manures.
21SC877.3	To learn the basic techniques used in dealing with farmers and motivate them toconvert their land to organic farming.



Course Code:	21AG880
Course Title:	Dairy Technology
Course Outcomes:	
21AG880.1	Preparation of frozen dairy product, Flavored Yogurt and its packaging formarketing
21AG880.2	Preparation of Condensed, clotted and fermented Dairy Product and making Khoabased Sweet.
21AG880.3	Preparation of flavored milk, cream separation and their processing
21AG880.4	Quality tests for milk , ghee and processing methods of milk.
21AG880.5	Preparation & grading of Butter. Increase the shelf life of dairy milk product.

Course Code:	21AG873
Course Title:	Mushroom Cultivation Technology
Course Outcomes:	
21AG431-C.01	Mushroom Cultivation Technology

Course Code:	21AG879
Course Title:	Poultry Production Technology
Course Outcomes:	
21AG879.1	Quality testing of egg
21AG879.2	Preservation of eggs.
21AG879.3	Cut-up parts and sensory evaluation of chicken.
21AG879.4	Incubation, hatching and brooding management of different breeds of chicken.
1AG879.5	This course also gives information related to housing requirement of poultry suchas floor space, different housing system their advantages and disadvantages.



Elective Subjects

Course Code:	21AG431B
Course Title:	Agriculture journalism
Course Outcomes:	
21AG431B.1	understand the character of Journalism and its part as social activity, which is concerned, with the dissemination of news and views about the society.
21AG431B.2	Students will be able to understand agricultural journalism news paper and magazine as communication media and will be aware about different type of newspaper and about how reader has a role on it.
21AG431B.3	Students will understand that how to write news with proper style and part of story. And major things which students will know that from where students can gather story for writing.
21AG431B.4	Students will be aware about proper source from where students can collect the news like, by interviewing, events, also will learn about that how to make it readable and its treatment for reader.
21AG431B.5	students will familiarize with illustrating agriculture story, about photographs, chart, graph, for having good skill about writing caption and editorials mechanics, and proof reading.

Course Code:	21AB630-B
Course Title:	Agri Business Management
Course Outcomes:	
21AB630-B.1	Define the agribusiness concepts and importance of agribusiness in agriculture.
21AB630-B.2	Express about Institutional arrangement, procedures to set up agro based industries.
21AB630-B.3	Interpret about the Organization staffing, directing and motivation. Ordering, leading, supervision, communications, control and its analysis.
21AB630-B.4	Analyze the financial management and capital management and their importance in agribusiness.
21AB630-B.5	Evaluate the impact of Project Management and Project Appraisal and evaluation techniques policy.



Course Code:	21AG529-B
Course Title:	Bio pesticides & Bio fertilizers
Course Outcomes:	
21AG529-B.1	Describe about the importance of biofertilizers and biopesticides and their types.
21AG529-B.2	Demonstrate skills of isolation and purification of biopesticides and biofertilizers.
21AG529-B.3	Demonstrate skills on culture and mass production of biopesticides and biofertilizers.
21AG529-B.4	Ability to distinguish the types of most effective biopesticides and biofertilizers.
21AG529-B.5	Assess the quality control of biopesticides and biofertilizers.

Course Code:	21AG529D
Course Title:	Commercial Plant Breeding
Course Outcomes:	
21AG529D .1	Student will be able to understand plant reproduction. Line development and maintenance breeding in self and cross pollinated crops (A/B/R and two line system) for development of hybrids and seed production.
21AG529D .2	Students will have the ability to apply the knowledge gained about Genetic purity test of commercial hybrids. Advances in hybrid seed production in different crops.
21AG529D .3	To understand principles of detection of seed production of vegetable crops under open and protected environment and tissue culture techniques and biotechnological tools.
21AG529D .4	Student will be able to understand IPR issues in commercial plant breeding: DUS testing and registration of varieties under PPV & FR Act.
21AG529D .5	Students will get knowledge on Variety testing, release and notification systems in India, quality testing in self and cross pollinated crops.



Course Code:	21HO630-C
Course Title:	Hi-Tech Horticulture
Course Outcomes:	
21HO630-C.1	Apply the knowledge of Hi tech Horticulture in terms of its definition , importance/scope and advantages
21HO630-C.2	Ability to Understand Modern Horticultural practices such as basic principles of Irrigation methods, Various Micro-Propagation techniques /methods including Fertilizer application, Canopy management and high density orcharding
21HO630-C.3	Ability to understand the concepts of precision farming, Remote sensing and Geographical information system.
21HO630-C.4	Understand the concepts of Differential Geo-Positioning system (DGPS), Variable rate applicator (VRA) and application of Precision farming in Horticultural crops.
21HO630-C.5	Understand the concept of Mechanized harvesting of produce.

Course Code:	21HO630-C
Course Title:	Landscaping
Course Outcomes:	
21HO630-C.1	Apply the Knowledge of Landscaping, gardening and its components
21HO630-C.2	To generalize the students with living components of garden viz. tree, shrubs climbers and creepers
21HO630-C.3	To generalize the students with living components of garden viz. annuals, palms, ferns, grasses, cacti, succulents and pot plants
21HO630-C.4	To understand the concept of landscaping in relations to rural ,urban and periurban areas.
21HO630-C.5	Understanding the principle, theoretical aspects and developing skills in bonsai, lawn establishment and CAD application



Course Code:	21AG431-C
Course Title:	Micro Propagation Technologies
Course Outcomes:	
21AG431-C.1	Student will understand basic understanding of plant tissue culture. Overview of various technologies available in it.
21AG431-C.2	Students will be aware about Stages of micropropagation, requirements and specificity of each stage
21AG431-C.3	Students will be aware of technology involved and procedural aspect about differentiation of plant organs
21AG431-C.4	Student will learn about embryo handling and process of artificial seed production
21AG431-C.5	Students will have basic understanding of secondary metabolites and their nature, how variation can be induced in plant tissue culture.

Course Code:	21AG529-C
Course Title:	Protected Cultivation
Course Outcomes:	
21AG529-C	Apply the knowledge of protected structures in terms of its importance/scope, present scenario and classification
21AG529-C	Design and manage protected structures, including construction, environmental control, irrigation and fertigation.
21AG529-C	Interpret about different propagation and production techniques in Horticultural crops.
21AG529-C	Understand different packaging and practice of different horticulture crops grown under protected structures
21AG529-C	Understanding the principle, theoretical aspects and developing skills in protected cultivation of off season flowers, vegetables medicinal and aromatic plants



Course Code:	21AG529
Course Title:	Weed Management
Course Outcomes:	
21AG529.1	Students will be acquainted about why to undertake environmental weed control.
21AG529.2	Students will be acquainted about different approaches of weed management
21AG529.3	Students may acquire knowledge about allelopathic effect towards weed control
21AG529.4	Students will be acquainted about harmful and beneficial effects of weeds in Agriculture.
21AG529.5	Students will be acquainted planning for weed management and weed management processes.

Semester-VI

Course Code:	21EN626
Course Title:	Management of Beneficial Insects
Course Outcomes:	
21EN626.1	As an entrepreneur, students can pursue apiculture, sericulture, and lac culture based on their agroclimatic zone.
21EN626.2	Acquire Knowledge of commercial methods of rearing, equipment, seasonal management, insect pest and disease and important species for commercial use of honey bee.
21EN626.3	Learn about silk culture equipment, recurring techniques, and troubleshooting during culturing.
21EN626.4	Acquire knowledge of identification of different lac insects their distribution, host and market value of their byproducts
21EN626.5	Acquire knowledge of identification of different bio control agents (Predator, Parasite and Parasitoids) and their use for sustainable pest management.



Course Code:	21AN622
Course Title:	Farming System and Sustainable Agriculture
Course Outcomes:	
21AN622.1	To familiarize the students about definition of farming system and its concepts.
21AN622.2	Students will become expert to recognized cropping system and cropping pattern.
21AN622.3	Student may able to solve the problems of sustainable agriculture and identify the impact to resolve them.
21AN622.4	Students may acquire knowledge to apply the IFS system for model agriculture development
21AN622.5	Students will become expert to demonstrate the farming system, cropping system under IFS in the farmer field.

Course Code:	21AN627
Course Title:	Crop Improvement –II (Rabi Crops)
Course Outcomes:	
21AN627.1	Students will have able to learn importance of wild relative to produce new varieties of Rabi crops.
21AN627.2	Students will have able to learn Gene preservation method for further use to improve Rabi crops.
21AN627.3	Students will have able to understand the breeding methods, objectives, and identification of resistance gene relate to Rabi crop with high yield potential against Pest and pathogen and utilization genes.
21AN627.4	Students will have able to understand about different hybrid seed production methods used in different rabi crops.
21AN627.5	Students will have able to understand new genetic approaches to achieve a definite ideotype of Rabi crop.



Course Code:	21MT624
Course Title:	Entrepreneurship Development and Business communication
Course Outcomes:	
21MT624.1	This course makes able to develop entrepreneurial skill competencies among the students.
21MT624.2	Students will understand the concept of entrepreneur and process entrepreneurship and business development plans.
21MT624.3	Students on various aspects of enterprise building starting from identification of business opportunities, developing business plans, strengthening entrepreneurial competencies and acquiring skills in managing a small venture.
21MT624.4	Understand various schemes supporting entrepreneurship, Opportunity to sharpen entrepreneurial competencies. Students will know the role and assistance by various promotional organizations. Learn about abilities that contribute to top performance. Think creative and innovative.
21MT624.5	Entrepreneurship will be able to create value. Students are able to create presentations and business plans that articulate and apply financial, operational, organizational, market, and sales knowledge to identify paths to value creation through 1) company formation (for-profit); 2) social innovation (nonprofit); or 3) intellectual property licensing.

Course Code:	21BT621
Course Title:	Fundamentals of Plant Biochemistry and Biotechnology
Course Outcomes:	
21BT621.1	To acquaint knowledge on the applications and scope of biochemistry, classification, composition, properties, structural formula, occurrence, of carbohydrates. reducing and non-reducing sugar.
21BT621.2	To gain basic knowledge of structure properties of biomolecules lipids and proteins
21BT621.3	To provide comprehensive understanding of classification, nomenclature and action of enzymes. To gain basic knowledge of structure of nucleic acids
21BT621.4	Synthesis pathways of biomolecules and regulations and basics of plant tissue culture.
21BT621.5	To understand the techniques, concepts and applications of plant biotechnology and various recombinant methods



Course Code:	21AN623
Course Title:	Geoinformatics, Nano-technology and Precision Farming
Course Outcomes:	
21AN623.1	Student may become expert in precision farming.
21AN623.2	Students will able to acquaint with crop discrimination and yield monitoring bydemonstration.
21AN623.3	To get knowledge on GPS and its component with functions.
21AN623.4	Students get knowledge to choose nano technology for higher production of fieldcrops.
21AN623.5	Students gain knowledge through use of nano technology in seed, water, fertilizer, plant protection for scaling, up farm productivity.

Course Code:	21HO625
Course Title:	Post-Harvest management and value addition of fruits and vegetables.
Course Outcomes:	
21HO625.1	Understand the importance of Post Harvest processing of fruits and vegetables, extent and possible causes of post Harvest losses.
21HO625.2	Acquired the knowledge of free harvest factors affecting post harvest quality. Concepts of maturity and ripening including respiration concept.
21HO625.3	Interpret harvesting, handling, storage and value addition of fruits and vegetables
21HO625.4	Familiarize with different principles and methods of preservation and preserved food items as jam, jelly etc.
21HO625.5	Comprehend the concepts of preservation from tomato produce, different methods of drying and dehydration including packaging



Course Code:	21AN628
Course Title:	Principles of Organic Farming
Course Outcomes:	
21AN628.1	Students acquaint will familiar with the knowledge in organic farming as well as about the organic production technology for pushing up the field through organicfarming.
21AN628.2	Student will able to acquaint with the modern knowledge about, certification, labeling and accreditation procedure for organic farming.
21AN628.3	To recall knowledge on Initiatives taken by Government (central/state), NGOs andother organizations for promotion of organic agriculture.
21AN628.4	To get knowledge on marketing, export potential of organic products and different processing techniques of agricultural waste products as NADED, FYM, Vermicomposting etc.
21AN628.5	To demonstrate different integrated farming systems among the students.

Course Code:	21FT629
Course Title:	Principles of Food Science and Nutrition
Course Outcomes:	
21FT629.1	Students understanding of fundamental principles and phenomena governingfood properties and behaviors.
21FT629.2	Students will gain a deep understanding of the molecular structures, functional roles, and interactions of essential nutrients and bioactive compounds in foods.
21FT629.3	Students will understand the roles of bacteria, yeast, and molds in food spoilageand the production of fermented foods, preparing them to apply microbial knowledge in food safety and production settings.
21FT629.4	Students will be proficient in applying various techniques including heat, lowtemperature, chemicals, radiation, and drying to enhance food safety and shelflife.
21FT629.5	Students will comprehend how carbohydrates, fats, and proteins are metabolizedfor energy, enabling them to design balanced and modified diets.

**Semester-VII**

Course Code:	21 AG771
Course Title:	RAWE & AIA
Course Outcomes:	
21 AG771.1	The students were given rigorous orientation and familiarization on various issues a problems expected on farmers_ field and hence gain competence and confidence fo solving problems related to agriculture and allied sciences. It has been implementedadopted villages under the supervision of scientists
21 AG771.2	The Rural Agricultural Work Experience (RAWE) provides exposure to agriculturalstudents to the natural setting of the village situations. Work with the farm families identify their problems and make use of various extension tools for transferring thelatest agricultural technologies
21 AG771.3	The students also get opportunity to study the various on-going schemes related to agriculture and rural development and participate in their implementation.
21 AG771.4	students will aware about basic learning skill about plant protection, and there management
21 AG771.5	The students also gained first-hand information on industries during attachment wiidentified Agri-based industries.

Module

Course Code:	21SC877
Course Title:	Agricultural Waste Management
Course Outcomes:	
21SC877.1	This subject will give general introduction on Organic farming and practices involved in making organic field through organic fertilizers, its classification, use
21SC877.2	To know about the role and importance of INM, FCO, fertilizer storage orders in packaging and marketing of organic manures.
21SC877.3	To learn the basic techniques used in dealing with farmers and motivate them toconvert their land to organic farming.



Course Code:	21AG880
Course Title:	Dairy Technology
Course Outcomes:	
21AG880.1	Preparation of frozen dairy product, Flavored Yogurt and its packaging for marketing
21AG880.2	Preparation of Condensed, clotted and fermented Dairy Product and making Khoabased Sweet.
21AG880.3	Preparation of flavored milk, cream separation and their processing
21AG880.4	Quality tests for milk , ghee and processing methods of milk.
21AG880.5	Preparation & grading of Butter. Increase the shelf life of dairy milk product.

Course Code:	21AG873
Course Title:	Mushroom Cultivation Technology
Course Outcomes:	
21AG431-C.01	Mushroom Cultivation Technology

Course Code:	21AG879
Course Title:	Poultry Production Technology
Course Outcomes:	
21AG879.1	Quality testing of egg
21AG879.2	Preservation of eggs.
21AG879.3	Cut-up parts and sensory evaluation of chicken.
21AG879.4	Incubation, hatching and brooding management of different breeds of chicken.
21AG879.5	This course also gives information related to housing requirement of poultry such as floor space, different housing system their advantages and disadvantages.



Elective Subjects

Course Code:	21AG431B
Course Title:	Agriculture journalism
Course Outcomes:	
21AG431B.1	understand the character of Journalism and its part as social activity, which is concerned, with the dissemination of news and views about the society.
21AG431B.2	Students will able to understand agricultural journalism news paper and magazine as communication media and will aware about different type of newspaper and about how reader has a role on it.
21AG431B.3	Students will understand that how to write news with proper style and part of story. And major things which students will know that from where students can gather story for writing.
21AG431B.4	Students will aware about proper source from where students can collect the news like, by interviewing, events, also will learn about that how to make it as readable and its treatment for reader.
21AG431B.5	students will familiarize with illustrating agriculture story, about photographs, chart, graph, for having good skill about writing caption and editorials mechanics, and proof reading.

Course Code:	21AB630-B
Course Title:	Agri Business Management
Course Outcomes:	
21AB630-B.1	Define the agribusiness concepts and importance of agribusiness in agriculture.
21AB630-B.2	Express about Institutional arrangement, procedures to set up agro based industries.
21AB630-B.3	Interpret about the Organization staffing, directing and motivation. Ordering, leading, supervision, communications, control and its analysis.
21AB630-B.4	Analyze the financial management and capital management and their importance in agribusiness.
21AB630-B.5	Evaluate the impact of Project Management and Project Appraisal and evaluation techniques policy.



Course Code:	21AG529-B
Course Title:	Biopesticides & Biofertilizers
Course Outcomes:	
21AG529-B.1	Describe about the importance of bio fertilizers and bio pesticides and their types.
21AG529-B.2	Demonstrate skills of isolation and purification of bio pesticides and bio fertilizers.
21AG529-B.3	Demonstrate skills on culture and mass production of bio pesticides and bio fertilizers.
21AG529-B.4	Ability to distinguish the types of most effective bio pesticides and bio fertilizers.
21AG529-B.5	Assess the quality control of bio pesticides and bio fertilizers.

Course Code:	21AG529D
Course Title:	Commercial Plant Breeding
Course Outcomes:	
21AG529D .1	Student will be able to understand plant reproduction. Line development and maintenance breeding in self and cross pollinated crops (A/B/R and two line system) for development of hybrids and seed production.
21AG529D .2	Students will have the ability to apply the knowledge gained about Genetic purity test of commercial hybrids. Advances in hybrid seed production in different crops.
21AG529D .3	To understand principles of detection of seed production of vegetable crops under open and protected environment and tissue culture techniques and biotechnological tools.
21AG529D .4	Student will be able to understand IPR issues in commercial plant breeding: DUS testing and registration of varieties under PPV & FR Act.
21AG529D .5	Students will get knowledge on Variety testing, release and notification systems in India, quality testing in self and cross pollinated crops.



Course Code:	21HO630-C
Course Title:	Hi-Tech Horticulture
Course Outcomes:	
21HO630-C.1	Apply the knowledge of Hi tech Horticulture in terms of its definition , importance/scope and advantages
21HO630-C.2	Ability to Understand Modern Horticultural practices such as basic principles of Irrigation methods, Various Micro-Propagation techniques /methods including Fertilizer application, Canopy management and high density orcharding
21HO630-C.3	Ability to understand the concepts of precision farming, Remote sensing and Geographical information system.
21HO630-C.4	Understand the concepts of Differential Geo-Positioning system (DGPS), Variable rate applicator (VRA) and application of Precision farming in Horticultural crops.
21HO630-C.5	Understand the concept of Mechanized harvesting of produce.

Course Code:	21HO630-C
Course Title:	Landscaping
Course Outcomes:	
21HO630-C.1	Apply the Knowledge of Landscaping, gardening and its components
21HO630-C.2	To generalize the students with living components of garden viz. tree, shrubsclimbers and creepers
21HO630-C.3	To generalize the students with living components of garden viz. annuals, palms, ferns, grasses, cacti, succulents and pot plants
21HO630- C.4	To understand the concept of landscaping in relations to rural ,urban and peri urban areas.
21HO630- C.5	Understanding the principle, theoretical aspects and developing skills in bonsai, lawn establishment and CAD application



Course Code:	21AG431-C
Course Title:	Micro Propagation Technologies
Course Outcomes:	
21AG431-C.1	Student will understand basic understanding of plant tissue culture. Overview of various technologies available in it.
21AG431-C.2	Students will be aware about Stages of micro propagation, requirements and specificity of each stage
21AG431-C.3	Students will be aware of technology involved and procedural aspect about differentiation of plant organs
21AG431-C.4	Student will learn about embryo handling and process of artificial seed production
21AG431-C.5	Students will have basic understanding of secondary metabolites and their nature, how variation can be induced in plant tissue culture.

Course Code:	21AG529-C
Course Title:	Protected Cultivation
Course Outcomes:	
21AG529-C.1	Apply the knowledge of protected structures in terms of its importance/scope, present scenario and classification
21AG529-C.2	Design and manage protected structures, including construction, environmental control, irrigation and fertigation.
21AG529-C.3	Interpret about different propagation and production techniques in Horticultural crops.
21AG529-C.4	Understand different packaging and practice of different horticulture crops grown under protected structures
21AG529-C.5	Understanding the principle, theoretical aspects and developing skills in protected cultivation of off season flowers, vegetables medicinal and aromatic plants



Course Code:	21AG529
Course Title:	Weed Management
Course Outcomes:	
21AG529.1	Students will be acquainted about why to undertake environmental weed control.
21AG529.2	Students will be acquainted about different approaches of weed management
21AG529.3	Students may acquire knowledge about allelopathic effect towards weed control
21AG529.4	Students will be acquainted about harmful and beneficial effects of weeds inAgriculture.
21AG529.5	Students will be acquainted planning for weed management and weed management processes.



Faculty of Life Science and Technology



Department of Life Sciences



Programme: Ph.D. in Biotechnology

COURSE WORK

Course Code:	151BT02
Course Title:	Advance in Biotechnology
Course Outcomes:	
151BT02.1	Discuss the advanced biotechnological concepts and methodologies, including genetic engineering, molecular biology, and bioinformatics.
151BT02.2	Analyze complex biological systems and interpret experimental data to draw meaningful conclusions regarding biological processes and their biotechnological applications.
151BT02.3	Apply advanced biotechnological techniques to design and conduct original research projects aimed at solving real-world biological problem
151BT02.4	Critically assess scientific literature and experimental data to identify gaps in current knowledge and propose innovative research questions and hypotheses in the field of biotechnology.
151BT02.5	Demonstrating the ability to independently conduct high level scientific inquiry and contribute to the advancement of the biotechnology field.

Course Code:	151BT03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151BT03.1	Students will be able to understand the ethics in conduct of scientific research.
151BT03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151BT03.3	Identify research misconduct and predatory publications.
151BT03.4	Understand about the infer the ethical framework and principles
151BT03.5	Student will be able to explore plagiarism tools for a valid and ethical research report



Course Code:	151PH01
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports.
151PH01.5	Evaluate the role and functioning of computer in research



Programme:

M. Tech. Biotechnology Duration: 2 Years

Semester I

Course Code:	55MBT104
Course Title:	Biomolecules
Course Outcomes:	
55MBT104.1	Understand the Structure, classification, and properties of carbohydrates.
55MBT104.2	Extend biochemistry of nucleic acid, amino acids, and protein.
55MBT104.3	Understanding of Role and mechanism of action of coenzymes and carbohydrate metabolism.
55MBT104.4	To become familiar with the fundamental Metabolic activity of lipids.
55MBT104.5	Apply the ideas and pathways of nucleotide metabolism.

Course Code:	55MBT101
Course Title:	Bio analytical techniques
Course Outcomes:	
55MBT101.1	Understanding the basics of microscopes, SEM, TEM and newer techniques in microscopy
55MBT101.2	Generation wise, analyze sequencing techniques and their applications
55MBT101.3	Acquiring theoretical and practical knowledge in the various spectroscopy techniques
55MBT101.4	Studying the various chromatographic techniques.
55MBT101.5	Learn the applications of flow cytometer and protein research



Course Code:	55MBT102
Course Title:	Bioreactor Engineering
Course Outcomes:	
55MBT102.1	Illustrate the terminologies associated with bioreactor engineering
55MBT102.2	Explain the kinetics and mechanism of various types of reactors
55MBT102.3	Interpret the different experimental data on reaction rate related to reactor engineering principles
55MBT102.4	Analyze the Transfer of Heat and Mass with its kinetics
55MBT102.5	Evaluate & Design numerical values for development of heterogeneous reaction

Course Code:	55MBT103
Course Title:	Genetic Engineering
Course Outcomes:	
55MBT103.1	Explain basic concepts Genetic Engineering and its tools.
55MBT103.2	Explain various types of cloning vectors their construction and uses.
55MBT103.3	Understand the Cloning Methodologies by giving especial emphasis on DNA libraries..
55MBT103.4	Interpret the role of PCR in genetic engineering and its applications.
55MBT103.5	Learn about the procedure of DNA sequencing and its types and also understand how foreign DNA can be introduced into Host.



Course Code:	55MBT104
Course Title:	Immunology and Vaccine Technology
Course Outcomes:	
55MBT104.1	Acquire proficiency in structure and function of the immune system, its various components and their roles in immune responses,
55MBT104.2	Familiar with immunological concepts, i.e. antigen recognition, antibody production, cytokine signaling and immune memory.
55MBT104.3	Acquire the knowledge of bioassays for investigation of different immune- pathological conditions. And their impact.
55MBT104.4	Critically analyze experimental data and scientific literature related to vaccine development to solve the immunological problems
55MBT104.5	Implications of immunological research and applications, including auto immunity, immunotherapy, transplantation etc.

Semester II

Course Code:	55MBT201
Course Title:	Industrial Enzymes and Its Application
Course Outcomes:	
55MBT201.1	Develop a comprehensive understanding of enzymology, encompassing enzyme structure, function, and classification.
55MBT201.2	Students will demonstrate a comprehensive understanding of enzyme kinetics, including factors affecting enzyme activity, substrate specificity, and inhibition.
55MBT201.3	Acquire proficiency in selecting, designing, and implementing industrial enzymes for specific biotechnological processes.
55MBT201.4	Attain proficiency in various immobilization techniques such as adsorption, entrapment, covalent binding, and encapsulation, enabling students to select and apply suitable methods.
55MBT201.5	Develop expertise in identifying, designing, and implementing enzymes for diverse applications in industries like food, pharmaceuticals, biofuels, and environmental biotechnology.



Course Code:	55MBT203
Course Title:	Bioprocess Equipment Design
Course Outcomes:	
55MBT203.1	Illustrate the terminologies associated with bioprocessing and its equipment
55MBT203.2	Explain the importance of microbes and mutants in bioprocessing
55MBT203.3	Interpretate the different kinds of sterilization process on the basis of its kinetics
55MBT203.4	Analyze the difference between heat and mass transfer
55MBT203.5	Evaluate the rheological properties & Design Downstream processing for various kinds of products

Course Code:	55MBT204
Course Title:	Research Methodology and Biostatistics
Course Outcomes:	
55MBT204.1	Development of skills with essentials research methods through various tools available for scientific research.
55MBT204.2	Development of critical thinking skills for evaluating scientific literature and identifying research problems
55MBT204.3	Proficiency in communicating research findings through various written forms.
55MBT204.4	Acquire proficiency in fundamental statistical concepts, methods, and techniques relevant to biostatistics
55MBT204.5	Apply statistical methods to analyze biological data sets, interpret results, and draw meaningful conclusions

Course Code:	55MBT205-B1
Course Title:	Food Process Engineering
Course Outcomes:	
55MBT205-B1.1	Explain advanced concepts and principles of food processing engineering
55MBT205-B1.2	Describe and demonstrate freezing engineering properties of food
55MBT205-B1.3	Describe and demonstrate drying engineering properties of food
55MBT205-B1.4	Define working principle of various techniques used in food preservation methods
55MBT205-B1.5	Differentiate and interpretate the working mechanisms of various unit operations used in food industries



Course Code:	55MBT205.1
Course Title:	Bioinformatics and Molecular Modeling
Course Outcomes:	
55MBT205-B1.1	Learning computational skills to examine biological information
55MBT205-B1.2	Learning and developing computational tools for analysis of large biological data
55MBT205-B1.3	Learn about machine learning and statistical tools to construct models from large existing datasets
55MBT205-B1.4	Analyze the molecular modeling and with specification of protein structure modeling and molecular docking studies.
55MBT205-B1.5	Learning computational skills to examine biological information

Course Code:	55MBT206
Course Title:	Tissue Culture and Stem Cell Engineering (Elective-2) (Group A)
Course Outcomes:	
55MBT206.1	To understand the principles and techniques of tissue culture media preparation and laboratory practices.
55MBT206.2	To understand the historical development and key techniques in plant tissue culture research.
55MBT206.3	To understand the comprehensive knowledge of history, techniques, and applications in animal cell culture.
55MBT206.4	To develop a comprehensive understanding of stem cell biology, including their properties, techniques, and applications.
55MBT206.5	To develop a comprehensive understanding of tissue engineering & regenerative medicines approaches for reconstructing various tissues & organs, as well as the underlying mechanisms of cancer development and progression.



Course Code:	55MBT202
Course Title:	Entrepreneurship and Bioethics
Course Outcomes:	
55MBT202.1	To educate about various societal, governance and regulatory issues in biotechnology.
55MBT202.2	To educate about entrepreneurial skill attainment in customer development, customer validation, competitive analysis of the real-world problems and projects and market survey.
55MBT202.3	To build managerial capacity in value creation through company formation, intellectual property licensing of biopharmaceutical products
55MBT202.4	To raise awareness about the ethical implications and safety rules in biopharma and GMO production management
55MBT202.5	Evaluate applications and ethical concern in Entrepreneurship and Bioethics

Course Code:	55MBT206.2
Course Title:	Dairy Technology
Course Outcomes:	
55MBT206.2.1	Understand the concept of management, organization, planning, staffing.
55MBT206.2.2	Understand the importance of Directing and controlling, leadership styles, Communication, Coordination and Controlling.
55MBT206.2.3	Understand the role of entrepreneurs in economic development, and barriers, Identification of business opportunities, feasibility studies
55MBT206.2.4	Understand the contents of project report, ERP and project
55MBT206.2.5	Understand Ethics and institutional support in entrepreneurship, Case Study of Entrepreneurs



Semester III

Course Code:	55MBT301-A
Course Title:	Quality Control Management in Biotechnology
Course Outcomes:	
55MBT301-A.1	Explain the various terminologies associated with quality control measures used in biotech industries
55MBT301-A.2	Describe the biotech-based safety labels, regulations and acts associated with it
55MBT301-A.3	Elaborate the role of Quality assurance in biotech-based industries
55MBT301-A.4	Define the management and organizational structure designed for biotech industries
55MBT301-A.5	Interpretate the Quality management reports by ensuring the role of quality by design

Course Code:	55MBT301-B
Course Title:	Quality Control Management in Food Technology and Industry
Course Outcomes:	
55MBT301-B.1	Explain the various terminologies associated with quality control measures used in food industries
55MBT301-B.2	Describe the food safety labels, regulations and acts associated with it
55MBT301-B.3	Elaborate the role of Quality assurance in food-based industries
55MBT301-B.4	Define the management and organizational structure designed for food industries
55MBT301-B.5	Differentiate among food packaging regulations, norms and materials

Course Code:	55MBT302
Course Title:	Waste Management
Course Outcomes:	
55MBT302.1	Identify different strategies of Waste treatment and its management
55MBT302.2	Apply technical methods to get best out of waste
55MBT302.3	Analyze various equipment used in anaerobic waste treatment
55MBT302.4	Design effective strategies to implement metabolic flux to determine metabolic pathways
55MBT302.5	Describe, design and develop systematic approach to remediate waste using technical advancement

**Semester IV**

Course Code:	55MBT451
Course Title:	Project, Dissertation and Training
Course Outcomes:	
55MBT451.1	Analyze complex biotechnological problems by applying advanced theoretical and practical knowledge.
55MBT451.2	Evaluate current research literature to identify gaps and propose innovative solutions in biotechnology.
55MBT451.3	Design and implement experimental protocols to address specific biotechnological research questions.
55MBT451.4	Synthesize and interpret experimental data to draw meaningful conclusions and contribute to the field.
55MBT451.5	Communicate research findings effectively through written dissertations and oral presentations to diverse audiences.



Programme:

B.Tech. Biotechnology Duration: 4 Years

Semester-I

Course Code:	98BT101/98BT101-L
Course Title:	Biology for Engineers
Course Outcomes:	
98BT101.1	Understand the basic idea of cell organization, classification of living organism and nomenclature and biodiversity covered in the unit.
98BT101.2	Explain morphology, anatomy and function of different parts of flowering plants and emphasis on plant physiology
98BT101.3	Understand about the human physiology with emphasis on various organ systems of human body.
98BT101.4	Differentiate the male and female reproductive system and know about sexually transmitted diseases
98BT101.5	Compose the understanding of fundamentals of immunology and Origin of life and mechanism of evolution.

Course Code:	98ME104
Course Title:	Basic Mechanical Engineering and Manufacturing Process
Course Outcomes:	
98ME104.1	Acquiring knowledge of materials and their properties for engineering applications
98ME104.2	Understand casting and forming principles, ability to select processes, analyze defects, and optimize production for efficient manufacturing.
98ME104.3.	Acquiring knowledge of working of lathe machine and drilling machine and welding process
98ME104.4	Enhancement of fundamental knowledge of Thermodynamics. Demonstrate various types of boilers and their relative merits and demerits. Define the fundamental of IC engine.
98ME104.5	Explain stress, strain and their relationship with different material.



Course Code:	98BT106/98BT106-L
Course Title:	Introduction To Biotechnology
Course Outcomes:	
98BT106.1	Familiarization with the basic concepts, ideas and scope of Biotechnology.
98BT106.2	Understand concepts of cell structure, Biomolecules and microbial culture techniques.
98BT106.3	Acquired Skills of the various methods and processes used to create recombinant DNA molecules and its application.
98BT106.4	Recognize various methods related to tissue culture for improvement in plants and animals.
98BT106.5	Explore application of Biotechnology for improvement and development of novel characters in living organisms.

Course Code:	98BT101/98BT101-L
Course Title:	Biology for Engineers
Course Outcomes:	
98BT101.1	Understand the basic idea of cell organization, classification of living organism and nomenclature and biodiversity covered in the unit.
98BT101.2	Explain morphology, anatomy and function of different parts of flowering plants and emphasis on plant physiology
98BT101.3	Understand about the human physiology with emphasis on various organ systems of human body.
98BT101.4	Differentiate the male and female reproductive system and know about sexually transmitted diseases
98BT101.5	Compose the understanding of fundamentals of immunology and Origin of life and mechanism of evolution.



Course Code:	98ME104-L
Course Title:	Basic Mechanical Engineering and Manufacturing Process
Course Outcomes:	
98ME104.1	Acquiring knowledge of materials and their properties for engineering applications
98ME104.2	Understand casting and forming principles, ability to select processes, analyze defects, and optimize production for efficient manufacturing.
98ME104.3.	Acquiring knowledge of working of lathe machine and drilling machine and welding process
98ME104.4	Enhancement of fundamental knowledge of Thermodynamics. Demonstrate various types of boilers and their relative merits and demerits. Define the fundamental of IC engine .
98ME104.5	Explain stress, strain and their relationship with different material.

Course Code:	98BT106/98BT106-L
Course Title:	Introduction To Biotechnology
Course Outcomes:	
98BT106.1	Familiarization with the basic concepts, ideas and scope of Biotechnology.
98BT106.2	Understand concepts of cell structure, Biomolecules and microbial culture techniques.
98BT106.3	Acquired Skills of the various methods and processes used to create recombinant DNA molecules and its application.
98BT106.4	Recognize various methods related to tissue culture for improvement in plants and animals.
98BT106.5	Explore application of Biotechnology for improvement and development of novel characters in living organisms.



Course Code:	98CH152/98CH152-L
Course Title:	Engineering Chemistry
Course Outcomes:	
98CH152.1	Apply VSEPR theory to predict the three-dimensional shapes of molecules.
98CH152.2	Describe the concept of symmetry, chirality and optical activity and synthesize chiral drug molecule.
98CH152.3	Explain and apply the concept of Intermolecular forces, Hydrogen bond, and transition metal complexes.
98CH152.4	Predict the concept of thermodynamics, free energy & entropy and apply Nernst equation, water chemistry as well as explain concept of acid-base, metallurgy, Emf cell and corrosion.
98CH152.5	Collectively aim to equip students with a comprehensive understanding of the theoretical principles, practical methodologies, and diverse applications of various spectroscopic techniques

Course Code:	HSMCO1
Course Title:	Communication Skill
Course Outcomes:	
HSMC01.1	Recall basic communication principles and terminology used in effective communication.
HSMC01.2	Explain the importance of non-verbal cues and active listening in effective communication.
HSMC01.3	Demonstrate basic communication techniques in various contexts, such as conversations and presentations.
HSMC01.4	Analyze different communication scenarios to identify barriers and potential improvements.
HSMC01.5	Evaluate personal communication styles and feedback to enhance overall communication effectiveness.



Course Code:	Sustainable Development Goals (SDGs)
Course Title:	VAC101
Course Outcomes:	
VAC101.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
VAC101.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
VAC101.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
VAC101.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
VAC101.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational programs and processes.

Course Code:	98ME151
Course Title:	Workshop Practice Lab
Course Outcomes:	
98ME151.1	Understand various production processes, selecting appropriate methods for different material, optimizing manufacturing efficiency and ensuring product quality.
98ME151.2	Acquired proficiency in using hand tools, understanding different types of fits and tolerances, interpreting engineering drawing and precision measurement techniques.
98ME151.3	Develop fundamental skills such as measuring, cutting and joining wood. Gain expertise in handling various carpentry tools and machinery.
98ME151.4	Appreciate and access the use of casting processes in manufacturing and understand the working of various casting processes.
98ME151.5	Analyze and access the importance of welding processes in manufacturing and apply knowledge to select appropriate welding process based on the type of industrial application.

**Semester-II**

Course Code:	Engineering Mathematics
Course Title:	98MS201
Course Outcomes:	
98MS201-A.1	Explain the basic concept of vectors and coordinate geometry
98MS201-A.2	Apply differentiation and integration in vector & scalar valued functions
98MS201-A.3	Classify and solve the ordinary differential equation with constant coefficients
98MS201-A.4	Explain the basic concept of Laplace Transforms
98MS201-A.5	Apply Basic numerical methods for finding roots differentiation and integration.

Course Code:	98EE208/98EE208-L
Course Title:	BEEE (Basic Electrical & Electronics Engineering)
Course Outcomes:	
98EE208.1	Recall the concepts of voltage, current, power and energy for different circuit elements. Apply the Kirchhoff laws to identify the node voltages and branch currents, apply different network theorems in the complex networks.
98EE208.2	Understand the concept of single phase and poly phase AC circuits and construct the phasor diagrams.
98EE208.3	Understand the basic operating principle, types, efficiency of Transformers.
98EE208.4	Design and analyze the different types of digital circuits.
98EE208.5	Understand and analyze the various types of semiconductor devices.



Course Code:	98PH203/98PH203-L
Course Title:	Engineering Physics
Course Outcomes:	
98PH203.1	Through this chapter students are brought to learn about historical development of optics, atomic physics and biomechanics to the modern concepts.
98PH203.2	Explain the concept of coherence and its importance in laser operation and optical fiber communication.
98PH203.3	Demonstrate proficiency in solving quantum mechanical problems using mathematical formalism, including operators, eigenvalues, and eigenvectors Phase & Group velocities and their relationship, Uncertainty principle with elementary proof and applications, Debroglie's concept of matter waves, Schrodinger's wave equation, (Time dependent and time independent), interpretation of wave function, eigen values and eigen functions & Compton's effect..
98PH203.4	Evaluate current research topics and advancements in solid-state physics and superconductivity, including high-temperature superconductors, topological superconductors, and quantum computing applications.
98PH203.5	Investigate the applications of nanotechnology in various fields, including electronics, nanorobotics, quantum computing, space energy, DNA manipulation, biomedical engineering, polymers, textiles, and nano composites.

Course Code:	98CA204
Course Title:	Fundamentals of computer & programming
Course Outcomes:	
98CA204.1.	Illustrate the terminologies associated with computing and its devices.
98CA204.2.	Explain the importance of C programming and characteristics of programming language.
98CA204.3.	Explain the importance of conditional statements and arithmetic programming in C language.
98CA204.4.	Explain the importance of C array and functions of programming in C language.
98CA204.5.	Acquire the basic and advanced knowledge of ms-word, ms-excel, ms-powerpoint.



Course Code:	98EV205
Course Title:	Ecology & Environmental Studies
Course Outcomes:	
98EV205.1	Learn about environment and Natural resources.
98EV205.2	Students will learn about natural resource, its importance and environmental impacts of human activities on natural resource.
98EV205.3	Gain knowledge about ecosystem & the conservation of biodiversity and its importance.
98EV205.4	Aware students about problems of environmental pollution, its impact on human and ecosystem and control measures.
98EV205.5	Apply the knowledge to resolve various social & environmental issues.

Course Code:	Engineering Drawing
Course Title:	98ME206
Course Outcomes:	
98ME206.1	Get introduced with Engineering Graphics and visual aspects of design.
98ME206.2	Know and use common drafting tools with the knowledge of drafting standards.
98ME206.3	Apply computer aided drafting techniques to represent line, surface or solid models in different Engineering viewpoints.
98ME206.4	Produce part models; carry out assembly operation and show working procedure of a designed project work using animation.
98ME206.5	To make the student understand the viewing perception of a solid object in Isometric and perspective Projection, Design modulation and simulation by Auto CAD

Course Code:	98BT207/98BT207-L
Course Title:	Biochemistry and Metabolism
Course Outcomes:	
98BT207.1.	Summarize concepts of cell biology
98BT207.2.	Explain the structure and function of biological molecules.
98BT207.3.	Analyze enzyme kinetic data and regulation of enzyme activity.
98BT207.4.	Identify the key molecules involved in regulation of metabolic pathways and disorders. Evaluate total generation and consumption of ATP in each metabolic pathway.
98BT207.5.	Understand the basic mechanisms of metabolic pathways.



Course Code:	IKS
Course Title:	Fundamentals of Indian Knowledge System
Course Outcomes:	
IKS.1	Understand Indian Civilization and Indian Knowledge Systems
IKS.2.	Students will have the ability to apply the knowledge gained about Indian Art, Literature and Religious Places
IKS.3.	Student will be able to understand the Ancient Science, Astronomy and Vedic Mathematics
IKS.4.	Understand the Engineering, Technology and Architecture
IKS.5.	Understand about the Life, Nature and Health

Semester-III

Course Code:	98BT301/98BT301-L
Course Title:	Computational Biology & Bioinformatics
Course Outcomes:	
98BT301.1	The unit will explain bioinformatics history, homology, and utilize sequence databases (EMBL, GENBANK, Entrez, Unigene).
98BT301.2	Analyze protein information from PDB, SWISS-PROT, and TREMBL databases, mastering their structures for effective utilization in research.
98BT301.3	Analyze protein information from PDB, SWISS-PROT, TREMBL databases, mastering their structures for effective utilization in research.
98BT301.4	Analyze evolutionary tree to understand evolutionary genetics
98BT301.5	Compare sequence alignment tools to predict structures & functions of gene, RNA and Proteins & Predict protein structures and its functional annotations through databases.

Course Code:	98BT302/98BT302-L
Course Title:	Principles of Microbiology
Course Outcomes:	
98BT302.1	Understand the different fields in microbiology.
98BT302.2	Understand the growth and control of microbes as well as different bacteriological techniques involved in microbiology.
98BT302.3	Acknowledged about the different types of microorganisms and their significance.
98BT302.4	How to interact microorganisms with higher organisms.
98BT302.5	Identify novel microbes by using standard operating procedures used in microbiology



Course Code:	98BT303
Course Title:	Biostatistics
Course Outcomes:	
98BT303.1	Describe the roles biostatistics serves in the discipline of public health.
98BT303.2	Apply basic statistical concepts commonly used in public health and Health Sciences
98BT303.3	Demonstrate basic analytical techniques to generate results
98BT303.4	Interpret results of commonly used statistical analyses in written summaries
98BT303.5	Demonstrate statistical reasoning skills accurately and contextually

Course Code:	98BT304/98BT304-L
Course Title:	Biophysical Tools and Techniques
Course Outcomes:	
98BT304.1	Familiarization with the basic concepts good laboratory practices, Quality Management and basic instrumentation.
98BT304.2	Acquired knowledge and technical Skills of advanced molecular biology Techniques.
98BT304.3	Equipped to comprehend the fundamentals of Chromatography Techniques and its application.
98BT304.4	Recognize various methods related to Electrophoresis and its applications.
98BT304.5	Explore role of centrifugation and physical methods of imaging of biological molecules.

Course Code:	98BT305
Course Title:	Entrepreneurship Development
Course Outcomes:	
98BT305.1	Understand basic aspects of establishing a business in a competitive environment.
98BT305.2	Apply the basic understanding to examine the existing business ventures.
98BT305.3	Examine various business considerations such as marketing, financial and teaming etc.
98BT305.4	Assessing strategies for planning a business venture
98BT305.5	Create business ideas that can drive the innovative society



Course Code:	98BT306
Course Title:	Fluid Mechanics
Course Outcomes:	
98BT306.1.	Understand fundamental properties of fluids and their practical significance.
98BT306.2.	Comprehension of fluid motion, kinematics, and various types of fluid flow dynamics
98BT306.3.	Apply Bernoulli's equation and related principles to solve fluid dynamics problems.
98BT306.4.	Demonstrate proficiency in material and energy balance calculations in unit operations
98BT306.5.	Proficiency in Process Equipment Operation, Optimization, and Power Consumption Analysis.

Semester-IV

Course Code:	98BT401
Course Title:	Molecular Biology
Course Outcomes:	
98BT401.1	Understand the composition, structure and characteristics of nucleic acids.
98BT401.2.	Understand molecular phenomena of DNA copying and transmission of information, its damage and repair mechanism.
98BT401.3.	Students are able to understand the chemical and molecular processes that occur in and between cells.
98BT401.4	Gain knowledge about the protein synthesis mechanism and its localization in and between the cells.
98BT401.5	The regulation of gene function, respond to environment and associated phenomena.

Course Code:	98BT402
Course Title:	Biochemical Engineering
Course Outcomes:	
98BT402.1.	Examine and demonstrate the mechanism of Cellular Metabolism and Kinetics
98BT402.2.	Discuss the role of Energy Balance in bioprocessing
98BT402.3.	Comprehend & distinguish among the working mechanism of Heat transfer
98BT402.4	Interpretate the mechanism of Biochemical Kinetics
98BT402.5.	Examine and demonstrate the mechanism of Cellular Metabolism and Kinetics



Course Code:	98BT403
Course Title:	Genetic Engineering and Molecular Diagnostics
Course Outcomes:	
98BT403.1	Understand the basic structure of DNA and RNA, modes of DNA replication and its damage and repair mechanism.
98BT403.2	Understand the chemical and molecular processes that occur in and between cells.
98BT403.3	Gain knowledge about the protein synthesis mechanism and regulation of gene expression in prokaryotes.
98BT403.4	Demonstrate an understanding of basic molecular diagnostic techniques.
98BT403.5	Apply molecular diagnostic techniques to the identification and diagnosis of diseases.

Course Code:	98BT404
Course Title:	Immunology and Immune Technology
Course Outcomes:	
98BT404.1	Explain immune system, including its organs, cells, and receptors, will be covered in class.
98BT404.2	Comprehensive understanding of innate immunity and the cell types involved.
98BT404.3	Understand the structure and operation of antibodies.
98BT404.4	Describe molecular foundations of antigen recognition, hypersensitivity reactions, and antigen-antibody interactions will be thoroughly understood by the students.
98BT404.5	Understanding of the fundamentals of immunology and how it can be used to treat diseases of humans as a result of the course.

Course Code:	98BT404
Course Title:	Biosafety, Bioethics and IPRs
Course Outcomes:	
98BT404.1	Familiarization with the basic concepts, key principles and regulations of biosafety in biotechnological research.
98BT404.2	Acquired Skills to analyze and address ethical, legal, and socioeconomic, health and safety implications of biotechnology
98BT404.3	Equipped to comprehend the fundamentals of IPRs, including the legal frameworks and laws.
98BT404.4	Recognize various methods related to patents and the patenting process law and regulations in India
98BT404.5	Explore role of regulatory framework for recombinant DNA research, Biotechnology and food safety laws.



Course Code:	98BT405
Course Title:	Industrial Fermentation
Course Outcomes:	
98BT405.1	Describe the fundamentals of Industrial Microbiology and Fermentation Technology
98BT405.2	Define the role of microbiology for the production of desired bio products
98BT405.3	Elaborate the working mechanism of upstream and downstream processing
98BT405.4	Interpretate the mechanism of fermentation process in industry
98BT405.5	Examine the mechanism of biological product development using microbes

Semester- V

Course Code:	98BT501/98BT501-L
Course Title:	Plant Biotechnology
Course Outcomes:	
98BT501.1	Explain fundamentals of Plant Biotechnology
98BT501.2	Define the role of tissue culture media and its constituents in micro propagation of ex- plants
98BT501.3	Understand the working mechanism of callus culture
98BT501.4	Interpretate the mechanism of plant-based vector and plasmids
98BT501.5	Examine and demonstrate the mechanism of product purification

Course Code:	98BT502/98BT502-L
Course Title:	Enzyme Engineering and Technology
Course Outcomes:	
98BT502.1	Familiarization with the basic concepts, key principles and mechanism of actions of enzymes.
98BT502.2	Acquired Skills to analyze and address mechanism of single substrate, bi substrate and multi substrate enzyme kinetics.
98BT502.3	Equipped to comprehend the fundamentals of enzyme inhibition and protein ligand binding.
98BT502.4	Recognize various methods related to enzyme immobilization, enzyme extraction and purification.
98BT502.5	Explore role of enzyme engineering and protein engineering and its diverse applications.



Course Code:	98BT503/98BT503-L
Course Title:	Animal Biotechnology
Course Outcomes:	
98BT503.1	Explain about fundamentals of animal biotechnology and define the role of tissue culture media and their constituents.
98BT503.2	Understand the role of different cell lines in animal cell culture.
98BT503.3	Analyse about cell cloning and cell selection process and analysis of cytotoxicity and viability of cells.
98BT503.4	Interpret the method of monoclonal antibody production and its application.
98BT503.5	Describe the recent research in the field of animal biotechnology.

Course Code:	98BT504/98BT504-L
Course Title:	Distillates and Fermentation Technology
Course Outcomes:	
98BT504.1	Describe the fundamentals of Industrial Microbiology and Fermentation Technology
98BT504.2	Define the role of microbiology for the production of desired bio products
98BT504.3	Derive the working mechanism of upstream and downstream processing
98BT504.4	Interpretate the mechanism of fermentation process in industry
98BT504.5	Examine the mechanism of biological product development using microbes

Course Code:	98BT505/98BT505-L
Course Title:	Bio separations
Course Outcomes:	
98BT505.1	Describe the fundamentals of Industrial Microbiology and Fermentation Technology
98BT505.2	Define the role of microbiology for the production of desired bio products
98BT505.3	Elaborate the working mechanism of upstream and downstream processing
98BT505.4	Interpretate the mechanism of fermentation process in industry
98BT505.5	Examine the mechanism of biological product development using microbes



Course Code:	98BT506-A/98BT506-A-L
Course Title:	Nanotechnology and Engineering
Course Outcomes:	
98BT506-A.1	Explain fundamentals of Nanotechnology
98BT506-A.2	Define the role of biotechnology in nanoscience
98BT506-A.3	Comprehend the working mechanism of nanoparticles in cancer treatment
98BT506-A.4	Interpretate the mechanism of drug delivery and designing
98BT506-A.5	Examine the mechanism of Nano-sensors & demonstrate the significance of biosensors in industries.

Course Code:	98BT506-B/98BT506-B-L
Course Title:	Pharmaceutical Biotechnology
Course Outcomes:	
98BT506-B.1	Understand the role of biotechnology in drug discovery, development, and production, including recombinant DNA technology and biopharmaceutical Manufacturing.
98BT506-B.2	Extend practical skills in laboratory techniques and methods used in producing, Purifying, and analyzing pharmaceutical biotechnology products.
98BT506-B.3	Evaluate knowledge of regulatory frameworks and quality control practices Specific to pharmaceutical biotechnology.
98BT506-B.4	Understand the application of biotechnology in the pharmaceutical industry. Apply regulatory aspects, ethical considerations, and safety requirements Associated with pharmaceutical biotechnology.
98BT506-B.5	Apply the knowledge of GLP and GMP in the Pharmaceutical laboratory.

Course Code:	98BT506-C/98BT506-C-L
Course Title:	Molecular Modeling Drug Designing
Course Outcomes:	
98BT506-C.1	Explain the various stages of drug discovery
98BT506-C.2	Define the concept of receptor and ligand binding
98BT506-C.3	Describe physicochemical Properties and the techniques involved in QSAR
98BT506-C.4	Learn introduction to Bioinformatics and Cheminformatics
98BT506-C.5	Learn methods in molecular and quantum mechanics and Explain various structure- based drug design methods.



Semester- VI

Course Code:	98BT607/98BT607-L
Course Title:	Advance Bioanalytical Techniques
Course Outcomes:	
98BT607.1	Proficient in employing various microscopy techniques for detailed sample analysis and understand the principles behind high-throughput screening methods,
98BT607.2	Grasp sequencing technology evolution and gain proficiency in diverse genomics research applications.
98BT607.3	Understand a diverse range of spectroscopic techniques, enhancing their analytical capabilities across scientific disciplines.
98BT607.4	Develop expertise in chromatographic techniques, specifically GCMS and LCMS, enabling precise separation and analysis of complex mixtures in various fields
98BT607.5	Interpret flow cytometry fundamentals, including fluorochromes, experimental design, and fluorescence quantitation. They will also learn electrophoresis techniques

Course Code:	98BT602/98BT602-L
Course Title:	Metabolic Engineering
Course Outcomes:	
98BT602.1	Explain the basic principles and fundamentals of metabolic engineering
98BT602.2	Discuss the role of comprehensive cellular reaction models
98BT602.3	Design and describe metabolic flux analysis to determine metabolic pathway utilization
98BT602.4	Design effective strategies to implement metabolic flux to determine metabolic pathways
98BT602.5	Describe combinatorial metabolic engineering strategies to illustrate metabolic control analysis

Course Code:	98BT603/98BT603-L
Course Title:	Bioreactor Design
Course Outcomes:	
98BT603.1	Illustrate the terminologies associated with bioreactor engineering
98BT603.2	Explain the kinetics and mechanism of various types of reactors
98BT603.3	Interpretate the different experimental data on reaction rate related to reactor engineering principles
98BT603.4	Analyze the Transfer of Heat and Mass with its kinetics
98BT603.5	Evaluate & Design numerical values for development of heterogeneous reaction



Course Code:	98BT604/98BT604-L
Course Title:	Waste Treatment
Course Outcomes:	
98BT604.1	Identify different strategies of Waste treatment and its management
98BT604.2	Apply technical methods to get best out of waste
98BT604.3	Analyze various equipment used in anaerobic waste treatment
98BT604.4	Design effective strategies to implement waste management
98BT604.5	Describe, design and develop systematic approach to remediate waste using technical advancement

Course Code:	98BT606-A
Course Title:	Food Biotechnology
Course Outcomes:	
98BT606-A.1	Explain fundamental principles of food science and chemistry
98BT606-A.2	Outline beneficial and harmful effects of microorganisms.
98BT606-A.3	Identify microbes for development of functional food
98BT606-A.4	Examine methods that increase shelf life and food quality
98BT606-A.5	Compare the microbes on the basis of their morphological characteristics

Course Code:	98BT606-B/98BT606-B-L
Course Title:	Vaccine Biotechnology
Course Outcomes:	
98BT606-B.1	Explain fundamental principles of vaccine science and its role in biotechnology
98BT606-B.2	Outline the effects of Vaccine over immunity
98BT606-B.3	Identify novel strategies for vaccine design and preservation
98BT606-B.4	Examine methods to test the concentration of vaccine
98BT606-B.5	Predict, Design and Compare different vaccines the basis of its production

Course Code:	98BT606-C
Course Title:	Bio programming and Soft Computing Techniques
Course Outcomes:	
98BT606-C.1	Understand about the Biocomputing methods, principles and practices.
98BT606-C.2	Outline the advanced genomics, transcriptomic and proteomics methods
98BT606-C.3	Apply web-based methods and tools for simulation of biological problems
98BT606-C.4	Analyze vaccine designing and protein-ligand interactions for drug discovery
98BT606-C.5	Compare various databases and software's used in Bio-computing



Course Code:	98BT605
Course Title:	Genomics and Proteomics
Course Outcomes:	
98BT605.1	Understand about the fundamentals of genomics and proteomics
98BT605.2	Outline the next-generation sequencing techniques
98BT605.3	Apply analytical approach to identify protein structures
98BT605.4	Analyze vaccine designing and protein-ligand interactions for drug discovery
98BT605.5	Compare various databases and software used in proteomics

Semester- VII

Course Code:	98BT701
Course Title:	Stem Cell and Tissue Engineering
Course Outcomes:	
98BT701.1	Explain about fundamentals of tissue engineering and define the role in stem cell research.
98BT701.2	Analyze about the biomaterials for tissue engineering.
98BT701.3	Understand the biological study of different cell types.
98BT701.4	Understand the principle and practice of gene therapy.
98BT701.5	Analyze about the development of artificial tissues by tissue engineering.

Course Code:	98BT702/98BT702-L
Course Title:	Bioprocess Engineering and Unit Operation
Course Outcomes:	
98BT702.1	Recall the basic fundamentals of bioprocess engineering
98BT702.2	Explain the production process of industrial fermented products
98BT702.3	Apply unit operations to isolate biological products using bioprocessing
98BT702.4	Analyse the purity of products isolated through unit operations
98BT702.5	Evaluate & Design numerical values for development of biomass and product formation by downstream processing



Course Code:	98BT703/98BT703-L
Course Title:	Proteomics & Protein Engineering
Course Outcomes:	
98BT703.1	Explain the classification and construction of proteins
98BT703.2	Analyze and compare the amino acid sequences and structures of proteins and relate this information to function
98BT703.3	Modify a protein purification scheme to a specific application
98BT703.4	Understand the different systems of recombinant protein expression with Advantages and disadvantages of each one.
98BT703.5	Comprehend the difficulties in working with proteomics compare to genomics

Course Code:	98BT704 -A
Course Title:	Biofuels and Bioenergy
Course Outcomes:	
98BT704.A1	Understand the different generations of biofuels and discuss the steps involve in their production.
98BT704.A2	Compare different energy based, starch-based crops for the production of biofuel
98BT704.A3	Explain the role of bioleaching in metallurgy
98BT704.A4	Identify the types of resources and their application in day-to-day life
98BT704.A5	Develop the prototype of the Microbial Fuel Cell and demonstrate its working principle

Course Code:	98BT704 -B
Course Title:	Bioremediation
Course Outcomes:	
98BT704.B1	Identify the different types of bioremediation techniques, mechanism and microbes for bioremediation
98BT704.B2	Differentiate criteria of types of bioremediations and its detail process
98BT704.B3	Evaluate the roles Bio sorption & Bioleaching and phytoremediation
98BT704.B4	Use of Bioremediation of phenols, cyanides, dyes, understand biodegradation through pathway engineering
98BT704.B5	Case study and demonstration of bioremediation plan for industrial waste



Course Code:	98BT704 -C
Course Title:	Metagenomics
Course Outcomes:	
98BT704.C1	Conduct appropriate quality control and decontamination of metagenomics data
98BT704.C2	Discuss and interpret phylogenetic tree construction models
98BT704.C3	Utilize protein databases and tools for analysis of annotated structures and functions
98BT704.C4	Apply relevant tools in the analysis of metagenomics data
98BT704.C5	Submit metagenomics data to online repositories for sharing and future analysis

Course Code:	98BT705
Course Title:	Research Methodology
Course Outcomes:	
98BT705.1	Explain essentials of research methodology through various tools available.
98BT705.2	Development of critical thinking for Evaluating literature and skills identifying research problems scientific
98BT705.3	Proficiency in communicating research findings through various written forms.
98BT705.4	Recognize various issues related to research ethics, data processing and integrity, research commercialization
98BT705.5	Proficiency in report writing, plagiarism rectification, making deliberations and presentation

Semester- VIII

Course Code:	98BT851
Course Title:	Project Work/Dissertation/Biotech industrial or Biotech in House Project or Biopreneurship / Bio Startups
Course Outcomes:	
98BT851.1	Recall fundamental biotechnology concepts and methodologies relevant to the project.
98BT851.2	Interpret and explain the principles and techniques applied in the biotechnology research project.
98BT851.3	Apply biotechnological tools and techniques to conduct experiments and solve research problems.
98BT851.4	Analyze experimental data to identify patterns, draw conclusions, and suggest improvements in the research process.
98BT851.5	Critically evaluate the outcomes of biotechnological experiments, assessing their validity and implications for future research.



Programme:

M.Sc. Biotechnology Duration: 2 Years

Semester I

Course Code:	52BT103
Course Title:	Advanced Biochemistry
Course Outcomes:	
52BT103.1	Understand the Structure, classification and the properties of Biomolecules.
52BT103.2	Extend biochemistry of amino acids and protein.
52BT103.3	Understanding of enzyme kinetics and immobilization techniques.
52BT103.4	To become familiar with fundamental Metabolic activity of carbohydrates and lipids.
52BT103.5	Apply the ideas and concept of bioenergetics and metabolism.

Course Code:	52BT102
Course Title:	Microbial Technology
Course Outcomes:	
52BT102.1	Able to Recognize and evaluate the major groups of microorganisms; classification, diversity, and ubiquity
52BT102.2	Identify and show the structural, physiological, and genetic similarities and differences of the main categories of microorganisms.
52BT102.3	Analyze parameters to control microbial growth
52BT102.4	Can able to assess interactions between microbes, hosts, and environment
52BT102.5	Microbial diversity assessment employs culture-dependent and culture-independent methods, each with distinct merits and demerits, including culture-dependent methods' specificity and culture-independent methods' broader

Course Code:	52BT104
Course Title:	Biostatistics and Computer Application
Course Outcomes:	
52BT104.1	Acquire proficiency in fundamental statistical concepts, methods, and techniques relevant to biostatistics
52BT104.2	Apply statistical methods to analyze biological data sets, interpret results, and draw meaningful conclusions
52BT104.3	Acquire the basic and advances knowledge of COMPUTER and its characteristics
52BT104.4	Acquire the basic and advances knowledge of C programming, and HTML programming



52BT104.5	Acquire the basic and advances knowledge of MS WORD, MS EXCEL,MS POWERPOINT
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Course Code:	52BT105
Course Title:	Molecular Biology
Course Outcomes:	
52BT105.1	Understand molecular phenomena of DNA copying and transmission of information, its damage and repair mechanism
52BT105.2	Students are being able to understand mechanism of synthesis of RNA molecules from DNA and its processing
52BT105.3	Molecular basis of biological activity in and between cells including protein synthesis, modification and interaction
52BT105.4	The regulation of gene function, respond to environment and associated phenomena
52BT105.5	Recognize various transposable element in DNA, advances in molecular activity such as antisense technology, genome mapping.

Course Code:	52BT101
Course Title:	Cell structure and dynamics
Course Outcomes:	
52BT101.1	An overview of cells and cell research.
52BT101.2	Acquired the knowledge regarding detailed structure of cell and its function.
52BT101.3	Gain an understanding of the various types of cell surface transport and cellular interactions.
52BT101	Elucidate the detailed concept of cell signaling and its regulation.
52BT101	To understand the cellular development in various living organism and the knowledge about cancer in detail.

Course Code:	52BT106
Course Title:	Bio analytical Tools and Techniques
Course Outcomes:	
52BT106.1	Recognize the finer points of microscopy
52BT106.2	Recognize the differences between colorimetry, fluorescence, and UV visible spectroscopy
52BT106.3	Calculate the Rf value from a chromatogram to study paper, ion exchange, and affinity chromatography apart
52BT106.4	Understand the working principle and application of electrophoresis
52BT106.5	Learn the essential ideas behind centrifugation and electrophoresis and use them in real-world situations

Semester II



Course Code:	52BT201
Course Title:	Immunology
Course Outcomes:	
52BT201.1	The immune system, including its organs, cells, and receptors, will be covered in class.
52BT201.2	Comprehensive understanding of innate immunity and the cell types involved.
52BT201.3	Understand the structure and operation of antibodies.
52BT201.4	The molecular foundations of antigen recognition, hypersensitivity reactions, and antigen-antibody interactions will be thoroughly understood by the Students.
52BT201.5	The student gains an understanding of the fundamentals of immunology and How it can be used to treat diseases of humans as a result of the course.

Course Code:	52BT202
Course Title:	Computational Biology & Bioinformatics
Course Outcomes:	
52BT202.1	Acquire knowledge about a strong foundation in interdisciplinary sciences such as Computer Sciences and Biological Sciences.
52BT202.2	Address the challenges arising from the huge amount of genomic data.
52BT202.3	Analyze the corresponding drug responses towards appropriate drug specified dosages.
52BT202.4	Explore the EST database and protein databases to acquire knowledge about the protein structure.
52BT202.5	To gain information about biochemical and molecular mechanics information regards to proteins.

Course Code:	52BT204
Course Title:	Animal Biotechnology
Course Outcomes:	
52BT204.1	Recognize and understand the basics of animal cell culture
52BT204.2	Have a thorough understanding of the organ culture, tissue engineering and monoclonal antibodies
52BT204.3	Establish professional abilities in cell cloning and transgenic technologies
52BT204.4	Apply and analyze use of animal husbandry, aqua culture for commercial purpose
52BT204.5	Evaluate applications and ethical concern in animal biotechnology



Course Code:	52BT205
Course Title:	Industrial Microbiology
Course Outcomes:	
52BT205.1	Describe the fundamentals of Industrial Microbiology and Fermentation Technology
52BT205.2	Define the role of microbiology for the production of desired bio products
52BT205.3	Derive the working mechanism of upstream and downstream processing
52BT205.4	Interpret the mechanism of fermentation process in industry
52BT205.5	Examine the mechanism of biological product development using microbes

Course Code:	52BT206
Course Title:	Plant Biotechnology
Course Outcomes:	
52BT206.1	Familiarization with the basic needs and lab layout for conducting investigations with plant cell cultures.
52BT206.2	Development of critical skills for generation of tissue culture raised plantlets and applies protoplast fusion for production of hybrids.
52BT206.3	Acquired Skills of the various methods and processes used to create recombinant plants.
52BT206.4	Recognize various methods related to genetic profiling of plants and analyze the techniques for improvement in plants.
52BT206.5	Explore application of transgenic plants for improvement and development of novel characters in plants.

Course Code:	52BT207
Course Title:	Stem Cell & Tissue Engineering
Course Outcomes:	
52BT207.1	Understand the basics of stem cells.
52BT207.2	Discuss the properties of embryonic stem cells, including their various cell types.
52BT207.3	Understand the concept of adult stem cells.
52BT207.4	Comprehend the roles of stem cells in drug discovery & tissue engineering including their applications, & cell protection strategies.
52BT207.5	Analyze the role of stem cells in gene therapy and cloning & addressing to various diseases.



Course Code:	52BT305-B
Course Title:	Pharmaceutical Biotechnology
Course Outcomes:	
52BT305-B.1	Understand the role of biotechnology in drug discovery, development, and production, including recombinant DNA technology and biopharmaceutical manufacturing.
52BT305-B.2	Extend practical skills in laboratory techniques and methods used in producing, purifying, and analyzing pharmaceutical biotechnology products.
52BT305-B.3	Evaluate knowledge of regulatory frameworks and quality control practices specific to pharmaceutical biotechnology.
52BT305-B.4	Understand the application of biotechnology in the pharmaceutical industry. Apply regulatory aspects, ethical considerations, and safety requirements associated with pharmaceutical biotechnology.
52BT305-B.5	Apply the knowledge of GLP and GMP in the Pharmaceutical laboratory.

Course Code:	52BT302
Course Title:	Genetic Engineering & Bio nanotechnology
Course Outcomes:	
52BT302.1	Understanding the basic steps of gene cloning and the role of enzymes and vectors responsible for gene manipulation, transformation and genetic engineering
52BT302.2	Selection of expression strategies for heterologous gene- expression in bacteria, yeast, insects, and in mammalian cells
52BT302.3	Acquiring theoretical knowledge in the techniques, tools, application and safety measures of genetic engineering and gene therapy.
52BT302.4	Studying the basics of nanotechnology, synthesis, characterization of nanoparticles
52BT302.5	Applications of bio nanotechnology in medicine, agriculture and the environment

Course Code:	52BT305-A
Course Title:	Design and Operation of Bioreactor
Course Outcomes:	
52BT305-A.1	Recall the basic fundamentals of Design and Operation of Bioreactor
52BT305-A.2	Explain the production process of industrial fermented products
52BT305-A.3	Apply unit operations to isolate biological products using bioprocessing
52BT305-A.4	Analyze the purity of products isolated through unit operations
52BT305-A.5	Evaluate & Design numerical values for development of biomass and product formation by downstream processing



Course Code:	52BT306-A
Course Title:	Downstream Processing
Course Outcomes:	
52BT306-A.1	Illustrate the basic mechanism of Downstream processing
52BT306-A.2	Discuss the role of Downstream processing in bioprocessing
52BT306-A.3	Comprehend & distinguish among the working mechanism of unit operators used in Downstream processing
52BT306-A.4	Interpretate the mechanism of isolation of products through analytical methods
52BT306-A.5	Examine and demonstrate the mechanism of product purification

Course Code:	52BT306-B
Course Title:	Vaccine Biotechnology and Drug Action
Course Outcomes:	
52BT306-B.1	Explain fundamental principles of vaccine science and its role in biotechnology
52BT306-B.2	Outline the effects of Vaccine over immunity
52BT306-B.3	Identify novel strategies for vaccine design and preservation
52BT306-B.4	Examine methods to test the concentration of vaccine
52BT306-B.5	Predict, Design and Compare different vaccines the basis of its production

Course Code:	52BT305-C
Course Title:	Bimolecular Modelling and Drug Designing
Course Outcomes:	
52BT305-C.1	Students will gain a thorough understanding of the underlying principles and theories of bio programming and soft computing techniques.
-52BT305-C.2	Students will acquire practical skills in implementing and applying programming and soft computing techniques to solve complex computational problems.
52BT305-C.3	Students will be able to analyze and evaluate the effectiveness and efficiency of bio programming and soft computing techniques in different application scenarios.
52BT305-C.4	Explore the principles and applications of soft computing techniques including Hidden Markov Models, Artificial Neural Networks, Support Vector Machines, and Genetic Algorithms in the field of Bioinformatics.
52BT305-C.5	Gain foundational knowledge in Visual Basic, including client/server technology, data types, strings, constants, arrays, looping, interactive statements, functions, control and procedure management, as well as database connectivity



Course Code:	52BT304
Course Title:	Scientific Writing and Patenting Process
Course Outcomes:	
52BT304.1	Students are being knowledgeable with essentials of scientific writing and research methods through various tools available for scientific research.
52BT304.2	Development of critical thinking skills for evaluating scientific literature and identifying research problems
52BT304.3	Proficiency in communicating research findings through various written forms.
52BT304.4	Recognize various issues related to RDT research and analyze the regulatory frameworks, law and legislations related to biotechnological research.
52BT304.5	Understanding of patenting process, laws, and drafting patent applications.

Course Code:	53BT301
Course Title:	Environmental Biotechnology
Course Outcomes:	
53BT301.1.	Explain basic concepts and components of environment.
53BT301.2	Explain waste treatment and recycling of waste
53BT301 3	Understand the role of bioremediation in cleaning of waste from environment and know about monitoring environment.
53BT301.4	Interpret ate the mechanism of biodegradation and energy production
53BT301.5.	Learn about environmental protection act and examine various global environmental problems.

Course Code:	52BT303
Course Title:	Agriculture Biotechnology
Course Outcomes:	
52BT303.1	An overview of Biotechnology in agriculture.
52BT303.2	Acquired the knowledge regarding transgenes is and genetic engineering.
52BT303.3	Gain an understanding of herbicide resistance crops and different types of bio fertilizers and its importance and characteristics.
52BT303.4	Elucidate the detailed role of various microbes in the field of agriculture.
52BT303.5	Elaborate the mechanism of metabolic engineering in plants.



Course Code:	52BT306-C
Course Title:	Bio programming and Soft Computing Techniques
Course Outcomes:	
52BT306-C.1	Students will gain a thorough understanding of the underlying principles and theories of bio programming and soft computing techniques
52BT306-C.2	To develop students' skills in applying bio programming and soft computing techniques to solve computational problems.
52BT306-C.3	To explore the potential applications of bio programming and soft computing techniques in various domains.
52BT306-C.4	To learn and practice soft computing technique and algorithm with its uses in bioinformatics.
52BT306-C.5	To recite the visual basic and data array labelling in biological sciences.

Semester IV

Course Code:	52BT451
Course Title:	6 Months Project work/ Dissertation
Course Outcomes:	
52BT451.1	Analyze complex biotechnological data to draw informed conclusions and drive research initiatives.
52BT451.2	Evaluate contemporary biotechnological research to identify knowledge gaps and propose innovative methodologies.
52BT451.3	Design and execute experimental protocols to investigate specific biotechnological questions.
52BT451.4	Synthesize research findings to generate new insights and advancements in biotechnology.
52BT451.5	Communicate research outcomes effectively through comprehensive written dissertations and professional presentations.



Programme:

M.Sc. Microbiology Duration: 2 Years

Semester I

Course Code:	56MB101
Course Title:	General Microbiology
Course Outcomes:	
56MB101.1	Elucidate the fundamentals of Microbiology
56MB101.2	Differentiate the various morphological aspects in the domain microorganisms
56MB101.3	Recognize the nutritional factors and mechanisms in microorganisms
56MB101.4	Differentiate between the Prokaryotic and Eukaryotic cellular system
56MB101.5	Analyze the staining and screening techniques for different microorganisms

Course Code:	56MB102
Course Title:	Microbial Diversity and Taxonomy
Course Outcomes:	
56MB102.1	To learn and understand the fundamental concepts, principles of ecology and microbial diversity
56MB102.2	To expand the knowledge of many microbiological approaches to overcome challenges in study of various extremophiles like Thermophiles and Methanogens
56MB102.3	To understand the life under low and high pH conditions
56MB102.4	To study the various aspects of Halophiles and Basophiles
56MB102.5	To explore various methods and experiments to detect life in space

Course Code:	56MB103
Course Title:	Advanced Biochemistry
Course Outcomes:	
56MB103.1	Understanding of the components of biological systems, significant functional groups, pH and buffers, and proteins
56MB103.2	Learning in-depth information regarding the composition and characteristics of numerous categories of carbohydrates
56MB103.3	Recognize various concepts related the structure, characteristics, function and biological role of nucleic acids and central dogma
56MB103.4	Assess various concepts related the structure, characteristics, function and biological role of different types of lipids
56MB103.5	Appraise the relationship between principles molecular transport, cell junction and cell signaling in Cell and Cellular components



Course Code:	56MB105
Course Title:	Bioinformatics and biostatistics
Course Outcomes:	
56MB105.1	Comprehend the components, ideas, and various computer kinds, as well as the operating system, computer viruses, and computer network
56MB105.2	Receive hands-on instruction in a variety of computer programs and their uses
56MB105.3	Phylogenetic analysis, alignment types, and primer construction
56MB105.4	Descriptive statistics, correlation, regression, and ANOVA with practical regression- based exercises.
56MB105.5	Apply biostatistics to fundamental issues and gauges of central tendency, Statistical software and survival analysis.

Course Code:	56MB106
Course Title:	Bioinstrumentation
Course Outcomes:	
56MB106.1	Recognize various microscope types and prepare specimens properly.
56MB106.2	Students are being knowledgeable with all bioanalytical techniques including chromatography
56MB106.3	Evaluate the techniques used to find out some information from biological samples by using electrophoresis
56MB106.4	Understand and analyze principle instrumentation, types, and applications of spectroscopy
56MB106.5	Understand and analyze principle instrumentation, types, and applications of centrifugation and radioisotope techniques

Course Code:	56MB104
Course Title:	Microbial Genetics and Molecular Biology
Course Outcomes:	
56MB104.1	Understand the structural and functional organization of genome and molecular bases of mutation in gene.
56MB104.2	Students are being knowledgeable with the nucleic acid structure, replication, damage and repair mechanism
56MB104.3	Students have been able to understand mechanism of synthesis of RNA molecules from DNA and its transcriptional modification
56MB104.4	Understand the molecular concept of genetic code, protein synthesis and process involved in post translational modification and protein targeting
56MB104.5	Understand the regulation of gene function and associated phenomena both in prokaryotic and eukaryotic organisms.

Semester II



Course Code:	52BT102
Course Title:	Microbial Technology
Course Outcomes:	
52BT102.1	Able to Recognize and evaluate the major groups of microorganisms; classification, diversity, and ubiquity
52BT102.2	Identify and show the structural, physiological, and genetic similarities and differences of the main categories of microorganisms.
52BT102.3	Analyze parameters to control microbial growth.
52BT102.4	Can able to assess interactions between microbes, hosts, and environment
52BT102.5	Microbial diversity assessment employs culture-dependent and culture-independent methods, each with distinct merits and demerits, including culture-dependent methods' specificity and culture-independent methods' broader

Course Code:	56MB202
Course Title:	Enzyme Technology
Course Outcomes:	
56MB202.1	Familiarization with the structure, functions, and mechanism of action of enzymes, as well as the kinetics of enzyme-catalyzed processes and the mechanisms by which enzymes are inhibited.
56MB202.2	Development of critical skills for microbial sources for screening of enzymes and different categories of enzyme assays.
56MB202.3	Acquired Skills of microbial enzyme isolation and purification for their potential future usage.
56MB202.4	Recognize various methods for characterization of enzyme isolated from different sources.
56MB202.5	Explore application of microbial enzymes for improvement and development of novel products.

Course Code:	56MB206
Course Title:	Genetic Engineering and Genomics
Course Outcomes:	
56MB206.1	Understanding the basic steps of gene cloning and the role of enzymes and vectors responsible for gene manipulation, transformation and genetic engineering
56MB206.2	Getting detailed knowledge of identifying suitable hosts for cloning and learning gene libraries
56MB206.3	Acquiring theoretical knowledge in the techniques, tools, application of genetic engineering
56MB206.4	Describes the genome mapping and sequencing and methods and DNA fingerprinting



56MB206.5	Evaluate applications of recombinant technology in Medicine, agriculture and other fields
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Course Code:	56MB204
Course Title:	Environmental Microbiology
Course Outcomes:	
56MB204.1	Understand background knowledge and scope of microbial ecology, microbial interaction, population ecology and regulation
56MB204.2	Acquire knowledge about Microbiology of air and to explain the significance of Air micro flora
56MB204.3	Student will able to understand the microbiology of soil and process and application of bioleaching
56MB204.4	understand the microbiology of water and learn about the different methods of water analysis and water borne diseases and their control measures
56MB204.5	Learn about Microbiology of waste water and different waste water treatment techniques and physiology, morphology, biochemistry of microbial biofilms

Course Code:	56MB201
Course Title:	Microbial Physiology
Course Outcomes:	
56MB201.1	Understand the basic concepts of metabolism and Bioenergetics
56MB201.2	Extend metabolic pathways of Carbohydrate metabolism and fermentation
56MB201.3	Understanding photosynthesis and lipid metabolism
56MB201.4	To become familiar with the Metabolism of amino acids and nucleic acid
56MB201.5	Apply the ideas and concept of Nitrogen metabolism

Course Code:	56MB205
Course Title:	Recent Trends in Virology and Mycology
Course Outcomes:	
56MB205.1	Interpret the complex interactions between viruses and host cells and the relationships between viruses
56MB205.2	perform various virus cultivation and isolation and identification techniques
56MB205.3	Correlation among various plant viruses and animal viruses and vectors and their role in disease development
56MB205.4	Relate different types of viral growth curves and growth patterns by different examples of viruses and bacteriophages
56MB205.5	compare various classes of fungi, specific culture media for growth and role and relationship of fungi in the environment



Course Code:	56MB203
Course Title:	Immunology
Course Outcomes:	
56MB203.1	Understand the essential ideas and immune system cells
56MB203.2	Know the fundamentals of immunoglobulins, antigens, and their classifications
56MB203.3	In-depth study about the action of immune responses and their regulations
56MB203.4	Discuss about the various immunodeficiency related diseases and functionality of immune system
56MB203.5	Recognize the various immunization techniques as well as the various vaccinations

Semester III

Course Code:	56MB302
Course Title:	Food and Dairy Microbiology
Course Outcomes:	
56MB302.1	An overview of food microbiology
56MB302.2	Acquire knowledge regarding food spoilage and contamination
56MB302.3	Gain an understanding of food preservation and food fermentations
56MB302.4	Elucidate the detailed methods of food sanitation and water portability
56MB302.5	Elaborate the production of genetically modified food, food laws and quality control

Course Code:	56MB301
Course Title:	Medical Microbiology
Course Outcomes:	
56MB301.1	Understand the classification of medically significant microorganisms and the relevance of the normal microbial flora.
56MB301.2	Recognize the methods of disease transmission
56MB301.3	Be familiar with the principles underlying various serological techniques for identifying and quantifying illnesses.
56MB301.4	Learn about virology, mycology, and medical microbiology
56MB301.5	Understand dermatophytes, Histoplasma, Cryptococcus, Candida, opportunistic mycoses, and mycotoxins



Course Code:	56MB303
Course Title:	Industrial Microbiology and Fermentation
Course Outcomes:	
56MB303.1	Describe the fundamentals of Industrial Microbiology and Fermentation Technology
56MB303.2	Define the role of microbiology for the production of desired bio products
56MB303.3	Derive the working mechanism of upstream and downstream processing
56MB303.4	Interpret at the mechanism of fermentation process in industry
56MB303.5	Examine the mechanism of biological product development using microbes

Course Code:	56MB304
Course Title:	Pharmaceutical microbiology
Course Outcomes:	
56MB304.1	To study the various classes of antimicrobial agents with special reference to their introduction, chemical structure MOA, etc.
56MB304.2	To understand the microbial pathogenicity and also study the modern concept of drug targeting
56MB304.3	To learn the microbial production of Pharmaceutics along with spoilage of pharmaceutics and various methods to protect them against spoilage
56MB304.4	To elaborate the modern trends in pharmaceutical microbiology like drug carriers, Immobilization techniques, Vaccines, Biosensors etc.
56MB304.5	To study various standards and principles to assure quality of the pharmaceutical products.

Course Code:	56MB306
Course Title:	Scientific Writing and Patenting Process
Course Outcomes:	
56MB306.1	Students are being knowledgeable with essentials of scientific writing and research methods through various tools available for scientific research.
56MB306.2	Development of critical thinking skills for evaluating scientific literature and identifying research problems
56MB306.3	Proficiency in communicating research findings through various written forms.
56MB306.4	Recognize various issues related to RDT research and analyze the regulatory frameworks, law and legislations related to biotechnological research.
56MB306.5	Understanding of patenting process, laws, and drafting patent applications.



Course Code:	56MB305
Course Title:	Clinical Diagnosis of Microorganisms
Course Outcomes:	
56MB305.1	Importance of diagnosis of diseases and associated clinical samples for diagnosis.
56MB305.2	Clinical samples and Master pure culture practices.
56MB305.3	Learnt the fundamentals of diagnostic procedures and use disease diagnosis kits
56MB305.4	Understand Serological and Molecular Methods.
56MB305.5	Understand Rapid Detection of Pathogens such as Typhoid, Dengue & Blood group.

Semester IV

Course Code:	56MB451
Course Title:	Project, Dissertation and Training
Course Outcomes:	
56MB451.1	Analyze microbial data and research studies to identify patterns and infer conclusions.
56MB451.2	Evaluate and analyze scientific literature to enhance understanding of microbiological concepts.
56MB451.3	Design and execute experiments to investigate microbial processes and phenomena.
56MB451.4	Synthesize research findings to contribute original insights to the field of microbiology.
56MB451.5	Communicate complex microbiological research clearly through written and oral presentations.



Programme B.Sc. (Hons.) Biotechnology

Semester-I

Course Code:	01BT101
Course Title:	Cell Structure & Introduction to Biotechnology
Course Outcomes:	
01BT101.1:	Students will demonstrate a thorough understanding of cell, cell theory, cell types, biological membranes and cytoskeleton
01BT101.2	Students will exhibit proficiency in drawing and explaining ultra-structure of Endoplasmic reticulum and Ribosome.
01BT101.3	Evaluate the roles cell division, cell cycle and cell signaling.
01BT101.4	Students will exhibit mastery of Biotechnology and know about the Applications of Biotechnology for human welfare.
01BT101.5	Illustrate recombinant DNA technology, stem cell technology and characteristics and molecular basis of cancer

Course Code:	02MB101
Course Title:	Basics of Microbiology
Course Outcomes:	
02MB101.1	Understand the role and significance of normal micro flora in the human body and recognize various nosocomial infections and their implications.
02MB101.2	Describe the morphology, pathogenesis, and symptoms of major gram-positive bacterial infections such as those caused by S. aureus and M. tuberculosis.
02MB101.3	Explain the morphology, pathogenesis, and symptoms of key gram-negative bacterial pathogens, including E. coli and N. gonorrhoea.
02MB101.4	Identify the major viral pathogens, including Picornaviruses and Retroviruses, and understand their disease mechanisms and symptoms.
02MB101.5	Recognize the morphology and clinical manifestations of significant fungal and protozoan infections, such as Dermatophytes and Malaria.



Course Code:	02BC101
Course Title:	General Biochemistry
Course Outcomes:	
02BC101.1	Understanding of the components of biological systems, significant functional groups, pH and buffers, and proteins.
02BC101.2	Learning in-depth information regarding the composition and characteristics of numerous categories of carbohydrates.
02BC101.3	Recognize various concepts related the structure, characteristics, function and biological role of nucleic acids and central dogma.
02BC101.4	Assess various concepts related the structure, characteristics, function and biological role of different types of lipids.
02BC101.5	Appraise the relationship between principles molecular transport, cell junction and cell signaling in Cell and Cellular components.

Course Code:	03MB101
Course Title:	Basics of Microbiology
Course Outcomes:	
03MB101.1	Understand the role and significance of normal micro flora in the human body and recognize various nosocomial infections and their implications.
03MB101.2	Describe the morphology, pathogenesis, and symptoms of major gram-positive bacterial infections such as those caused by <i>S. aureus</i> and <i>M. tuberculosis</i> .
03MB101.3	Explain the morphology, pathogenesis, and symptoms of key gram-negative bacteria pathogens, including <i>E. coli</i> and <i>N. gonorrhoeae</i> .
03MB101.4	Identify the major viral pathogens, including Picornaviruses and Retroviruses, and understand their disease mechanisms and symptoms.
03MB101.5	Recognize the morphology and clinical manifestations of significant fungal and protozoan infections, such as Dermatophytoses and Malaria.

Course Code:	03BC101
Course Title:	General Biochemistry
Course Outcomes:	
03BC101.1	Understanding of the components of biological systems, significant functional groups, pH and buffers, and proteins.
03BC101.2	Learning in-depth information regarding the composition and characteristics of numerous categories of carbohydrates.
03BC101.3	Recognize various concepts related the structure, characteristics, function and biological role of nucleic acids and central dogma.
03BC101.4	Assess various concepts related the structure, characteristics, function and biological role of different types of lipids.



03BC101.5	Appraise the relationship between principles molecular transport, cell junction and cell signaling in Cell and Cellular components.
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Course Code:	0SSD101
Course Title:	English Language
Course Outcomes:	
0SSD101.1	To enhance the Speaking Skills of the students in such a way where they will be able to communicate effectively with immense self confidence in themselves
0SSD101.2	To develop the leadership skills, public speaking skills and social skills in students along with the basic knowledge of how to make an impressive Resume.
0SSD101.3	To improve the presentation skills of the students that plays a pivotal role in building and shaping the career of the students
0SSD101.4	To focus on improving the fundamental grammar of the students in order to bring accuracy while speaking and writing.
0SSD101.5	To make them aware of the Indian Culture and English Language by imbibing the dramas and poetry of some famous Indian English Writers

Course Code:	0SSD102
Course Title:	Sustainable Development Goals
Course Outcomes:	
0SSD102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
0SSD102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
0SSD102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
0SSD102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
0SSD102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable Development in educational programs and processes.



Semester-II

Course Code:	01BT201
Course Title:	Molecular biology and diagnostic techniques
Course Outcomes:	
01BT201.1	Understand the basic structure of DNA and RNA, modes of DNA replication and its damage and repair mechanism.
01BT201.2	Students are able to understand the chemical and molecular processes that occur in and between cells.
01BT201.3	Gain knowledge about the protein synthesis mechanism and regulation of gene expression in prokaryotes.
01BT201.4	Demonstrate an understanding of basic molecular diagnostic techniques.
01BT201.5	Apply molecular diagnostic techniques to the identification and diagnosis of diseases.

Course Code:	02MB201
Course Title:	Microbial Physiology
Course Outcomes:	
02MB201.1	Understand the nutritional requirements of microorganisms and classify them based on carbon, energy, and electron sources.
02MB201.2	Analyze growth curves and interpret mathematical expressions of microbial growth.
02MB201.3	explores microbial growth temperature ranges, classification, and adaptations, pH ranges, and adaptations, oxygen concentration effects.
02MB201.4	Understand the diversity of photosynthetic pigments and their roles in phototrophic metabolism.
02MB201.5	Understand the various pathways involved in microbial energetics and their significance in energy metabolism.

Course Code:	02BC201
Course Title:	Bioenergetics and Metabolism
Course Outcomes:	
02BC201.1	Understanding of the components of biological systems i.e. enzymes, vitamins and minerals
02BC201.2	Learning in-depth information regarding the Key elements of Bioenergetics and metabolism.
02BC201.3	Recognize various concepts related the carbohydrate metabolism and biological significance.
02BC201.4	Assess various concepts related the lipid, fatty acid and amino acid metabolism and its significance
02BC201.5	Appraise the relationship between purine and pyrimidine metabolism and its biological significance.



Course Code:	0IKS201
Course Title:	Indian Knowledge System
Course Outcomes:	
0IKS201.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
0IKS201.2	Students will have the ability to learn about ancient books, Religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
0IKS201.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
0IKS201.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
0IKS201.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Course Code:	0EVS202
Course Title:	Environmental Studies
Course Outcomes:	
0EVS202.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropogenic era
0EVS202.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make informed decisions.
0EVS202.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
0EVS202.4	To develop the critical thinking for shaping strategies such as; scientific, social, Economic, Administrative & legal. Environmental protection, conservation of biodiversity. Environmental equity and sustainable development.
0EVS202.5	To prepare for the competitive exams.



Semester-III

Course Code:	01BT301
Course Title:	Bioanalytical Tools and Techniques
Course Outcomes:	
01BT301.1	Recognize the finer points of microscopy.
01BT301.2	Recognize the differences between calorimetry, fluorescence, UV visible Spectroscopy and centrifugation.
01BT301.3	Calculate the Rf value from a chromatogram to study paper, ion exchange, And affinity chromatography apart.
01BT301.4	Understand the working principle and application of electrophoresis
01BT301.5	Learn the essential ideas behind the isolation of DNA and nanotechnology.

Course Code:	02MB301
Course Title:	Fermentation technology
Course Outcomes:	
02MB301.1	Define various modes and techniques of fermentation
02MB301.2	Differentiate and predict the suitability of the fermentation methods and vessels
02MB301.3	Identify and develop the microbial inoculums for industrial processing
02MB301.4	Interpretate the mechanism of fermentation process in industry
02MB301.5	Examine the mechanism of biological product development using microbes

Course Code:	02BC301
Course Title:	Clinical Biochemistry
Course Outcomes:	
02BC301.1	Proficiency in assessing fluid and electrolyte balance disorders in disease states, conducting function tests with clinical relevance.
02BC301.2	Learning in-depth information regarding the components of metabolic, endocrine, and nutritional disorders and their clinical implications
02BC301.3	Recognize various concepts of disease diagnosis, CSF chemistry, Detoxification, xenobiotic metabolism, metal toxicity, ageing, cancer, AIDS.
02BC301.4	Gain comprehensive assess of drug action mechanisms, apoptosis in cancer, and medical applications of radioisotopes.
02BC301.5	Achieve proficiency in managing disorders of mineral metabolism, trace elements, amino acids, steroids, vitamins, erythrocyte metabolism.



Course Code:	03MB301
Course Title:	Fermentation technology
Course Outcomes:	
03MB301.1	Define various modes and techniques of fermentation
03MB301.2	Differentiate and predict the suitability of the fermentation methods and vessels
03MB301.3	Identify and develop the microbial inoculums for industrial processing
03MB301.4	Interpretate the mechanism of fermentation process in industry
03MB301.5	Examine the mechanism of biological product development using microbes

Course Code:	03BC301
Course Title:	Clinical Biochemistry
Course Outcomes:	
03BC301.1	Proficiency in assessing fluid and electrolyte balance disorders in disease states, conducting function tests with clinical relevance.
03BC301.2	Learning in-depth information regarding the components of metabolic, endocrine, and nutritional disorders and their clinical implications
03BC301.3	Recognize various concepts of disease diagnosis, CSF chemistry, Detoxification, xenobiotic metabolism, metal toxicity, ageing, cancer, AIDS.
03BC301.4	Gain comprehensive assess of drug action mechanisms, apoptosis in cancer, and medical applications of radioisotopes.
03BC301.5	Achieve proficiency in managing disorders of mineral metabolism, trace elements, amino acids, steroids, vitamins, erythrocyte metabolism.

Course Code:	04BT301
Course Title:	Plant Tissue Culture Technology
Course Outcomes:	
04BT301.1	Proficiency in assessing principles of plant tissue culture, lab organization, media preparation, sterilization techniques, culture initiation.
04BT301.2	Learning in-depth information regarding plant tissue culture methods including callus culture, organogenesis, and embryo culture techniques.
04BT301.3	Explore protoplast isolation, culture, and somatic hybridization, selection of hybrids, cebids, soma clonal variation, mechanisms, and applications.
04BT301.4	Gain comprehensive assesses of haploid plant production methods, including anther culture, microspore culture, anthogenesis, and glycogenesis.
04BT301.5	Achieve proficiency in virus-free plant production, germplasm



	conservation, artificial seed preparation, PGPR and acclimatization,
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Semester-IV

Course Code:	01BT401
Course Title:	Genetics
Course Outcomes:	
01BT401.1	Students will comprehend the introduction to the genetics and essentiality of cell cycles and heredity
01BT401.2	Students will understand non-allelic genetic interactions and the organization of the eukaryotic nuclear genome and the functions of centromeres and telomeres
01BT401.3	Students will understand the genetic organization of prokaryotic and viral genomes, the structure and characteristics of bacterial and eukaryotic chromosomes, and the concepts of euchromatin, heterochromatin, gene structure, and genetic coding
01BT401.4	The outcome of this syllabus is a comprehensive understanding of genetic mutations, chromosomal structure variations, sex determination mechanisms, and their implications in inheritance and genetic disorders
01BT401.5	A deep understanding of genetic linkage, crossing over, chromosome mapping, extra chromosomal inheritance mechanisms, and evolutionary principles in population genetics

Course Code:	02MB401
Course Title:	Medical Microbiology
Course Outcomes:	
02MB401.1	Understand the fundamentals of microbial ecology and human microbiota
02MB401.2	Analyze the morphology, pathogenesis, and laboratory diagnosis of gram- positive bacterial infections
02MB401.3	Examine the characteristics and management of gram-negative bacterial infections
02MB401.4	Analyze the etiology and characteristics of viral infections
02MB401.5	Evaluate the clinical features and treatment of fungal and protozoan infections

Course Code:	02BC401
Course Title:	Enzymology
Course Outcomes:	
02BC401.1	Familiarization with the basic concepts, key principles and mechanism of actions of enzymes.



02BC401.2	Acquired Skills to analyze mechanism of single substrate enzyme catalyzed reaction and enzyme inhibition kinetics
02BC401.3	Equipped to comprehend the fundamentals of bi and multi substrate kinetics and enzyme catalysis
02BC401.4	Recognize various methods related to Protein Ligand binding enzyme immobilization and Protein engineering.
02BC401.5	Explore role of enzyme extraction and purification and diverse applications of enzymes in various fields.

Course Code:	03MB401
Course Title:	Medical Microbiology
Course Outcomes:	
03MB401.1	Understand the fundamentals of microbial ecology and human microbiota
03MB401.2	Analyze the morphology, pathogenesis, and laboratory diagnosis of gram- positive bacterial infections
03MB401.3	Examine the characteristics and management of gram-negative bacterial infections
03MB401.4	Analyze the etiology and characteristics of viral infections
03MB401.5	Evaluate the clinical features and treatment of fungal and protozoan infections

Course Code:	03BC401
Course Title:	Enzymology
Course Outcomes:	
03BC401.1	Familiarization with the basic concepts, key principles and mechanism of actions of enzymes.
03BC401.2	Acquired Skills to analyze mechanism of single substrate enzyme catalyzed reaction and enzyme inhibition kinetics
03BC401.3	Equipped to comprehend the fundamentals of bi and multi substrate kinetics and enzyme catalysis
03BC401.4	Recognize various methods related to Protein Ligand binding enzyme immobilization and Protein engineering.
03BC401.5	Explore role of enzyme extraction and purification and diverse applications of enzymes in various fields.

Course Code:	04BT401
Course Title:	Entrepreneurship Development
Course Outcomes:	
04BT401.1	Basic aspects of establishing a business in a competitive environment
04BT401.2	Apply the basic understanding to examine the existing business ventures



04BT401.3	Examine various business considerations such as marketing, financial and teaming etc.
04BT401.4	Assessing strategies for planning a business venture
04BT401.5	Create business ideas that can drive the innovative society

Course Code:	04BT402
Course Title:	Basics of Forensic Science
Course Outcomes:	
04BT402.1	Elucidate the overview of forensic science.
04BT402.2	Acquire knowledge regarding causes of crime and types of injuries.
04BT402.3	Applied knowledge about ballistics and handwriting examination.
04BT402.4	To gain the knowledge about toxicology and fingerprinting analysis.
04BT402.5	Elucidate the detailing of DNA fingerprinting and cyber security

Semester-V

Course Code:	01BT501
Course Title:	Genetic Engineering and Technology
Course Outcomes:	
01BT501.1	Understand the essential molecular tools to the genetic engineering
01BT501.2	Advance the principle and application of different genetic transforming techniques classifications
01BT501.3	Understand the need of genetic engineering to the animal technology
01BT501.4	Relative understanding of plant and animal biotechnology and their applications
01BT501.5	Basic principles and applications of various molecular techniques

Course Code:	05BT501
Course Title:	Environmental Biotechnology
Course Outcomes:	
05BT501.1	Explain the use and environmental impact of conventional and modern fuels,
05BT501.2	Understand the role of bioremediation in cleaning of waste from environment
05BT501.3	Interpretate the mechanism of biodegradation of pesticides and other toxic chemicals by micro-organisms
05BT501.4	Explain waste treatment of municipal waste and Industrial effluents and use and types of bio fertilizer and nitrogen fixation
05BT501.5	Learn about the process of bioleaching and environmental significance of genetically modified organisms



Course Code:	05BT502
Course Title:	Food Biotechnology
Course Outcomes:	
05BT502.1	Acquire a comprehensive understanding of the principles and applications of biotechnology in food production, processing, and safety.
05BT502.2	Develop skills in molecular techniques and genetic engineering relevant to improving food quality, nutrition, and sustainability
05BT502.3	Demonstrate proficiency in analyzing and evaluating the ethical, environmental, and regulatory aspects of food biotechnology
05BT502.4	Apply biotechnological innovations in developing novel food products and addressing global food security challenges
05BT502.5	Equipped to contribute to research and development in the field of food biotechnology, fostering advancements in food science and technology

Course Code:	04BT501
Course Title:	Biosafety, Bioethics and IPRs
Course Outcomes:	
04BT501.1	Familiarization with the basic concepts, key principles and regulations of biosafety in biotechnological research.
04BT501.2	Acquired Skills to analyze and address ethical, legal, and socioeconomic, health and safety implications of biotechnology
04BT501.3	Equipped to comprehend the fundamentals of IPRs, including the legal frameworks and laws.
04BT501.4	Recognize various methods related to patents and the patenting process law and regulations in India
04BT501.5	Explore role of regulatory framework for recombinant DNA research, Biotechnology and food safety laws.

Course Code:	04BT502
Course Title:	Yoga Science
Course Outcomes:	
04BT502.1	Demonstrate a comprehensive understanding of traditional yoga philosophy, including its principles and practices.
04BT502.2	acquire proficiency in various yoga asanas (postures) and pranayama (breathing exercises) to enhance physical and mental well-being
04BT502.3	develop the ability to lead and instruct yoga sessions effectively, fostering a safe and supportive environment
04BT502.4	gain insights into the holistic benefits of yoga, integrating its teachings into daily life for stress reduction and improved mindfulness
04BT502.5	equipped to promote health and wellness through the application of yoga science principles in diverse settings



semester-VI

Course Code:	01BT601
Course Title:	Immunology and Immune-technology
Course Outcomes:	
01BT601.1	Understand the essential of immune system cells to the organism
01BT601.2	Know the fundamentals of immunoglobulin's, antigens, and their classifications
01BT601.3	In-depth study about the action of immune responses and their regulations
01BT601.4	Elaborate the various immunodeficiency related diseases and functionality of immune system
01BT601.5	Recognize the various immunization techniques as well as the various vaccinations

Course Code:	05BT601
Course Title:	Animal Biotechnology
Course Outcomes:	
05BT601.1	To demonstrate the proficiency in animal biotechnology techniques and laboratory managements.
05BT601.2	To demonstrate the competence in animal cell culture techniques and bioprocessing.
05BT601.3	To understand the transgenesis and gene transfer methods in animals.
05BT601.4	To understand the animal propagation techniques and as well as the stem cellstechnology.
05BT601.5	To understand the genetic modification in medicine, gene therapy, and engineering technology.

Course Code:	05BT602
Course Title:	Agriculture Biotechnology
Course Outcomes:	
05BT602.1	Elucidate the overview of biotechnology in agriculture.
05BT602.2	Acquire knowledge regarding transgenes is and genetic engineering.
05BT602.3	Applied knowledge about trans genesis and transgenic technology.
05BT602.4	To gain the knowledge about bio pesticides and different types of bio fertilizers with its importance and characteristics.
05BT602.5	Elucidate the characteristics and anatomy of mushrooms.

Course Code:	05BT603
Course Title:	Nano Biotechnology



Course Outcomes:	
05BT603.1	Explain fundamentals of Nanotechnology
05BT603.2	Define the role of biotechnology in nanoscience
05BT603.3	To Comprehend the working mechanism of nanoparticles in Cancer treatment
05BT603.4	Interpretate the mechanism of drug delivery and nanoparticle-based designing
05BT603.5	To Examine the mechanism of nano-sensors & demonstrate the significance of biosensors in industries.

Course Code:	05BT604
Course Title:	Biostatistics
Course Outcomes:	
05BT604.1	Describe the roles biostatistics serves in the discipline of public health.
05BT604.2	Apply basic statistical concepts commonly used in public health and Health Sciences
05BT604.3	Demonstrate basic analytical techniques to generate results
05BT604.4	Interpret results of commonly used statistical analyses in written summaries
05BT604.5	Demonstrate statistical reasoning skills accurately and contextually

Semester-VII

Course Code:	01BT701
Course Title:	Computational Biology and Bioinformatics
Course Outcomes:	
01BT701.1	The unit will explain bioinformatics history, homology, and utilize sequence databases (EMBL, GENBANK, Entrez, Unigene).
01BT701.2	Explain Bioinformatics resources, computational tools and associated algorithms
01BT701.3	Analyze protein information from PDB, SWISS-PROT, TREMBL databases, mastering their structures for effective utilization in research.
01BT701.4	Analyze evolutionary tree to understand evolutionary genetics
01BT701.5	Compare sequence alignment tools to predict structures & functions of gene, RNA and Proteins& Predict protein structures and its functional annotation through databases

Course Code:	02RM701
Course Title:	Research Methodology
Course Outcomes:	
02RM701.1	Students are being knowledgeable with essentials of research methodology through various tools available.



02RM701.2	Development of critical thinking skills for evaluating scientific literature and identifying research problems.
02RM701.3	Proficiency in communicating research findings through various written forms.
02RM701.4	Recognize various issues related to research ethics, data processing and integrity, research commercialization.
02RM701.5	Proficiency in report writing, plagiarism rectification, making deliberations and presentation.

Course Code:	05BT701
Course Title:	Pharmaceutical Biotechnology
Course Outcomes:	
05BT701.1	Elucidate the fundamentals of antibiotics, chemical disinfectants, antiseptics and preservatives.
05BT701.2	Explain the mode of action of different antibiotic and non-antibiotic antimicrobial agents as well as drug targeting and drug delivery system
05BT701.3	Applied knowledge about microbial production and Spoilage of pharmaceutical Products and new vaccine technology
05BT701.4	Analyze the Government regulatory policies, biosensors and application of microbial enzymes in pharmaceuticals
05BT701.5	Evaluate Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP) and safety in microbiology laboratory.

Course Code:	05BT702
Course Title:	Stem Cell & Tissue Engineering
Course Outcomes:	
05BT702.1	To comprehend the fundamentals of stem cells, including their properties, and the technology behind stem cell therapy.
05BT702.2	To comprehend the isolation of embryonic stem cells, techniques, differentiation, and potential uses of stem cells in various medical conditions.
05BT702.3	To demonstrate a comprehensive understanding of tissue engineering, and the application of cell transplantation.
05BT702.4	To demonstrate a comprehensive understanding of biomaterials and their applications in tissue engineering.
05BT702.1	To demonstrate a comprehensive understanding of the principles and practices of gene therapy and its applications.

**Semester-VIII**

Course Code:	01BT801
Course Title:	Genomics and Proteomics
Course Outcomes:	
01BT801.1	Understand about the fundamentals of genomics and related techniques.
01BT801.2	Outline the next-generation sequencing techniques and bioinformatics tools used in genomic studies.
01BT801.3	Introduction of proteomics and various analytical approach to identify protein structures
01BT801.4	Understand 2D PAGE and its significance in proteomic studies.
01BT801.5	Mass spectrometry and its application in proteomics.

Course Code:	02BC801
Course Title:	Mammalian Physiology
Course Outcomes:	
02BC801.1	Elucidate the fundamentals of digestive system and respiratory system.
02BC801.2	Explain the mechanism of circulatory system and cardiac system in humans
02BC801.3	Elaborate the detailed knowledge about muscle physiology and muscle movement as well as excretory system.
02BC801.4	Analyze the Nervous system and endocrine systems in human body.
02BC801.5	Evaluate different types of endocrine glands and mode of action of various hormones.

Course Code:	02MB801
Course Title:	Bioprocess Engineering
Course Outcomes:	
02MB801.1	Define various modes and techniques of fermentation
02MB801.2	Differentiate and predict the suitability of the fermentation methods and vessels
02MB801.3	Identify and develop the microbial inoculum for industrial processing
02MB801.4	Interpretate the mechanism of fermentation process in industry
02MB801.5	Evaluate Good Laboratory Practices (GLP) and Good Manufacturing Practices (GMP) and safety in microbiology laboratory.



Course Code:	05BT702
Course Title:	Stem Cell & Tissue Engineering
Course Outcomes:	
05BT702.1	To comprehend the fundamentals of stem cells, including their properties, and the technology behind stem cell therapy.
05BT702.2	To comprehend the isolation of embryonic stem cells, techniques, differentiation, and potential uses of stem cells in various medical conditions.
05BT702.3	To demonstrate a comprehensive understanding of tissue engineering, and the application of cell transplantation.
05BT702.4	To demonstrate a comprehensive understanding of biomaterials and their applications in tissue engineering.
05BT702.1	To demonstrate a comprehensive understanding of the principles and practices of gene therapy and its applications.



Department of Environmental Studies



Programme: Ph.D.in Environmental Science

Course Work

Semester-I

CourseTitle:	Research Methodology
CourseCode:	151PH01
CourseTitle:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in Research methodology and applying them in research/ projectwork.
151PH01.2	The student will enable to collect the data, edit it properly and Analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

CourseTitle:	Advances in Environmental Sciences
CourseCode:	151EVS02
CourseTitle:	Advances in Environmental Sciences
Course Outcomes:	
151EVS02.1	Demonstrate a comprehensive understanding of cutting-edge concepts and theories in environmental science, including emerging technologies methodologies, and scientific advancements.
151EVS02.2	Apply advanced analytical techniques, such as remote sensing, GIS molecular biology, and environmental modeling, to analyze and solve complex environmental problems effectively.
151EVS02.3	Critically evaluate recent environmental research literature, identifying gaps strengths, and limitations to contribute to the advancement of knowledge in the field.



151EVS02.4	Design and propose innovative and sustainable solutions to environmental challenges, considering interdisciplinary approaches and integrating insights from multiple scientific disciplines.
151EVS02.5	Effectively communicate research findings, both orally and in writing, to diverse audiences including peers, stakeholders, and policymakers demonstrating clarity, coherence, and relevance in presenting scientific information.

Course Title:	Research and Publication Ethics
CourseCode:	151PH03
CourseTitle:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
151PH03.6	Develop a valid and ethical research report.

CourseTitle:	Review of Literature
CourseCode:	151PH11
CourseTitle:	Review of Literature
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Master of Science Environmental Science

M.Sc. Environmental Science

2 Year Degree Program

Semester-I

Course Code:	79EV101
Course Title:	Fundamental of Environmental Science
Course Outcomes:	
79EV 101.1	Know about goal of environmental education and environmental Regulatory authority of India..
79EV 101.2	Describe the interaction of organisms with their environment.
79EV 101.3	Identify the various threats & conservation strategy of biodiversity.
79EV 101.4	Explain the structure & functions of ecosystems.
79EV 101.5	Learn about population and community ecology.

Course Code:	79EV102
Course Title:	Natural Resources & Conservation
Course Outcomes:	
79EV 102.1	Identify various natural resources.
79EV 102.2	Gain knowledge conservation strategies of natural resources.
79EV 102.3	Analyze impact of overexploitation of natural resources.
79EV 102.4	Describe concept of sustainable development.
79EV 102.5	Get information about mineral resources.

Course Code:	79EV103
Course Title:	Environmental Pollution & control Technology
Course Outcomes:	
79EV 103.1	Identify various natural resources.



79EV 103.2	Gain knowledge conservation strategies of natural resources.
79EV 103.3	Analyze different soil samples.
79EV 103.4	Apply noise pollution control technology according to source.
79EV 103.5	Discuss the sources & effects of thermal and nuclear pollution.

Course Code:	79EV104
Course Title:	Environmental chemistry
Course Outcomes:	
79EV 104.1	Describe the various chemical processes occurring in the air, water and Soil.
79EV 104.2	Discuss the effect of hydrocarbons and synthetic compounds On biological organisms.
79EV 104.3	Explain the degradation of hydrocarbon and synthetic compounds.
79EV 104.4	Illustrate the working principle, merits and demerits of analytical Techniques.
79EV 104.5	Apply Green Chemistry for Sustainable Future.

Semester-II

Course Code:	79EV201
Course Title:	Energy and Environment
Course Outcomes:	
79EV201.1	Describe Energy audits for building.
79EV201.2	Explain energy efficient lighting technologies and its application in commercial and residential sectors.
79EV201.3	Describe Energy audits for building.
79EV201.4	Implement Energy storage technologies and Energy Auditing
79EV201.5	Learn the techniques of energy conservation.



Course Code:	79EV202
Course Title:	Waste Management
Course Outcomes:	
79EV202.1	Describe solid waste generation, composition and characterization.
79EV202.2	Analyze waste recycling, 3R technology and fly ash management system
79EV202.3	Understand the landfill design.
79EV202.4	Discuss monitoring and control of radiation pollution.
79EV202.5	Implement E-Waste management guidelines.

CourseCode:	79EV203
CourseTitle:	Environmental Instrumentation and Analytical Techniques
Course Outcomes:	
79EV203.1	Know basic principle of different instruments
79EV203.2	Apply sampling and analysis techniques of air and water quality.
79EV203.3	Learn applications of spectrophotometry, titrimetric etc.
79EV203.4	Use techniques of chromatography
79EV203.5	Implement advance technologies like electrophoresis autoradiography, ultracentrifugation etc.

Course Code:	79EV204
Course Title:	Remote Sensing and Geo-informatics
Course Outcomes:	
79EV204.1	Explain about Remote Sensing, Geographical Information System and Global Positioning System.
79EV204.2	Outline and interpret the elements of aerial photographs
79EV204.3	Describe principles and applications of thermal and microwave remote sensing.
79EV204.4	Differentiate GIS and science of map-making, non-spatial versus spatial data.
79EV204.5	Apply Remote Sensing & GIS Applications.

**Semester-III**

Course Code:	79EV301
Course Title:	Environmental Microbiology & Biotechnology
Course Outcomes:	
79EV301.1	Know about structure and classification of different microorganisms
79EV301.2	Learn the importance of microorganisms in nutrient cycling.
79EV301.3	Executing methods of culture preparation.
79EV301.4	Apply biotechnological approaches in abatement of pollution..
79EV301.5	Implementing biotechnology in wastewater treatment.

Course Code:	79EV302
Course Title:	Research Methods and Paper Writing
Course Outcomes:	
79EV302.1	Explain concept and methods of research
79EV302.2	Apply statistical analysis in research
79EV302.3	Select statistical methods for research
79EV302.4	Use MS office in data presentation.
79EV302.5	Know techniques of scientific paper

Course Code:	79EV303A
Course Title:	National Issues & Disaster Management
Course Outcomes:	
79EV303.1	Explain natural and manmade disaster and associated socio-economic Impact.
79EV303.2	Discuss key concepts, definitions and perspectives of disaster Management.
79EV303.3	Describe the Disaster Management Cycle.
79EV303.4	Implement planning for hazard mitigation.
79EV303.5	Know about social issues like child labor, child marriage etc.



Course Code:	79EV303B
Course Title:	Environmental Toxicology
Course Outcomes:	
79EV303.1	Discuss concept of toxins, toxicity and toxicology.
79EV303.2	Know toxicity assessment.
79EV303.3	Identify vector borne disease.
79EV303.4	Learn about industrial toxicology.
79EV303.5	Describe occupational health.

Course Code:	79EV304A
Course Title:	Environmental Laws, Policies and Ethics
Course Outcomes:	
79EV304.1	Explain fundamental concepts in environmental law and policy.
79EV304.2	Describe the main Environmental Law and Policy regime of the country.
79EV304.3	Outline various international environmental laws in incorporated into environmental policies of national and state governments
79EV304.4	Examine and analyses legal approaches to pollution control, Environmental planning and natural resource management.
79EV304.5	Relate implementation issues associated with environmental regulation and environmental regimes



Course Code:	79EV304B
Course Title:	Environmental Statistics and Modeling
Course Outcomes:	
79EV304.1	Develop an intuitive statistical sense for inferring meaning out of data collected from different environmental matrices
79EV304.2	Implement statistics for environmental monitoring and sampling
79EV304.3	Analyze, model and quantify uncertainty and variability in Environmental data
79EV304.4	Extract information and draw scientific inference from large amount Of data collected to solve environmental problems
79EV304.5	Apply statistical tools and software to analyze environmental data.

Semester- IV

Course Code:	79EV401
Course Title:	Industrial Safety & Hygiene
Course Outcomes:	
79EV401.1	Apply fundamentals of industrial safety.
79EV401.2	Know about acts and rules related to safety.
79EV401.3	Practice first aid during industrial accidents.
79EV401.4	Analyze risk reduction strategies.
79EV401.5	Implement industrial best practices.



Course Code:	79EV402
Course Title:	EIA & EMS
Course Outcomes:	
79EV402.1	Describe Scope of Environmental Impact Assessment and its Objectives.
79EV402.2	Discuss various approaches for various environmental impact studies.
79EV402.3	Illustrate various steps of Environmental Impact Assessment and its Methodologies.
79EV402.4	Construct Environmental Impact Assessment plan for Industrial projects.
79EV402.5	Learn Environmental Quality management.



Faculty of Social Science and Humanity



Department of Yoga



Programme – Ph.D. in yogic science

Course Code:	151YOG02
Course Title	Ph.D. in yoga (advances of yoga)
Course Outcomes:	
151YOG02.1	Students will be able to do research on philosophical areas.
151YOG02.2	Students will be able to do research in literary areas.
151YOG02.3	Students will be able to do research on the biographies of great yogis and their contribution areas.
151YOG02.4	A student will be able to conduct research on health and therapeutic areas.
151YOG02.5	Student will be able to research academic areas.

Course Code	151PH03
Course Title	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research.
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report
151PH03.6	Develop a valid and ethical research report.

Course Code	151PH01
Course Title	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research



Course Code	151PH11
Course Title	Review of LiteratureCourse Outcomes
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme
MA in yogic science (Yoga)
Semester -1

Course Code	70 YS101
Course Title	Insights into Indian philosophy
Course Outcome -	
70 YS101.1:	A student will able to differentiate about the Nyaya, Vaisesika & Samkhya philosophy
70 YS101.2:	A student will able to differentiate about Mimamasa (Purvaand Uttara) & Naastik philosophy.
70 YS101.3:	A student will able to discuss about the Introduction to Yoga darshanaof Patanjali and concept of Citta, citta bhoomis Citta vrittis and Citta vritti nirodhopaya
70 YS101.4:	A student will able to discuss the Samadhai, Sadhana, Vibhuti and Kaivalya Padain patanjala yoga .

Course Code	70 YS102
Course Title	Applications of Hatha Yoga and Patanjala Yoga
Course Outcome	
70 YS102.1:	A student will able to express about the Application of yoga in stressmanagement and personality development.
70 YS102.2:	A student will able to discuss the Application of Patanjala yogain Stress Management
70 YS102.3:	A student will able to discuss the Application of Hatha yoga and Patanjalayoga in sports
70 YS102.4:	A student will able to discuss the Application of Hatha yoga and Patanjalayoga for rehabilitation of Children with Special needs

Course Code	70 YS103
Course Title	Human biology
Course Outcome -	
70 YS103.1:	A student will able to discuss the introduction of human body with conceptof cells, tissues and their gross anatomy and physiology.
70 YS103.2:	A student will able to explain the concept of Skeletal System, their Types &Functions with gross anatomy and physiology.
70 YS103.3:	A student will able to identify the Muscular System: Concept, Types &Functions with gross anatomy and physiology.
70 YS103.4:	A student will able to express theRespiratory System: Concept, GrossAnatomy & Physiology, Types &Functions.
70 YS103.5:	A student will able to describe the Cardiovascular System: Concept,



	GrossAnatomy, Physiology, &Functions
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Course Code	70 MYS104
Course Title	Therapeutic Yoga
Course Details	
70 MYS104.1:	A student will able to discuss the Yogic concepts of health, stress and disease.
70 MYS104.2:	A student will able to explain the Preventive healthcare according to yoga.
70 MYS104.3:	A student will able to describe the Yoga for prevention of health.
70 MYS104.4:	A student will able to interpret the Psycho physiological effects of yoga evidences through modern research

Course Code	70 YS105
Course Title	Yoga and Strategic management
Course Outcome	
70 YS105.1:	A student will able to discuss the To appreciate the complexities ofmanaging a formal organization.
70 YS105.2:	A student will able to determinate to help develop analytical skills for identifying key strategic issues and formulating appropriate strategies given a firm's situation.
70 YS105.3:	A student will able to describe about the Understand and conceptualize the Indian ethos and need for holistic globalization
70 YS105.4:	A student will able to explain the Conceptualize the need for Indian modelsand significance.

Course Code	70 YS107
Course Title	Fundamentals of Yoga-
Course Outcome	
70 YS107.1:	A student will able to interpret the application of yoga and its use in modern age
70 YS107.2:	A student will able to explain the system of yoga.
70 YS107.3:	A student will able to describe Form of yoga in scripturetexts.
70 YS107.4:	A student will able to discuss the Introduction to Different Yogis life biography.
70 YS107.5:	A student will able to discuss the introduction of yoga texts



Course Code	70 YS152
Course Title	Yoga Practical-I
Course Outcome -	
70 YS152.1:	A students shall be able to understand the benefits, contraindications and procedure of all practices
70 YS152.2:	Students shall be able to Demonstrate each practice with confidence and skill.
70 YS152.3:	A students shall be able to Explain the procedure and subtle points involved
70 YS152.4:	A students shall be able to Teach the yoga practices to any given group.
70 YS152.5:	A students shall be able to pick the skill of cleansing process

Semester -2

Course Code	70YS201
Course Title	Application of Yoga Vasistha and Bhagavad Gita
Course Outcome -	
70YS201.1:	A student will able to describe the Application of Bhagavadgita in stress management. With Personality development
70YS201.2:	A student will able to describe the Application of Bhagavadgita for Sports personnel to control Nature of action, Performance, humility, tolerance, non- violence, cleanliness, and self- control.
70YS201.3:	A student will able to discuss the Application of Yoga Vasistha in stress Management
70YS201.4:	A student will able to explain the : Applications of Yoga Vasistha in Personality development

Course Code	70YS202
Course Title	Physiological Effect of Yoga practices
Course Outcome	
70YS202.1:	A student will be able to describe a deeper understanding of the Physiological changes that occur after the practice of yoga.
70YS202.2:	A student would be able to get a brief idea of the underlying mechanisms behind the potential benefits that result from the practice of yoga
70YS202.3:	A student will able to describe about an idea of muscles and nerve fibers stretched and Compressed, toned up during various yogic posture
70YS202.4:	A student will able to describe the To have an in-depth understanding about physiological benefits of Pranayama; NeuroPsychological locks in Mudras; Neuro Muscular locks in Bandhas.



Course Code	70 YS203
Course Title	Yoga, dietetics and nutrition
Course Outcome -	
70 YS203.1:	A student will able to discuss the basic concept and components of food and nutrition
70 YS203.2:	A student will able to identify about the food groups.
70 YS203.3:	A student will able to discuss about food and metabolism.
70 YS203.4:	A student will able to explain the yogic concept of diet & nutrition

Course Code	70 YS204
Course Title	Applied Psychology and Yogic Counseling.
Course Outcome -	
70 YS204.1:	A student will able to interpret about the Introduction to models of Psychopathology.
70 YS204.2.	A student will able to discuss the Case history taking and mental status examination.
70 YS204.3.	A student will able to interpret the Mental Disorders of Children and their treatment.
70 YS204.4.	A student will able to discuss about the Yogic counseling.

Course Code	70 YS205
Course Title	Research Methodology and Statistics
Course Outcome -	
70 YS205.1	A student will be able to be exposed to the basic theoretical concepts of conducting non-scientific research and motivate them to pursue higher research
70 YS205.2	A student will able to interpreted about the Have expose of the basic theoretical concepts of conducting scientific research and motivate them to pursue higher research
70 YS205.3	A student will able to interpreted Acquire basic understanding of Research methodology and knowledge of various statistical procedures
70 YS205.4	A student will able to interpreted the knowledge on tools employed to conduct research, ability to address the Contemporary problems in scientific way



Course Code	70 YS207
Course Title	Introduction to Ayurveda.
Course Outcome -	
70 YS207.1	- A student will able to describe the introduction of Ayurveda and its Origin, Meaning, Definition, Uses, History, Major Principles of Disease Diagnosis and Testing.
70 YS207.2	- A student will able to identify the General Introduction of Major Herbs, properties, Health Promotion and Medical Experiments.
70 YS207.3	A student will able to discuss the panchkarma.
70 YS207.4	- A student will able to identify the pradhan karma and various and introduction of diseases.

Course Code	70 YS251
Course Title	Yoga Practical-I(Contemporary Yoga Techniques)
Course Outcome -	
70 YS251.1:	A students shall be able to understand the benefits, contraindications and procedure of all practices
70 YS251.2:	A students shall be able to Demonstrate each practice with confidence and skill.
70 YS251.3:	A students shall be able to Explain the procedure and subtle points involved
70 YS251.4:	A students shall be able to Teach the yoga practices to any given group
70 YS251.5:	A students shall be able to pick the skill of cleansing process

Semester -3

Course Code	70 YS301
Course Title	Principal Upanishads
Course Outcome -	
70 YS301.1:	A student will able to discuss about the Introduction to Upanishads.
70 YS301.2:	A student will able to discuss the Tattva Mimansa in according of acharyas
70 YS301.3:	A student will able to describe the types of yoga and Yogatattva in Principal Upanishads.
70 YS301.4:	A student will able to describe the astang yoga and Yogatattva in Principal Upanishads.



Course Code	70 YS3O2
Course Title	Yoga in World Religions - Synthesis
Course Outcome -	
70 YS3O2.1:	A student will able to discuss about that the basic concepts and sadhana behind every religion is common for which Yoga provides a systematic elucidation
70 YS3O2.2:	- A student will able to discuss about To inculcate awareness that all the religions have common sadhanas of which Yoga is a grammar will help in synthesizing the world religions leading towards harmony and peace
70 YS3O2.3:	A student will able to explain about the introduction of Religions and their essence
70 YS3O2.4:	A student will able to describe about the Yoga in Jainism and Buddhism, Sufism and Islam, Christianity sadhna .

Course Code	70 YS3O3
Course Title	Human Consciousness
Course Outcome -	
70 YS3O3.1:	A student will able to interpret about the Introduction and Concept of Human Consciousness.
70 YS3O3.2:	- A student will able to discuss about the Philosophy and Science of Human Consciousness.
70 YS3O3.3:	A student will able to describe about the Various streams of Ancient Indian & Modern Sciences of human consciousness.
70 YS3O3.4:	A student will able to discriminate the Different Mysteries and Development of Human Consciousness.

Course Code	70 YS3O4
Course Title	Applications of Yoga & Teaching Methodology
Course Outcome -	
70 YS3O4.1:	A student will able to interpret about the introduction of yoga and its Features and of factors in Yoga Education.
70 YS3O4.2:	-A student will able to discuss about the Components of physical fitness and strength.
70 YS3O4.3:	A student will able to understand the Training ability of teaching yoga and develop the planning ability of yoga .
70 YS3O4.4:	A student will able to differentiate about the Teaching and learning-relationship
70 YS3O4.5:	A student will able to measure about the Rating of Ideal Yoga Classes, Adaptation Method of Yogic Class.



Course Code	70 YS3O5
Course Title	Naturopathy
Course Outcome -	
70 YS3O5.1:	A student will able to interpret about the Brief introduction and History of Naturopathy
70 YS3O5.2:	A student will able to discuss about the introduction hydrotherapy.
70 YS3O5.3:	A student will able to describe about the soil sun and air therapy.
70 YS3O5.4:	A student will able to interpret about the introduction Fasting therapy,
70 YS3O5.5:	A student will able to interpret about the introduction abhyanga and its history, Effects of abhyang on organs, methods-samanay aur gharshan.

Course Code	70 YS353
Course Title	Yoga Practical-I
Course Outcome -	
70 YS353.1:	A students shall be able to understand the benefits, contraindications and procedure of all practices
70 YS353.2:	Students shall be able to Demonstrate each practice with confidence and skill.
70 YS353.3:	A students shall be able to Explain the procedure and subtle points involved
70 YS353.4:	Students shall be able to Teach the yoga practices to any given group.
70 YS353.5:	A students shall be able to pick the skill of cleansing process

Course Code	70 YS351
Course Title	Field training-I
Course Outcome -	
70 YS351.1:	A students shall be able to Gain more practical knowledge about the Yoga practices and Texts
70 YS351.2:	A students shall be able to demonstrate the yoga practical in the field .
70 YS351.3:	Students will be able to involve themselves during practical yoga sessions.
70 YS351.4:	A Students will be able to use therapeutic and non-therapeutic yoga techniques among yoga trainees
70 YS351.5:	Students will be able to practice yoga and alternative medicine training and use it among people.



Semester -4

Course Code	70 YS401
Course Title	Yoga Shastra-I Brahma sutra & Viveka Chudamani
Course Outcome -	
70 YS401.1:	A students shall be able to Explain the Brief Introduction of Brahma sutra and its Brahma Jijnasa
70 YS401.2:	A students shall be able to explain the Brief Introduction of Viveka Chudamani, Importance of Tattvajnana
70 YS401.3:	A student will be able to separate Viveka Chudamani and its atmanirupana, anatmanirupana from the deeper jnanayoga yogic matter.
70 YS401.4:	A Students will be able to differentiate between Viveka Chudamani Brahma Nirupana and Brahma Bhavana

Course Code	70 YS402
Course Title	Yoga Shastra-II Samkhya Karika
Course Outcome -	
70 YS402.1:	Students shall be able to describe the Introduction to Samkhya Philosophy and Samkhya Karika.
70 YS402.2:	A students shall be able to Explain the Principles of Samkhya Karika.
70 YS402.3:	A students shall be able to discuss the- Introduction of Trayodashkaran.
70 YS402.4:	A students shall be able to Explain the Introduction to Sarga, Sharer..

Course Code	70 YS403
Course Title	YOGA UPANISHADS
Course Outcome -	
70 YS403.1:	A students shall be able to describe the Brief Introduction of Shandilya Upanishad, and concept of Ashtanga Yoga.
70 YS403.2:	A students shall be able to discuss the Brief Introduction of Jabaldarshanopanishad, and concept of Ashtanga Yoga
70 YS403.3:	A students shall be able to explain the Brief Introduction to Trishikhibrahmanopanishad, Concept & Types of astanga yoga .
70 YS403.4:	A students shall be able to describe the Brief Introduction of Yogchudamanyupanishad and concept of Shadanga Yoga



Course Code	70 YS404
Course Title	Alternative Therapy
Course Outcome -	
70 YS403.1:	A students shall be able to describe the alternative medicine and its concepts
70 YS403.2:	A students shall be able to discuss the introduction of acupressure and its concepts
70 YS403.3:	A students shall be able to explain the introduction of life therapy(praan chikitsa)and its consepts
70 YS4034:	A students shall be able to interpret the introduction panchkarma and its concepts .

Course Code	70 YS451
Course Title	Field training-I
Course Outcome -	
70 YS451.1:	A students shall be able to Gain more practical knowledge about the Yogapractices and Texts
70 YS451.2:	A students shall be able to demonstrate the yoga practical in the field .
70 YS451.3:	Students will be able to involve themselves during practical yoga sessions.
70 YS451.4:	A Students will be able to use therapeutic and non-therapeutic yoga techniquesamong yoga trainees
70 YS451.5:	Students will be able to practice yoga and alternative medicine training anduse it among people.

Course Code	70 YS452
Course Title	Project work-I
Course Outcome -	
70 YS452.1:	A students shall be able to prepare the project work in Literary and Philosophical area of the Shastras:
70 YS452.2:	A students shall be able to prepare the project work in scientific research of yoga .
70 YS452.3:	A students shall be able to assemble the small scale research projects
70 YS452.4:	A students shall be able to interpret the data and draw the conclusion.



Elective - 3rd and 4th sem

Semester 3-

Elective Paper-III: Swami Vivekananda's Four Yoga Streams

Course Code	70 YS303
Course Title	Swami Vivekananda's Four Yoga Streams
Course Outcome -	
70 YS303.1:	Students shall be able to Explain the Introduction of Raja Yoga and its concepts.
70 YS303.2:	Students shall be able to discuss about the introduction of karma yoga and its concepts.
70 YS303.3:	Students shall be able to describe the concepts of jnana yoga and its fundamentals.
70 YS303.4:	Students shall be able to express the introduction of Bhakti Yoga its types and concepts.

Semester 4-

Elective Paper-III: ELECTRO THERAPY

Course Code	70 YS403
Course Title	ELECTRO THERAPY
Course Outcome -	
70 YS403.1:	Students shall be able to Explain the Introduction of Raja Yoga and its concepts.
70 YS403.2:	Students shall be able to discuss about the introduction of karma yoga and its concepts.
70 YS403.3:	A students shall be able to describe the concepts of jnana yoga and its fundamentals
70 YS403.4:	Students shall be able to express the introduction of Bhakti Yoga its types and concepts.



Programme - Post Graduate Diploma in Yoga

Semester -1

Course Code	PGDY101
Course Title	Theoretical Yoga Science
PGDY101.1:	A student will be able to describe the Introduction to Yoga and its Historical Tradition.
PGDY101.2:	A student will be able to discuss the introduction of Basic text of Yoga and Nature of Chitt.
PGDY101.3:	. A student will be able to interpret the Kinds of Yoga.
PGDY101.4:	A student will be able to determine the Introduction to Nadies and Plexus .
PGDY101.5:	A student will be able to explain the General introduction to contemporary yogis

Course Code	70PGDY102
Course Title	Practical Yoga Vigyan
70PGDY102.1	A student will be able to describe the Yoga & Health.
70PGDY102.2	A student will be able to describe the Practice of Yoga: Primary preparation
70PGDY102.3	A student will be able to describe the Anatomy & physiology
70PGDY102.4	A student will be able to describe the Life pattern and Yoga: Effect of Yoga upon bodily functions.
70PGDY102.5	A student will be able to describe the Role of Yoga in Health problems in modern

Course Code	PGDY151
Course Title	Practical
PGDY151.1:	A students shall be able to Understand the benefits, contraindications and procedure of all practices
PGDY151.2:	Students shall be able to demonstrate each practice with confidence and skill.
PGDY151.3	Students shall be able to Explain the procedure and subtle points involved.
PGDY151.4	Students shall be able to Teach the yoga practices to any given group.
PGDY151.5	A students shall be able to Teach the yoga practices OF Mudra & Bandh to any given group



Semester -2

Course Code	PGDY201
Course Title	Yoga Darshan
PGDY201.1:	A student will be able to explain the Yogic tradition in Indian Philosophy.
PGDY201.2:	A student will be able to describe the Yogic in Astic Philosophy
PGDY201.3	A student will be able to discuss the Concept of Gita.
PGDY201.4	A student will be able to describe the Ashtang Yoga of Patanjali
PGDY201.5	A student will be able to interpret the Kinds of Yoga: Hath Yoga

Course Code	PGDY202
Course Title	Hat yoga
PGDY202.1:	A student will be able to describe the General introduction of Hathpradipika and Gherand Sanhita
PGDY202.2:	A student will be able to interpret the Aims of Pranayam and its precautions
PGDY202.3	A student will be able to apply the Methods, time, benefits, precautions of Shudhdhi
PGDY202.4	A student will be able to discuss the Meaning and methods of madras and Bandhas
PGDY202.5	A student will be able to describe the Nadanusandhan, Meditaion

Course Code	PGDY251
Course Title	Practical
PGDY251.1	A students shall be able to Understand the benefits, contraindications and procedure of all practices
PGDY251.2	Students shall be able to Demonstrate each practice with confidence and skill.
PGDY251.3	A students shall be able to Explain the procedure and subtle points involved
PGDY251.4	A students shall be able to Teach the yoga practices to any given group



Department of Humanities



Ph.D. Department of Arts

Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Code:	151PS02
Course Title:	ADVANCES IN POLITICAL SCIENCE
Course Outcomes:	
151PS02.1	Critique, compare and contrast, in the context of relevant literature, key theories involving the political processes, institutions, actors, and ideas in the core scholarly areas of Political Science
151PS02.2	Investigate and analyze contemporary political issues in the context of underlying theories in political science
151PS02.3	Apply and evaluate research methods and statistical research skills related to the study of political science
151PS02.4	Communicate effectively in written and oral formats relevant to the field of political science
151PS02.5	Design, create, and defend an original significant contribution to knowledge in the field of political science through the use of original and secondary sources of evidence. Develop and practice professional behavior in research and/or teaching

Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03.1	Understanding of basics of philosophy of science and ethics.
151PH03.2	Knowledge of research integrity
151PH03.3	Understanding of publication ethics.
151PH03.4	Knowledge of open access publications and research metrics
151PH03.5	Knowledge of identifying research misconduct and predatory publications



Course Code:	151PA04
Course Title:	Advances in Public Administration and Policy
Course Outcomes:	
151PA04.1	Conceptual clarity of Personnel Administration, its issues, career systems and other terms covering various aspects of personnel administration.
151PA04.2	Gaining conceptual and theoretical understanding of development Administration including the planning machinery, public enterprises in post-globalization contexts.
151PA04.3	Awareness about the institutions and mechanism in force for citizen-state interface. In this context the paper seeks to enlighten the students on the current issues and problems of Indian administration.
151PA04.4	Connecting the role and relationships of rural and urban local democratic decentralized institutions with other related issues, institutions and their personnel.
151PA04.5	Understanding of local governmental system, grievance redressed mechanisms and relevance of comparative approach in globalized perspective.

Course Code:	151EC05
Course Title:	Advances in Economic Theory and Policies
Course Outcomes:	
151EC05.1	Understanding the application of different functions/models and their usefulness in economics
151EC05.2	Knowing agriculture development in different countries under social, political and economic system.
151EC05.3	Getting deep insight of basic concepts of agricultural marketing viz; market structure, conduct and performance, the factors affecting marketable/ marketed surplus, the market integration, costs & margins, the marketing efficiency, etc.
151EC05.4	Understanding alternative approaches to demand supply analysis. Measurement of supply response through Nerlovian mode
151EC05.5	Understanding the design of the tax structure using the concepts of efficiency and equity



Programme

M.A. (PUBLIC ADMINISTRATION)

Semester-I

Course Code:	70PA101
Course Title:	THEORIES & PRINCIPLES OF PUBLIC ADMINISTRATION
Course Outcomes:	
70PA101.1	Students will be able to define public administration and list its nature and scope.
70PA101.2	Students will be able to differentiate between public administration and new public administration.
70PA101.3	Students will be able to evaluate the origin of public administration as a discipline.
70PA101.4	Conceptualize the theoretical foundations of Administrative thought of Modern (Woodrow Wilson) periods.
70PA101.5	Analyze the important Principles of Scientific Management and Administration

Course Code:	70PA102
Course Title:	Public Personnel Administration
Course Outcomes:	
70PA102.1	Academic understanding of the key concepts and ideas of Public Personnel Administration.
70PA102.2	Knowledge about the recruitment, training and promotion system of civil services in India.
70PA102.3	Knowledge about the public personnel system in India (all India, Central, state services) .
70PA102.4	knowledge about the employer- employee relationship
70PA102.5	Awareness about the organizational set up and functions of ministry and the recruitment agencies

Course Code:	70PA103
Course Title:	ELEMENT OF FINANCIAL ADMINISTRATION
Course Outcomes:	
70PA103.1	Explain about the Agencies of Financial Administration
70PA103.2	Discuss about budget its Formulation, Enactment and Execution
70PA103.3	Describe about Public Enterprises Autonomy and Accountability
70PA103.4	Familiarization with the concepts of development and underdevelopment
70PA103.5	Understanding the basic dimensions of Development Administration Focused analysis of role of bureaucracy in Accounting/Auditing of budget.



Course Code:	70PA104
Course Title:	CONSTITUTIONAL SYSTEM IN INDIA - I
Course Outcomes:	
70PA104.1	CO.1 Understanding the Constitution and its values and to protect and nurture the ideals of the framers of the Constitution.
70PA104.2	CO.2 Knowledge about the create awareness about Citizens rights and duties incorporated in Indian Constitution
70PA104.3	CO.3 Applying the concept from the knowledge gained in enforcing the Fundamental Rights. Developing competency in challenging the state before the judiciary for the violating the core values of the Constitution.
70PA104.4	CO. 4 sources of local revenue To develop a clear understanding about the important features of the Indian constitution, the power and position of important functionaries like the President, Prime Minister and the Chief Ministers, the importance of the Courts and the nuances of the local governance.
70PA104.5	CO.5 Awareness about the develop a clear understanding about the important features of the Indian constitution,

Semester-II

Course Code:	70PA201
Course Title:	Organisation and Management
Course Outcomes:	
70PA201.1	To help students to understand principles of organization and management in public administration
70PA201.2	Learner will be able to develop effective intra-organizational, interorganizational, and public oral and written communication skills
70PA201.3	Students will understand the principles and theories of management in public administration.
70PA201.4	To help students to understand the structure and functioning of important international organizations
70PA201.5	Learner will have understanding of organizational aspects of International Organizations in establishing peace and justice

Course Code:	70PA202
Course Title:	Personnel Administration in India
Course Outcomes:	
70PA202.1	Academic understanding of the key concepts and ideas of Public Personnel Administration.
70PA202.2	Knowledge about the recruitment, training and promotion system of civil services in India.
70PA202.3	knowledge about the public personnel system in India (all India, Central, state services) .
70PA202.4	Knowledge about the employer- employee relationship
70PA202.5	Awareness about the organizational set up and functions of ministry and the recruitment agencies



Course Code:	70PA203
Course Title:	Comparative & Development Administration
Course Outcomes:	
70PA203.1	Understand the emergence of Comparative Public Administration
70PA203.2	learn about the Ecological approach and the concept of Prismatic Society
70PA203.3	Analyze the main ideas of Riggs and Weidner and their contribution to Development administration.
70PA203.4	Compare the administrative systems of developed and under developed countries
70PA203.5	Understand the origin, and purpose, of the development Administration.

Course Code:	70PA204
Course Title:	CONSTITUTIONAL SYSTEM IN INDIA - II
Course Outcomes:	
70PA204.1	Understanding the Constitution and its values and to protect and nurture the ideals of the framers of the Constitution.
70PA204.2	Knowledge about the create awareness about Citizens rights and duties incorporated in Indian Constitution
70PA204.3	Applying the concept from the knowledge gained in enforcing the Fundamental Rights. Developing competency in challenging the state before the judiciary for the violating the core values of the Constitution.
70PA204.4	Sources of local revenue To develop a clear understanding about the important features of the Indian constitution, the power and position of important functionaries like the President, Prime Minister and the Chief Ministers, the importance of the Courts and the nuances of the local governance.
70PA204.5	Awareness about the develop a clear understanding about the important features of the Indian constitution,

Semester-III

Course Code:	70PA301
Course Title:	PUBLIC ADMINISTRATION IN INDIA
Course Outcomes:	
70PA301.1	At the end of this chapter, the student will explain the evaluation of Indian administration.
70PA301.2	At the end of this chapter, the students will learn about the Political executive at the union level.
70PA301.3	At the end of this chapter, the student will learn about the state administration.
70PA301.4	At the end of this chapter, the student will learn about the Relationship between state & central government.
70PA301.5	At the end of this chapter, the student will learn about the issues area in administration



Course Code:	70PA302
Course Title:	ADMINISTRATIVE THOUGHT
Course Outcomes:	
70PA302.1	At the end of this chapter, the student will explain the evaluation of administrative thought in India.
70PA302.2	At the end of this chapter, the students will learn about the western administrative thought.
70PA302.3	At the end of this chapter, the student will learn about the concept of different thinkers.
70PA302.4	At the end of this chapter, the student will learn about the different thoughts of thinkers.
70PA302.5	At the end of this chapter, the student will learn about the different administrative thoughts

Course Code:	70PA303
Course Title:	SOCIAL WELFARE ADMINISTRATION
Course Outcomes:	
70PA303.1	At the end of this chapter, the student will explain the evaluation of administrative thought in India.
70PA303.2	At the end of this chapter, the students will learn about the social welfare administration in India.
70PA303.3	At the end of this chapter, the student will learn about the evaluation of social welfare in India.
70PA303.4	At the end of this chapter, the student will learn about the social policy.
70PA303.5	At the end of this chapter, the student will learn about the Social Planning in India.

Course Code:	70PA304
Course Title:	CONCEPT OF HUMAN RESOURCES DEVELOPMENT AND PLANNING
Course Outcomes:	
70PA304.1	At the end of this chapter, the student will learn the basic concept of H.R.D
70PA304.2	At the end of this chapter, the students will learn about macro level scenario of human resource.
70PA304.3	At the end of this chapter, the student will learn about the job evaluation.
70PA304.4	At the end of this chapter, the student will learn about the action areas: issues and experiences.
70PA304.5	At the end of this chapter, the student will learn about the Measurement in Human Resource Planning.

**Semester-IV**

Course Code:	70PA401
Course Title:	LOCAL ADMINISTRATION
Course Outcomes:	
70PA401.1	At the end of this chapter, the student will explain the core concept of C programming.
70PA401.2	At the end of this chapter, the students will use data types, variables, formatted and unformatted function and decision and looping control statement in program.
70PA401.3	At the end of this chapter, the student will use the function and array in the program.
70PA401.4	At the end of this chapter, the student will use the pointer and structure in the program.
70PA401.5	At the end of this chapter, the student will use the file handling in the program.

Course Code:	70PA402
Course Title:	Development Administration in Indian Perspectives
Course Outcomes:	
70PA402.1	At the end of this chapter, the student will explain the core concept of development of administration.
70PA402.2	At the end of this chapter, the students will learn about the different planning of administration.
70PA402.3	At the end of this chapter, the student will learn about the bureaucracy and development administration.
70PA402.4	At the end of this chapter, the student will learn about the interaction among bureaucrats.
70PA402.5	At the end of this chapter, the student will learn about the development administration in India.

Course Code:	70PA403
Course Title:	Methods and Techniques & Research Establish
Course Outcomes:	
70PA403.1	Conduct a literature review for a question in political science research.
70PA403.2	Design a survey to collect political science data. Perform content analysis on a document
70PA403.3	Distinguish appropriate data for answering a political science question from appropriate data Analyze quantitative data using statistical software
70PA403.4	Write up research findings in correct format. Present research findings to an audience using visual aids.
70PA403.5	Fundamentals of Research Methodology Course Objectives The main objective of this course is to introduce the basic concepts in research methodology in Social science.



Course Code:	70PA404
Course Title:	RURAL LOCAL ADMINISTRATION : WITH DUE REFERENCE TO M.P
Course Outcomes:	
70PA404.1	At the end of this chapter, the student will explain the core concept of rural local administration.
70PA404.2	At the end of this chapter, the students will learn about the panchayati raj in Madhya Pradesh.
70PA404.3	At the end of this chapter, the student will learn about the patterns of panchayati raj in M.P.
70PA404.4	At the end of this chapter, the student will learn about the administrative set up panchayati raj in M.P.
70PA404.5	At the end of this chapter, the student will learn about the state control.



PROGRAM: MA (ECONOMICS)

MA I SEM

Course Code:	70EC102
Course Title:	MACRO ECONOMICS
Course Outcomes:	
70EC102.1	Students will analyze basic concept of stock and flow, GDP, GNP and economic welfare.
70EC102.2	Explain closed and open economy, concept of tax and multiplier
70EC102.3	Students will analyze components of money supply, monetary policy.
70EC102.4	They will learn to employment theory, and classical model, and analyses interest rate determination.
70EC102.5	Explain theories of consumption and investment ,MEC,MEL,CSI measurement in Indian economy

Course Code:	70EC103
Course Title:	PUBLIC ECONOMICS
Course Outcomes:	
70EC103.1	Students will able to learn allocation of resource and growth of government significance.
70EC103.2	they will identify govt, as an agent ,economic planning and varies goods
70EC103.3	Develop comprehensive understanding of theories of public expenditure & their application.
70EC103.4	they will learn to study the principles of taxation & its effects
70EC103.5	students will get information about public debt and economic growth

Course Code:	70EC101
Course Title:	Advanced economics analysis
Course Outcomes:	
70EC101.1	Understand the fundamentals of microeconomics necessary for advanced micro economic analysis
70EC101.2	:Understand the supply and demand mechanism that determine equilibrium in a market economy
70EC101.3	Learn about individual decision making as a consumer and firm effectively and creatively
70EC101.4	Solve basic microeconomic problems
70EC101.5	Apply these methods to data or econometric modeling techniques.

Course Code:	70EC104
Course Title:	Quantitative techniques
Course Outcomes:	
70EC104.1	Students will learn different types of functions and their applications.



70EC104.2	Students will be familiar with the maxima and minima of functions.
70EC104.3	It will impart knowledge about the use of Lagrange multiplier methods.
70EC104.4	Students will gain knowledge about the use of net present value and other related concepts.
70EC104.5	The course will form the base for higher studies in research work.

MA II SEM

Course Code:	70EC201
Course Title:	Advanced Economic Analysis –II
Course Outcomes:	
70EC201.1	Get introduced to the framework for learning about consumer behavior and analyzing consumer decision
70EC201.2	Learn about production, cost theory and firm's equilibrium
70EC201.3	Understand the different market structure and theoretical mechanisms behind the working market
70EC201.4	Learn about characteristics of perfect and imperfect markets
70EC201.5	Use the fundamental techniques to think about a number of policy questions related to the operation of the real economy.

Course Code:	70EC202
Course Title:	Monetary Economics and Banking
Course Outcomes:	
70EC202.1	Understand the concept of money and various approaches related to money.
70EC202.2	Explain the functioning of money and capital markets, process of credit creation, role of NBFCs etc
70EC202.3	Interpret demand and supply of money, money multiplier and its determinants and role of RBI
70EC202.4	Analyze the working of monetary policy.
70EC202.5	Summarize the role of national and international financial institutions.

Course Code:	70EC203
Course Title:	Research methods and Statistical Inference
Course Outcomes:	
70EC203.1	Understand the scientific methods of research, research process and research design
70EC203.2	Understand the sampling techniques and sampling procedures
70EC203.3	Know the various methods of data collection, tools and techniques.
70EC203.4	Know the reliability and validity of measurement of scaling
70EC203.5	Know the purpose of project proposal and project report.



Course Code:	70EC204
Course Title:	International Economics
Course Outcomes:	
70EC204.1	analyses and apply the trade theories and theories of tariff
70EC204.2	apply and analyze the different policies for BOPs adjustments of developing countries like India
70EC204.3	comment critically on and participate in current debates on international economic policy
70EC204.4	Develop the ability to explain concepts and theories related to international trade.
70EC204.5	Develop the ability to understand the basic economic terms like exchange rates, Balance of payments, terms of trade etc.

MA III SEM

Course Code:	70EC301
Course Title:	History of economic thought
Course Outcomes:	
70EC301.1	Students Learn about controversies between the various theoretical approaches.
70EC301.2	Able to understand economics in effective manner and can compare the different
70EC301.3	Develop a chronological understanding of the development of economic thought Relate the developments in different schools of thought with contemporary issues.
70EC301.4	Demonstrate competence in written and oral communication and convincingly present arguments with virtual tools
70EC301.5	Engage in reflective thinking leading to self-learning and lifelong learning.

Course Code:	70EC302
Course Title:	India's Foreign Trade and International Institutions
Course Outcomes:	
70EC302.1	Identify the Basic difference between inter-regional and international trade explainit through various International theories,
70EC302.2	Terms of trade and gain from trade show the benefits of international trade in wayhow nation strong international trade have become prosperous
70EC302.3	. Show the importance of maintaining equilibrium in the Balance of payments and suggests suitable measures to correct
70EC302.4	. Evolution of International Monetary system. WTO,IMF, World Bank, Asian Banketc.
70EC302.5	Internal & External determinant of Indian Foreign policy objectives of Indian foreign policy information about Indian foreign policy.



Course Code:	70EC303
Course Title:	labor economics
Course Outcomes:	
70EC303.1	Students will understand the role and characteristics of labor in the economic development of a developing country.
70EC303.2	Students will try to understand various theories and concepts of demand and supply of wages .
70EC303.3	They will get information about the objectives of social security development and security schemes
70EC303.4	: Students will understand the development of the labor union movement in India and gain knowledge about industrial disputes and their defense
70EC303.5	Students will learn about the housing problems of industrial workers and the Labor Act.

Course Code:	70EC304
Course Title:	INDUSTRIAL ECONOMICS
Course Outcomes:	
70EC304.1	Students will learn about the concept of industrialization and its impact and new industrial policy
70EC304.2	Students will understand the concept of firm and the business reason of the firm.
70EC304.3	Students will understand the efficiency of industrial combination and its impact on the economic power of the firm and also understand the practice and theory of Florence
70EC304.4	Students will understand the development and problems of large scale industries in India and will also try to understand the development of small and cottage industries..
70EC304.5	Students will learn about the major sources of industrial finance and industrial institutions

MA IV SEM

Course Code:	70EC401
Course Title:	Economic growth and development
Course Outcomes:	
70EC401.1	students will analyze concept of growth and development
70EC401.2	Explain accelerator and investment function, Schumpeter's model
70EC401.3	students will analyze theory of balance growth and big push theory
70EC401.4	they will learn to Rostro's stages of economic growth, theory of leibenstines
70EC401.5	Explain the mahala Nobis model, Kaldor model of distribution



Course Code:	70EC402
Course Title:	Indian Economic Policy and issues
Course Outcomes:	
70EC402.1	Students will analyze basic concept of national income, poverty.
70EC402.2	Development the ability to explain economic reforms and planning in India.
70EC402.3	Students will analyze components of agriculture growth and productivity.
70EC402.4	They will learn to Indian financial system and monetary policy.
70EC402.5	They will learn to foreign trade and fiscal federalism in India.

Course Code:	70EC403
Course Title:	Agricultural Economics
Course Outcomes:	
70EC403.1	To understand the importance of agriculture in economic development.
70EC403.2	To apply principles of farm management/agricultural production economicsbenefitting farm decision making.
70EC403.3	To examine various policies (credit, input, pricing, food security, marketing,trade) pertaining to Indian agricultural sector.
70EC403.4	To enhance the students_ awareness on contemporary debates of problems ofagriculture sector
70EC403.5	Gain a broad understanding of the role of the consumer in the marketplace for agricultural commodities, producers, agencies and the community.

Course Code:	70EC404
Course Title:	Demography
Course Outcomes:	
70EC404.1	.Gain a sound command over the basic tenets of demography as well as key demographic issues and illustrations in the context of a large anddiverse country like India.
70EC404.2	Grasp a clear understanding of the inter-relationship between demographyand the process of economic development
70EC404.3	Comprehend the basic components of population (fertility, mortality, migration)
70EC404.4	To study established theories of population
70EC404.5	To explore various aspects of the population policy and to study its impact on socio economic issues



Programme

MA POLITICAL SCIENCE

Course Code:	70PS101
Course Title:	Modern Indian Political Thought
Course Outcomes:	
70PS101.1	Student enables to understand overview of Indian Political Thought, Genesis and Development. Analyzing the nationalist thought of Raja Rammohun Roy, Assessing the nationalist thought of Bankim, Vivekananda and Tagore.
70PS101.2	Students are able to understand Mahatma Gandhi's important ideas – Satya, Ahinsa, Shanti, Dharma, Swadeshi, Satyagrah etc.
70PS101.3	Describing the movements against caste and untouchability, Ambedkar's views on Social Justice and the depressed classes. Students are able to understand thoughts of modern Indian political Thinkers with special ref. to Gandhi Nehru, Ambedkar.
70PS101.4	Discussing the roots of communalism- Savarkar and Hindu Nationalism and Jinnah and the two nation theory To get an overview of life and political ideas of M N Roy and Jai Prakash Narayana.
70PS101.5	Students are able to understand thoughts of modern Indian political Thinker's with special ref. to Lohiya, M.N.Rai, Arvind Ghosh and Dindayal Upadhyay

Course Code:	70PS102
Course Title:	Comparative Politics
Course Outcomes:	
70PS102.1	1 : Student will compare the political ideas of various thinkers.
70PS102.2	2- . Student will understand the significance of various political thinkers , social-political thought.
70PS102.3	3:- Student will understand the concept of comparative politics.
70PS102.4	4: Student will critically examine their ideas & different.
70PS102.5	5- Student will analyses the contribution of political thinkers .



Course Code:	70PS103
Course Title:	International Relations and Contemporary Political Issues
Course Outcomes:	
70PS103.1	1. Students will be able to understand the Meaning, Nature and Scope of International Politics and Theories of International Politics.
70PS103.2	2. Students will be able to understand the The Elements of National Power and Limitations, Balance of Power and Collective and Security.
70PS103.3	3. Students will be able to understand the The Concept of Non-Alignment, Bases, Role and Relevance, Regional Cooperation , SAARC, ASEAN, OPAC Disarmament and Arms Control.
70PS103.4	4. Students will be able to understand the North-South dialogue and South-South dialogue and their major issues.
70PS103.5	5. Students will be able to understand the Environmental Issues, Rio-Declaration 1992 & Rio-Bio Diversity Agreement Terrorism Factors which give rise to terrorism, Terrorism in South Asia, Cross- Border Terrorism.

Course Code:	70PS104
Course Title:	Major Ideas and Issues in Public Administration
Course Outcomes:	
70PS104.1	1. Awareness about the evolution and growth of the discipline of Public Administration.
70PS104.2	2. Learn the basic principles and approaches of Public Administration.
70PS104.3	3. Students will be able to understand liberal, Marxist Leninist and welfare state approaches to public administration.
70PS104.34	4. Students will be able to understand the financial administration of public administration.
70PS104.5	5. Students will be able to understand the role of bureaucracy in public administration.



2ND SEM

Course Code:	70PS201
Course Title:	Western Political Thought
Course Outcomes:	
70PS201.1	1 Understand the classical tradition of western political thought and grasp its relevance through a historical comparative approach
70PS201.2	2 Understand the continuity and growth in western political thought in the socio-economic and historical political contexts of the respective times
70PS201.3	3 Perceive the unfolding of modernity through the stages of evolution of western political thought
70PS201.4	4 Situate the origins and evolution of central concepts of politics in the classical tradition of western political thought and understand the history of ideas
70PS201.5	5 Build their own thought process through a perception of political ideas evolving through the western classical tradition

Course Code:	70PS202
Course Title:	Major Constitution Of The World Constitution
Course Outcomes:	
70PS202.1	Students will be able to understand how the legislature, executive and judiciary of the British Constitution work and how these institutions interact.
70PS202.2	Students will be able to understand how the legislature, executive and judiciary of the United States Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits.
70PS202.3	Students will be able to understand how the legislature, executive and judiciary of the Swiss Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits. And will also learn about Direct Democracy.
70PS202.4	Students will be able to understand how the legislature, executive and judiciary of the Chinese Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits and how the Communist Party of China works.
70PS202.5	Students will be able to understand how the legislature, executive and judiciary of Japan and France's constitutions work.



Course Code:	70PS203
Course Title:	International Organization
Course Outcomes:	
70PS203.1	Students will be able to understand the development and nature of international organizations.
70PS203.2	Students will be able to understand the role of the United Nations at the international level.
70PS203.3	Students will be able to understand the role of the United Nations in international problems.
70PS203.4	Students will understand the role of the United Nations in the post-Cold War era.
70PS203.5	Students will be able to understand the role of disarmament in the international.

Course Code:	70PS204
Course Title:	Research Methodology
Course Outcomes:	
70PS204.1	After completion of this course, students will have a basic foundation on Scientific Research.
70PS204.2	Give knowledge base on the systematic approaches to do research in political science and its allied fields.
70PS204.3	Help to search for new paradigm and multiple issues in Political Science for research.
70PS204.4	Demonstrate knowledge of research process i.e. reading, evaluating and developing.
70PS204.5	Perform literature reviews using print and online database.

3RD SEM.

Course Code:	70PS301
Course Title:	INDIAN GOVERNMENT AND POLITICS
Course Outcomes:	
70PS301.1	Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution.
70PS301.2	Analyze the relationship between State and individual in terms of Fundamental Rights and Directive Principles of State Policy.



70PS301.3	Students to know about the constitution of India and functioning of the Indian political system and government and will further discourse and abide the constitutional principles.
70PS301.4	analyses and discusses about working and functions of the various organs of the government in the Indian Parliamentary democratic system
70PS301.5	Understand how social movements are formed and how they affects the political processes.

Course Code:	70PS302
Course Title:	State Politics In India
Course Outcomes:	
70PS302.1	Students will be able to understand the State Executive, Governor, Chief Minister and Council of Ministers.
70PS302.2	Students will be able to understand the State Legislature, Vidhan Sabha and Vidhan Parishad.
70PS302.3	Students will be able to understand the Judiciary, High court and Subordinate Courts.
70PS302.4	Students will be able to understand the factors affecting the politics of states and the issues of problems between different states.
70PS302.5	Students will be able to understand the Major constitutional bodies of states.

Course Code:	70PS303
Course Title:	International Law
Course Outcomes:	
70PS303.1	Students will be able to understand the origin and development of international law.
70PS303.2	Students will be able to understand the relationship between law and national law.
70PS303.3	Students will be able to understand international legal principles.
70PS303.4	Students will be able to understand the law of neutrality, rights and duties of neutral powers.
70PS303.5	Students will be able to understand international rules of war.



Course Code:	70PS304
Course Title:	Indian Foreign Policy
Course Outcomes:	
70PS304.1	1. Student will understand the influences on the basic features of Indian foreign policy
70PS304.2	2. Students will know the challenges that India faces in its neighborhood the reasons behind the policy perspectives
70PS304.3	3. Student will Understand the intricacies of the making of Indian foreign policy
70PS304.4	3. Student will Assess the nature and implications of India's relation with global institutions, different regions and nations
70PS304.5	5. Student will Develop a capacity to reflect on new issues emerging in international relations and India's response

4TH SEM

Course Code:	70PS401
Course Title:	Federalism In India And Local Self Government
Course Outcomes:	
70PS401.1	Students will be able to understand the nature of the Indian federal system and Centre-State relations.
70PS401.2	Students will be able to understand the Sarkaria Commission report and the regional parties and federal system.
70PS401.3	Students will be able to understand the Emerging trends in Indian federalism, Development of local-self-Government after independence, 73th and 74th constitutional amendments.
70PS401.4	Students will be able to understand the Rural local self-government: Origination powers and functions, Urban local self-government: organization, powers and functions.
70PS401.5	Students will be able to understand the Finance and Local self-Govt, Bureaucracy and Local self-Govt; Women's reservation Panchayat and its effects, Local autonomy and its importance.



Course Code:	70PS402
Course Title:	Government and Politics of Madhya Pradesh
Course Outcomes:	
70PS402.1	Understand the politics of Madhya Pradesh.
70PS402.2	Understand the organization and functions of the MP government.
70PS402.3	Understand the role of Secretariat, Chief Secretary and Commissioner and Collector.
70PS402.4	Learn the Organization and Powers in Local Self Government.
70PS402.5	To study emerging trends in Madhya Pradesh Politics.

Course Code:	70PS403
Course Title:	Advance Political Theory
Course Outcomes:	
70PS403.1	To study method, approaches, and key features and why do we need political theory.
70PS403.2	To learn many concepts, ideas, terms which are essentially, contested.
70PS403.3	Understand the new trends in political theory.
70PS403.4	The importance of political theory to learn the social reality.
70PS403.5	To provide tools to collectively, think or arrive at a solution.

Course Code:	70PS404
Course Title:	Diplomacy and Human Rights
Course Outcomes:	
70PS404.1	To study the development of concept of Human Rights.
70PS404.2	Understand the essence and objectives of diplomacy.
70PS404.3	To examine the role and effectiveness of diplomacy in international negotiations.
70PS404.4	Appreciating the art of and ingredients for successful international negotiations.
70PS404.5	Conducting independent research using a wide range of sources and engaging in practical negotiations in teams representing respective country positions



Program
B.A. ALL
BA I SEM

CourseCode:	HSMC01
Course Title:	Communication Skills
Course Outcomes:	
HSMC01.1	Speak confidently in public as all the topics chosen emphasis on improving speaking skills and developing self confidence amongst them.
HSMC01.2	Interact properly with improved Leadership Skills, Problem Solving Skills, Social skills and Communication Skills. Students will also be able to understand the Importance of Team Work
HSMC01.3	Communicate effectively in Hindi and English languages without hindrances.
HSMC01.4	Convey their messages accurately by understanding the significance of grammar as it plays a vital role in improving speaking and writing skills
HSMC01.5	Understanding of Indian Culture and English Language will be developed through the study of Dramas and Poems written by Indian Writers

CourseCode:	HSMC02
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC02.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC02.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC02.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC02.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and Limitations of an argument for solution.
HSMC02.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for Sustainable development in educational Programs and processes.



BA II SEM

CourseCode:	HSMC03
Course Title:	Indian Knowledge System
Course Outcomes:	
HSMC03.1	To understand the ancient civilization, Indian Knowledge Systems, Concept of Panch Mahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
HSMC03.2	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
HSMC03.3	Student will be able to gain knowledge on Vedic Science, Astronomy, Astronauts, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
HSMC03.4	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
HSMC03.5	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites etc.

Course Code:	HSMC04
Course Title:	Environmental Studies
Course Outcomes:	
HSMC04.1	To understand various aspects of life forms, ecological processes, and the impacts on them by the human during Anthropocene era
HSMC04.2	To build capabilities to identify relevant environmental issues, analyze the various underlying causes, evaluate the practices and policies, and develop framework to make inform decisions.
HSMC04.3	To develop empathy for all life forms, awareness, and responsibility towards environmental protection and nature preservation.
HSMC04.4	To develop the critical thinking for shaping strategies such as; scientific, social. Economic. Administrative & legal. Environmental protection, conservation of biodiversity. Environmental equity and sustainable development.
HSMC04.5	To prepare for the competitive exams.



Programme Name: B.A. (Computer) Semester-I

Course Code:	1CA101
Course Title:	Data Processing Software
Course Outcomes:	
1CA101.1	Acquire the knowledge of the fundamentals and features of MS Windows, including various versions, screen Elements, dialog boxes, and toolbars.
1CA101.2	Acquire the basic and advances knowledge of MS wordand word processing.
1CA101.3	Acquire the basic and advances knowledge of MS Access and data base system.
1CA101.4	Acquire the basic and advances knowledge of MSEXcel and Spreadsheet software.
1CA101.5	Acquire the basic and advances knowledge of Making Power Point Presentation Using MS PowerPoint.

Course Code:	1CA202
Course Title:	PROGRAMMING IN C LANGUAGE
Course Outcomes:	
1CA202.1	Student will learn the core concept of Cprogramming.
1CA202.2	Students will use data types, variables, formatted and unformatted function, decision, and looping control statement in program.
1CA202.3	Student will learn the function and array in theprogram.
1CA202.4	Student will learn the pointer and structure in theprogram
1CA202.5	Student will learn the concept of file handlingin the program.



3RD

Course Code:	1CA301
Course Title:	Data Base Management System
Course Outcomes:	
1CA301.1	Learn the basics of databases and data management.
1CA301.2	Understand various theoretical and practical principles involved in the design and use of databases systems with the help of database.
1CA301.3	Learn the Transaction management with grant and revoke.
1CA301.4	Design and implement databases for various scenarios.
1CA301.5	Design a database scenario for handling any organizations centralized data.

Course Code:	0SE301
Course Title:	Digital Marketing
Course Outcomes:	
0SE301.1	Acquire the knowledge of the fundamentals and features of digital marketing technique
0SE301.2	Acquire the basic and advanced knowledge of search engine optimization.
0SE301.3	Acquire the basic and advanced knowledge of search engine marketing.
0SE301.4	Acquire the basic and advanced knowledge of social media marketing.
0SE301.5	Acquire the basic and advanced knowledge of website traffic analysis



4TH

Course Code:	2CA401
Course Title:	Introduction to ASP.NET & C#
Course Outcomes:	
2CA401.1	To learn fundamentals of .Net framework.
2CA401.2	To enrich knowledge about Windows Forms, Controls and ASP.NET based applications.
2CA401.3	To gain proficiency in C# by building stand- alone applications in the .NET framework using C#.
2CA401.4	To build data-driven applications using the .NET Framework, C#, and ADO.NET.
2CA401.5	To acquire skills to create web-based applications and Reports using .net technologies

Course Code:	0SE401
Course Title:	Web Designing
Course Outcomes:	
0SE401.1	Have knowledge of HTML, its essential tags, Attributes, Text styles, Links to External Documents and different sections of a HTML page.
0SE401.2	Develop skills to generate HTML and CSS page and have knowledge of JavaScript assisted style sheets
0SE401.3	Have knowledge of CSS, CSS Syntax, Comments, Level of CSS, Embedding HTML in CSS, JavaScript pre- defined and used defined.
0SE401.4	Have knowledge of functions of PHP Fundamentals of PHP.
0SE401.5	Develop skills to generate Static and dynamic application designing, Google form designing.



5TH

Course Code:	05CA502
Course Title:	Programming in java
Course Outcomes:	
1CA502.1	Understand the features and applications of Java.
1CA502.2	At the end of this chapter, the student will use various input output operations and control statements.
1CA502.3	Acquire concept of java programs using inheritance and interface.
1CA502.4	To Identify Java code utilities in applets, Java packages, and classes.
1CA502.5	Understand the concept of JDBC and JSP, java beans, ODBC.

Course Code:	1CA501
Course Title:	Operating System
Course Outcomes:	
1CA501.1	To understand to analyze the structure and basic architectural components involved in OS.
1CA501.2	To display competence in recognizing and using operating system features.
1CA501.3	To gain knowledge of implementation of different operating systems aspect.
1CA501.4	To apply knowledge of different operating system algorithms.
1CA501.5	To create own android OS based application (Apps) and implement or install in smart phone and create new apps for business point of view.



6TH

Course Code:	01CA601
Course Title:	Multimedia Tools and Applications
Course Outcomes:	
01CA601.1	To gain knowledge about basics of Multimedia tools and its applications.
01CA601.2	To understand the representation of different multimedia data and different data formats.
01CA601.3	To work with all aspects of text, audio, images and video
01CA601.4	To understand the principles of multimedia authoring paradigm and tools.
01CA601.5	To apply different compression principles, compression techniques and compression standards.

Course Code:	05CA601
Course Title:	Python Programming
Course Outcomes:	
05CA601.1	Students will be able to write Python code efficiently, understand its syntax rules, and apply them to solve various programming challenges
05CA601.2	Students will grasp fundamental programming concepts like variables, data types, control structures (loops and Conditionals), functions, and object-oriented programming (classes, objects, inheritance, etc.)
05CA601.3	Python's versatility allows you to solve a wide range of problems, from simple scripting tasks to complex data Analysis and machine learning projects. Learning Python often enhances your problem-solving abilities.
05CA601.4	Students will be developing web applications using Python frameworks like Django or Flask. This involves Creating dynamic web pages, handling user input, interacting with databases, and more.
05CA601.5	Students will be able to understand the concept of database in MySQL.



Course Code:	05CA603
Course Title:	Introduction to Cloud Computing
Course Outcomes:	
05CA603.1	Understand the foundational concepts and historical development of cloud computing, including its significance in the contemporary era, and be able to delineate the distinguishing characteristics of cloud computing compared to traditional computing models.
05CA603.2	Evaluate the advantages and disadvantages of cloud computing, comprehend the various technologies underpinning cloud computing, and critically analyze the implications of adopting cloud technologies in different Contexts.
05CA603.3	Differentiate between the types of clouds, elucidate the components of cloud infrastructure, and design cloud application architectures while considering emerging trends And evolving paradigms in cloud computing.
05CA603.4	Demonstrate proficiency in deploying and managing cloud services utilizing different cloud service models and deployment models, and critically assess the strengths and limitations of various cloud-computing services.
05CA603.5	Utilize theoretical knowledge in cloud computing, virtualization, data storage management, and cloud security, through hands-on exercises and case studies on platforms like Virtual Box, Google Classroom, AWS, and G Suite.

Course Code:	Research methodology and IPR
Course Title:	02CA701
Course Outcomes:	
02CA701.1	RC602.2: Analyze research related information and Follow research ethics
02CA701.2	RC602.3: Understand that today_s world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
02CA701.3	RC602.4: Understanding that when IPR would take such important place in growth of Individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering In particular
02CA701.4	RC602.5: IPR protection incentivizes inventors to invest in R&D, leading to new and improved products, economic growth, and social benefits.



Course Code:	05CA513
Course Title:	Organizational Behavior
Course Outcomes:	
05CA513.1	Understand the effect of interpersonal behavior in an organizational worklife
05CA513.2	Understand Perspective in Diverse cultural Environment
05CA513.3	Understand the principles of organizational human behavior with relevance to the Indian business context.
05CA513.4	Student understands Stress Management.
05CA513.5	Understand the organizational structure and personnel management.

Course Code:	0SE403
Course Title:	Financial Account With Tally
Course Outcomes:	
0SE403.1	Analyze the Basic Concept of Accounting, Accounting Software and working with Company and Various Configurations.
0SE403.2	Analyze/Examine the basic terminologies - Groups and Ledgers, Vouchers, Bank Reconciliation, Interest, Budget etc.
0SE403.3:	Analyze various Accounting reports and Account Books
0SE403.4	Analyze/Examine Inventory and Working with Inventory and Exceptional reports.
0SE403.5	Analyze/ Prepare and print financial statements, Tally Audit, Security control etc. in Tally Accounting software

Course Code:	01CA615
Course Title:	Computer Network and Security
Course Outcomes:	
01CA615.1	Understand Computer Networks concepts and its uses.
01CA615.2	Understand Network Technologies and protocols.
01CA615.3	Describe network components
01CA615.4	Use suitable network components transmission media in internal and external Networking.
01CA615.5	Understand basic principles of information security and its need



Programme: B.A. (Fashion Design)

Semester-I

Course Code:	A1-FASH2T
Course Title:	Basics of Fashion Design
Course Outcomes:	
A1-FASH2T.1	Concept of design and fashion – Basic concepts and characteristics: Process of design. Classification of fashion concept and the introduction of fashion designers.
A1-FASH2T.2	Concept and nature of clothing. Knowledge of different patterns, color, shape and so on. Element of fashion. Fashion cycle meaning and process.
A1-FASH2T.3	Meaning of clothing and design. Meaning and concept of self-grooming as well as care of clothes. Concept of taste in design. Concept of color psychology.
A1-FASH2T.4	Concept of machine that is used in industry and the types of tools which is used in sewing or in the fashion industry.

Semester-II

Course Code:	1FD202/1FD252
Course Title:	Product the Idea development -I
Course Outcomes:	
1FD202/1FD252.1	Understanding of the term fashion and how the textile is related that and the relationship of the fiber and yarns
1FD202/1FD252.2	Concept of the fabric term which the textile is used in fabric formation and what process is used to production. Functions
1FD202/1FD252.3	Meaning of product analysis and it can help in production also there some terminology. Drawing and selection of an apparel and non- apparel
1FD202/1FD252.4	Concept of understand the function of the how the market can run and observation of preparing the cost sheet in production
1FD202/1FD252.5	Concept of the Market Survey.

Semester-III

Course Code:	1FD301/1FD351
Course Title:	Product the Idea development -II
Course Outcomes:	
1FD301/1FD351.1.1	Understanding of the term fashion and how the textile is related that and the relationship of the fiber and yarns.
1FD301/1FD351.1.2	Concept of the fabric term which the textile is used in fabric formation and what process is used to production.
1FD301/1FD351.1.3	Meaning of fashion terminology, which is used in fashion industry and student, is aware and know about the uses of it.
1FD301/1FD351.1.4	Concept of construction and de construction of the fashion..
1FD301/1FD351.1.5	Concept of understand the function of the how the market can run and observation of preparing the cost sheet in production.

**Semester-IV**

Course Code:	1FD401-1FD451
Course Title:	Fashion Studies
Course Outcomes:	
1FD401-1FD451.1	Understanding fashion dynamics and fashion business.
1FD401-1FD451.2	Familiarize themselves with the fashion terminology, fashion leader and followers.
1FD401-1FD451.3	Explore the growing importance of sustainability and ethical practices in the fashion industry, including the principle of fashion.
1FD401-1FD451.4	Enhance their communication and presentation skills through group projects, presentations, and written assignments that require them to articulate their understanding of key concepts,
1FD401-1FD451.5	Acquire knowledge of fashion movements and factors affecting fashion.

Semester-V

Course Code:	05FD512
Course Title:	Indian Textile and Costumes
Course Outcomes:	
05FD512.1	Acquire the knowledge of India fashion, Identify different motifs, colour and weaving technique used in Textiles.
05FD512.2	Acquire the knowledge of origin of clothing. Recognize woven, dyed, printed and painted textile of India. The knowledge of origin of clothing.
05FD512.3	Influence of Gupta period and Mughal period in clothing, understanding the various jewelry and headgears, and its origin of the period.
05FD512.4	Awareness of how the Ancient people drape technique as well as the stitch, motif and pattern of its draping and technique of wrapping the cloth in different manner and Understanding of the East and West State.
05FD512.5	Acquire the knowledge of all period lifestyle and costume of the period .Concept of the lifestyle and attire of garments.



Course Code:	05FD511
Course Title:	Product the Idea development -III
Course Outcomes:	
05FD511.1	Research and Analyses market trends by understood the concept of product design and development of market survey, analysis and observe the trends.
05FD511.2	Concept of the Developing the design about the general product of the specification sheet, the project information and product overview, Concept of Target audience and the product selling prices
05FD511.3	Acquire the process of creating the client Profile, understanding the variation exits on product Industry. Understanding the concept of develop the number of designs. Understanding the brain storming of product processing and idea screening and idea generation by idea screening technique. Businessanalyses concept.
05FD511.4	Concept of Product Designing Implementation and explore the product designing Implementation by understanding about the concept of Pattern making as well as Darts location and princess lines, other design skirts and trouser.
05FD511.5	Develop and explore your creativity to achieve the Target Customers and also Concept of evaluating the workmanship understanding the concept visual evidence. Concept of attention details over finishing product

Course Code:	05FD501
Course Title:	Innovation Technique in dress designing
Course Outcomes:	
05FD501.1	Concept of innovation and its methodology – Basic concepts and characteristics: process of innovations. Methods of innovation. History of Innovation in India as well as fashion industry.
05FD501.2	Concept of explore the design. Understanding the concept of apparel technology with their terminology.
05FD501.3	Meaning of Fabrics. Meaning and concept of fabric finishes and fabric prints in the fashion industry. Geo-textiles with their application
05FD501.4	Concept of explore the design. Understanding the concept of apparel technology with their terminology.
05FD501.5	Concept of Advance innovation like AI, virtual, digital and so on.



Semester-VI

Course Code:	05FD603-L
Course Title:	Portfolio Development
Course Outcomes:	
05FD603-L.1	An introduction to a fashion portfolio serves as the opening statement, providing a brief overview of the designer's background, design philosophy, and the content within the portfolio. It sets the tone for the viewer and offers insight into the designer's unique perspective and approach.
05FD603-L.2	Research and inspiration are foundational aspects of the design process, providing designers with the insights, ideas, and knowledge needed to create innovative and meaningful work
05FD603-L.3	Digital tools and software play a crucial role in the fashion design process, aiding designers in various stages from concept development to final production.
05FD603-L.4	This can include sketches, illustrations, photographs of finished garments, Mood boards, technical drawings, and any other relevant documentation of your design process.
05FD603-L.5	A portfolio presentation is a crucial aspect of showcasing your work as a designer, whether you are presenting to potential employers, clients, or for academic purposes. A well-prepared presentation not only highlights your design skills but also effectively communicates your design process and creative thinking.

Course Code:	05FD601
Course Title:	Fashion Event Management
Course Outcomes:	
05FD601.1	CO1: Concept of event and management – Basic concepts and characteristics: process of event. Classification of event
05FD601.2	CO2: Concept of fashion event. Knowledge types of fashion event. Concept of creating a fashion event
05FD601.3	CO3: Concept of Venue requirement. Meaning and concept of catwalk presentation requirement
05FD601.4	CO4: Concept of Pre-Show and post-show follow also we can ensuring the legal, compliance, safety and security



Course Code:	05FD602
Course Title:	Fashion styling.
Course Outcomes:	
05FD602.1	1: Fashion styling is a dynamic field within the fashion industry that involves creating visually appealing and conceptually strong images through the selection and arrangement of clothing
05FD602.2	2: Stylists collaborate with photographers
05FD602.3	3: Key aspects of fashion styling include understanding body shapes
05FD602.4	4: Successful stylists often possess a keen eye for aesthetics
05FD602.5	5: Able to style the fabric using the given creative surface development technique

Course Code:	01FD601
Course Title:	Apparel Industry and Quality Assessment
Course Outcomes:	
01FD601.1	Comprehensive understanding of the structure
01FD601.2	Analyze current trends
01FD601.3	Garment assembly aims to optimize the production workflow by streamlining processes
01FD601.4	Enhance your professional development by acquiring industry-relevant certifications
01FD601.5	Enhance your professional development by acquiring industry-relevant certifications

Course Code:	05FD603
Course Title:	Visual merchandising
Course Outcomes:	
05FD603.1	Concept of design – Basic concepts and characteristics: visual merchandising.
05FD603.2	Concept and nature of visual merchandising. Knowledge of different of store management in merchandising.
05FD603.3	Meaning of store design and display
05FD603.4	Concept of store image and security.
05FD603.5	Concept of marketing communication and methods of communication.

Semester-VII

Course Code:	05GF701
Course Title:	Design Draping
Course Outcomes:	
05GF701.1	Acquire the knowledge of various type of Draping the course students will able to translate an endless variety of ideas by applying the principles of draping.
05GF701.2	Acquire the knowledge of transform the basic to various style pattern variations. At the end of the course students able to transform a sketch or a Mental picture give the three dimensional form to an idea for a garment with the help of a dress form.
05GF701.3	Acquire the understanding of flat and 3d style of garment Patterning. And develop the structure of a garment design using draping techniques.



05GF701.4	Development of the basic skill styling the garment and pattern. Introduction about custom fitted, basic pattern to prepare many different styles. A wedged shaped cut out in a pattern piece used to create shape and control the fit of a Garment. Create various types of skirt using draping.
05GF701.5	Acquire the knowledge of the garment manufacturing and before it how the pattern can be done. Analyses flat and Drape style of pattern making

Course Code:	01FD701
Course Title:	Artistic Fashion Illustration
Course Outcomes:	
01FD701.1	Introduction to the foundational skills and techniques involved in creating children's croques for fashion illustration. Students will learn to capture the unique proportions, expressions, and dynamism of children in their sketches
01FD701.2	A technical specification sheet is a document that provides detailed information about the technical aspects and features of a product, system, or process.
01FD701.3	Design development is a phase in the design process where initial concepts are refined, detailed, and transformed into a more comprehensive and specific plan.
01FD701.4	Design development is a phase in the design process where initial concepts are refined, detailed, and transformed into a more comprehensive and specific plan. This phase involves further exploration, research, and iteration to bring the design closer to its final form
01FD701.5	Design development is a phase in the design process where initial concepts are refined, detailed, and transformed into a more comprehensive and specific plan.

Course Code:	05MT751
Course Title:	Internship Report
Course Outcomes:	
05MT751.1	Orientation and introduction for fashion design students during their internship is crucial for setting the stage for a productive and meaningful experience
05MT751.2	During an internship in fashion design, students typically engage in various aspects of the design process and development to gain practical experience and skills.
05MT751.3	During an internship in fashion design, students have the opportunity to develop and refine various technical skills through hands-on experience.
05MT751.4	Fashion design students may encounter various challenges during their internship, which can provide valuable learning experiences.
05MT751.5	Project implementation and specialization during an internship in fashion design involve focusing on specific design projects or areas of interest within the field



Course Code:	05GF702
Course Title:	Research Work Report
Course Outcomes:	
05GF702.1	1: Explore various research field in fashion design
05GF702.2	2. Analyse innovation and new technologies in the field of textiles and apparelsector.
05GF702.3	3:Describe case studies in fashion design field and also develop the skill in reportwriting

Semester-VIII

Course Code:	02FD801
Course Title:	Advanced in Garment Construction.
Course Outcomes:	
02FD801.1	Understanding the industrial machine, and the uses of how the work. Acquire the knowledge of sewing Machine. Understand the concepts of trade related tools, safety usage and also getting the awareness of Measuring.
02FD801.2	Concept and Understanding of sewing machine parts, functions and maintains of the machine. Acquire the knowledge hand tacking. Maintaining and care theindustry sewing machine.
02FD801.3	Concept and Understanding of sewing machine parts, functions, andmaintains of the machine. Acquire the Process of garment construction. Understanding the meaning of hand stitches types of thread and needle sizes. Application of hand stitches.
02FD801.4	Understanding of the Seams and Seam Stitches and how to attach the fabric pieces Attachment of the trims in garment finishing.
02FD801.5	Understanding the added fullness in garments and what is the impact on the garment and emphasis. Acquire the knowledge of the hand stitching and machineseam.

Course Code:	01FD801
Course Title:	Advance Pattern Making
Course Outcomes:	
01FD801.1	Students will be able to create the design of garments with the help of patterns without wasting any extra fabric.
01FD801.2	Acquire the knowledge of transform the basic to various style pattern Variations, flat and 3d style of garment Patterning.
01FD801.3	Understand the basic concept of the darts manipulation and its importance into the garment and also transforming the pattern by converting the basic darts intodifferent dart location as well as fitting concept of the garment.
01FD801.4	Development of the basic skill styling the garment and pattern. Students will able to understand how to use the tools of pattern making, language of pattern &importance of specification applied in the garment industry.
01FD801.5	These course students will able to develop very advance pattern by analyzing the style details for complicated garments. At the end of the course students able to draft different creative patterns as per the garment design, by flat patternmaking process of women's wear garment without wasting a fabric



Programme: BA PUBLIC ADMINISTRATION

Course Code:	1PA101
Course Title:	Principles of Public Administration
Course Outcomes:	
1PA101.1	Awareness about the evolution and growth of the discipline of Public Administration.
1PA101.2	Acquire knowledge about the structure and principles of organization.
1PA101.3	Learn the basic principles of Public Administration.
1PA101.4	Learn the administrative approaches of Public Administration.
1PA101.5	Will have knowledge about modern approach.

Course Code:	1PA202
Course Title:	Indian Administration
Course Outcomes:	
1PA202.1	Knowledge regarding the origin and evolution of Indian Administration will be acquired.
1PA202.2	Learning about the constitutional and structural framework on which Indian Administration is based.
1PA202.3	Understanding the functioning of various administrative agencies under the Indian federal structure.
1PA202.4	Students will also be able to understand the Indian Constitutional Institutions.
1PA202.5	Awareness about the institutions and mechanism for citizen state interface.

Course Code:	1PA301
Course Title:	Public Personnel Administration
Course Outcomes:	
1PA301.1	Academic understanding of the key concepts and ideas of Public Personnel Administration.
1PA301.2	Knowledge about the recruitment, training and promotion system of civil services in India.
1PA301.3	Knowledge about the public personnel system in India (all india, Central, state services) .
1PA301.4	Knowledge about the employer- employee relationship.
1PA301.5	Awareness about the organizational set up and functions of ministry and the recruitment agencies



Course Code:	01PA401
Course Title:	Administrative System In Madhya Pradesh
Course Outcomes:	
01PA401.1	Delineating the constitutional provisions and dynamics of Union - State relationships.
01PA401.2	Knowledge of state legislative and executive systems in State of Madhya Pradesh.
01PA401.3	You will be able to understand the state executive system of Madhya Pradesh state.
01PA401.4	Awareness about the administrative set-up and mechanisms for the Citizen-State interface
01PA401.5	Students will also be able to understand the constitutional institutions of the state.

BA PA 5TH MAJOR

Course Code:	01PA501
Course Title:	Economy and Financial Administration
Course Outcomes:	
01PA501.1	Knowledge and understanding of Economic system and Financial Administration with special reference to India.
01PA501.2	Theoretical and analytical understanding of system of budget and its importance in smooth running of all activities of market, economy and finance.
01PA501.3	Features, budget making process and implementation of budget and challenges of Indian Economy.
01PA501.4	Knowledge and understanding of Public finance and various ways to control over public Finance
01PA501.5	Knowledge of key policies, resource mobilisation, taxation and the key bodies / institutions determining financial and economic matters.



5TH DSE -2ND

Course Code:	OEC-BA 20
Course Title:	Ruler and urban local government
Course Outcomes:	
OEC-BA 20.1	Developing an understanding of democratic decentralization and bodies working in this field.
OEC-BA 20.2	Knowledge of the evolution of local governance in India and in Madhya Pradesh.
OEC-BA 20.3	Students will be able to understand the institutional structure and personnel arrangements of Panchayati Raj Institutions.
OEC-BA 20.4	Students will be able to understand urban local governance and development.
OEC-BA 20.5	Students will be able to understand the problems and suggestions of various state level bodies in state and local governance.

5TH DSE – 1ST

Course Code:	Elective- I-05PA511
Course Title:	Social welfare administration
Course Outcomes:	
Elective-05PA511.1	I-Student will able to explain social welfare administration.
Elective-05PA511.2	I-Learning about the concept of social administration and its mechanism at the central and state levels
Elective-05PA511.3	I-Sensitizing to the needs of the weaker sections of the society.
Elective-05PA511.4	I-Acquiring knowledge about the welfare legislations and policies of the government.
Elective-05PA511.5	I-Motivating to work with welfare agencies, governmental and non-governmental.



Core-1 Police Organization And Administration

BA PA 6TH MAJOR

Course Code:	01PA601
Course Title:	Police Organization And Administration
Course Outcomes:	
01PA601.1	Will also be able to understand the concept of police and police administration.
01PA601.2	Understanding of constitutional and legal profile of police administration in India.
01PA601.3	Acquaintance with the police organizations at Central and State levels and various machineries working for law and order administration.
01PA601.4	Knowledge of police organisation, its hierarchical set up and functions and working scenario at the state level of Madhya Pradesh.
01PA601.5	Will also be able to understand district administration, community policing and international police organization for law and order administration.

BA PA 6TH DSE A1

Course Code:	05PA601
Course Title4:	Good Governance
Course Outcomes:	
05PA601.1	Conceptual understanding of various facets of governance, their scope and significance.
05PA601.2	Students will be able to understand good governance in the World Bank report, good governance in different governance systems and the impact of globalization.
05PA601.3	Students will be able to understand efforts and necessary elements to achieve good governance and good governance
05PA601.4	Knowledge of various tools and measures in practice for the achievement of good governance in India and in Madhya Pradesh
05PA601.5	Critical understanding of role of legislature, judiciary. executive, political bodies, NGOs and the civilians for meeting out good governance

BA PA 6TH DSE A2

Course Code:	05PA605
Course Title:	State and District Administration
Course Outcomes:	
05PA605.1	Students will be able to understand the Constitution structure of States in India, Governor, Chief Minister, Council of Ministers and State Legislature Organization.
05PA605.2	Students will be able to understand State Secretariat and Directorates, Chief Secretary, State Planning Department and Division, Divisional Commissioner
05PA605.3	Students will be able to understand District Administration, District Collector.



05PA605.4	Students will be able to understand Police Administration, Superintendent of Police, other officers at District level and Sub-District level Sub Divisional Magistrate and Block Development and Panchayat Officer, Tehsildar.
05PA605.5	Students will be able to evaluate various reforms in administration.

BA PA 6TH DSE B 1

Course Code:	05PA603
Course Title:	LABOUR WELFARE ADMINISTRATION IN INDIA
Course Outcomes:	
05PA603.1	Students will be able to understand the philosophy of labor welfare, historical evolution of labor welfare in India, statutory welfare provisions, industrial safety and industrial security factories act 1948.
05PA603.2	Students will be able to understand special categories of labor and ILO women workers in labor welfare.
05PA603.3	Students will be able to understand labor welfare legislations social security scheme, Employees State Insurance Act 1923, Employees Provident Fund and Vedic Provisions Act minimum wages act, etc.
05PA603.4	Students will be able to understand trade union trade union concept.
05PA603.5	Students will be able to understand the concept of industrial relation and employee discipline suspension

BA PA 6TH DSE B2

Course Code:	05PA604
Course Title:	Issues in public Administration
Course Outcomes:	
05PA604.1	Students will be able to understand accountability and control over administration and Lokpal and Lokayukta.
05PA604.2	Students will be able to understand integrity in administration and various agencies for investigating corruption in state and center.
05PA604.3	Emerging issues on administration - Good Governance, Right to Information, Consumer Protection Act 2005.
05PA604.4	Students will be able to understand political and permanent executive, generalist and specialist relationship, and administrative reforms.
05PA604.5	Students will be able to analyze contemporary issues of administration



Semester – 7

Course Code:	01PA701
Course Title:	Constitutional System in India
Course Outcomes:	
01PA701.1	Students will be able to understand about development of constitutional system in india
01PA701.2	Students will be able to understand about various forms of Government in India
01PA701.3	Students will be able to understand about The Judiciary
01PA701.4	Students will be able to understand about Various constitutional bodies in India
01PA701.5	Students will be able to understand about Constitutional amendment in India

Course Code:	05PA701
Course Title:	Organization and Management
Course Outcomes:	
05PA701.1	Students will be able to understand about meaning ,nature and significance ,task of management
05PA701.2	Students will be able to understand about various tools of administrative management
05PA701.3	Students will be able to understand about various theories of organization
05PA701.4	Students will be able to understand about accountability and control over legislative ,executive and Judiciary
05PA701.5	Students will be able to understand about various administrative reforms

Course Code:	02PA701
Course Title:	Research methodology
Course Outcomes:	
02PA701.1	Students will get in depth knowledge about the meaning and importance of Research.
02PA701.2	Students will get knowledge about the meaning and importance of review of literature and hypothesis
02PA701.3	Students will be able to describe the conditions for the interdisciplinary Research in Social Science
02PA701.4	Students get an understanding of Primary & Secondary sources.
02PA701.5	Students get in Depth knowledge about the data collection and writing.



Course Code:	05PA702
Course Title:	Public Administration In India
Course Outcomes:	
05PA702.1	Students will be able to understand evolution of Indian administration
05PA702.2	Students will be able to understand about political executive at the unionlevel
05PA702.3	Students will be able to understand about state administration
05PA702.4	Students will be able to relate between State and Central Government
05PA702.5	Students will be able to understand about various area of issuesadministration

Semester – 8

Course Code:	05PA702
Course Title:	Concept of human resources development
Course Outcomes:	
05PA702.1	Students will be able to understand Basic Concept of H.R.D. Definition, Nature Scope and Significance, Process of H.R.D., H.R.D.: Experiences.
05PA702.2	Students will be able to understand Macro Level Scenario of Human Resource Planning, Concept and Process of Human Resource Planning Methods and Techniques of Demand and Supply, Forecasting.
05PA702.3	Students will be able to understand Job Evaluation, Concepts, Scope and Limitations, Job Analysis, Job Description.
05PA702.4	Students will be able to understand Action Areas, Issues and Experiences, Selection and Recruitment, Induction and Placements, Performance and Potential Appraisal, Transfer, Promotion, Reward Policies, Training and Retraining.
05PA702.5	Students will be able to understand the Measurement in Human Resource Planning .

Course Code:	02PA801
Course Title:	Administrative thought
Course Outcomes:	
02PA801.1	Students will be able to understand Evaluation of administrative thought in India, Manu, Kautilya, Sukra, Vidhur and Kmandhak.
02PA801.2	Students will be able to understand Western administrative thought, Woodrow Wilson, F.W. Taylor, Henry Fayol, Max Weber, L. Gullick and L. Urwick.
02PA801.3	Students will be able to understand M.P. Follet, Elton Mayo, Herbert Simon, C. Barnard.
02PA801.4	Students will be able to understand Maslow, C. Argyris, F. Likert, F.Hirzberg, Douglas, McGregor
02PA801.5	Students will be able to understand Karl Marx, Yehezkel Dror, Fred Riggs, M.K. Gandhi



Programme : B.A. POLITICAL SCIENCE

Course Code	01PO101
Course Title:	INDIAN CONSTITUTION
Course Outcomes:	
01PO101.1	Students will be able to understand the constitutional development in India
01PO101.2	They will be able to answer how constituent assembly was formed.
01PO101.3	They will be able to describe the significance of the Preamble, Fundamental rights and Directive Principles of State Policy in the constitutional design of India.
01PO101.4	They will be able to answer questions pertaining to the function and role of the President, Prime Minister, Governor, Chief Minister, Parliament and State legislature, and the courts in the Constitutional design of India
01PO101.5	They will be able to identify the power division in constitution.

CourseCode:	01PO201
CourseTitle:	Political theory
01PO201.1	Student will be able to understand meaning and significance of Political theory, different ideologies and approaches
01PO201.2	They will be able to explain concept of state and its changing nature.
01PO201.3	These two concepts will further enhance their understanding of politics. They will be able to learn different dimensions of sovereignty and its relation with state
01PO201.4	They will be able to explain liberty, equality, justice and rights. Understanding of these key political concepts will facilitate students in real Political world.
01PO201.5	They will be able to explain different models of democracy and theories of representation.



CourseCode:	IPO301
CourseTitle:	western political thought
Course Outcomes:	
IPO301.1	The students will understand the significance of study of Political Philosophy. The students will know the key ideas of Greek Political thinkers Plato and Aristotle. They will be able to explain what was the ideal state according to Plato and how was it linked to his scheme of education and theory of justice. They will be able to answer how Aristotle differed from his master Plato on the conception of justice.
IPO301.2	They will be able to answer why Machiavelli is called the child of his age. They will be able to answer how and why Machiavelli gave an overriding priority to pragmatism above ethics and values in operation of statecraft.. They will be able to make a distinction among Hobbes, Locke, and Rousseau on the state of nature, the law of nature, nature and form of contract and the emergence of state from the contract.
IPO301.3	They will be able to understand the philosophy of utilitarianism.
IPO301.4	Students would learn the key ideas of idealist thinkers
IPO301.5	Students would learn the key ideas in Marxism and will be able to answer the Socialist and communist tradition after Marx in Political ideas of Lenin and Laski.

CourseCode:	IPO401
CourseTitle:	Indian political thinkers
Course Outcomes:	
IPO401.1	Students will be able to think of Manu and Kautilya.
IPO401.2	Students will be able to explain Social and Political Ideas of Rajaram Mohan Roy, Swami Vivekananda, Lokmanya Bal Gangadhar Tilak, Shri Aurobindo Ghosh.
IPO401.3	. They will be able to explain the key ideas of Mahatma Gandhi, Jawaharlal Nehru, Subhas Chandra Bose and Dr. Bhimrao Ambedkar
IPO401.4	Students will be able to evaluate the ideas of M.N.Roy. Ram Manohar Lohia, Jayaprakash Narayan and Pt. Deendayal Upadhyaya
IPO401.5	They will be able to understand the contribution of Women in Indian Political Thought



CourseCode:	01HI501
CourseTitle:	Public Administration
Course Outcomes:	
01HI501.1	An understanding about the key concept of academic discipline of public administration.
01HI501.2	Acquire the knowledge of administrative practices and functions in major areas of public finance and public personnel.
01HI501.3	Acquaintance with bureaucracy and the civil service recruitment procedure in India.
01HI501.4	These students will be able to develop knowledge about budget.
01HI501.5	Enhancing knowledge. and developing analytical ability on major contemporary administrative issues.

CourseCode:	05HI511
CourseTitle:	Indian's foreign policy
Course Outcomes:	
05HI511.1	On successful completion of this course, the students will be able to: This course will help students to develop an authentic understanding of India's Foreign Policy. Its historical context, recent developments and key issues facing the country. The course will provide students with a framework to analyze and become familiar with India's diplomatic agenda and current engagements with partner countries.
05HI511.2	It will help students develop an understanding of India as a leading power.
05HI511.3	It will help students develop an understanding of the major superpowers and their relationship with India.
05HI511.4	It will help the students to develop understanding in India and international platform
05HI511.5	It will help students develop an understanding of the South Asian neighboring states and their relationship with India



CourseCode:	05HI512
CourseTitle:	International Organizations
Course Outcomes:	
05HI512.1	Students will be able to understand the development and nature of international organizations
05HI512.2	Students will be able to understand the role of the United Nations at the international level.
05HI512.3	Students will be able to understand the role of the United Nations in international problems.
05HI512.4	Students will understand the role of the United Nations in the post-Cold War era.
05HI512.5	Students will be able to understand the role of disarmament in the international.

CourseCode:	01HI601
CourseTitle:	Comparative world constitution
Course Outcomes:	
01HI601.1	Students will be able to understand how the legislature, executive and judiciary of the British Constitution work and how these institutions interact
01HI601.2	Students will be able to understand how the legislature, executive and judiciary of the United States Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits
01HI601.3	Students will be able to understand how the legislature, executive and judiciary of the Swiss Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits. And will also learn about Direct Democracy
01HI601.4	Students will be able to understand how the legislature, executive and judiciary of the Chinese Constitution work and how these institutions interact. Along with this, we will also know what are their merits and demerits and how the Communist Party of China works.
01HI601.5	Students will be able to understand the various ways in which executive, legislature, and judiciary of one country differs from another, their merits and demerits, and will be able to develop a framework of comparative analysis.



CourseCode:	05HI501
Course Title:	international relational and contemporary issues
Course Outcomes:	
05HI501.1	Students will be able to understand the development of International Relations as a subject, its various definitions, theories and main concepts
05HI501.2	. Students will be able to understand globalization and its impact on the changing international political system in the world.
05HI501.3	Students will be able to understand the role and functions of the United Nations and the promotion of peace, security, economic and social development through the United Nations
05HI501.4	Students will be able to understand about the global economy and multilateral institutions
05HI501.5	Students will be able to understand global issues

CourseCode:	05HI502
CourseTitle:	International Law
Course Outcomes:	
05HI502.1	Students will be able to understand the origin and development of international law
05HI502.2	Students will be able to understand the relationship between international law and national law.
05HI502.3	Students will be able to understand international legal principles.
05HI502.4	Students will be able to understand the law of neutrality, rights and duties of neutral powers
05HI502.5	Students will be able to understand international rules of war.

CourseCode:	05HI503
CourseTitle:	State Politics In India
Course Outcomes:	
05HI503.1	Students would be able to learn the State formation after Independence and integration of Indian States
05HI503.2	Students would be able to learn the key drivers of Indian political system.
05HI503.3	The students will be able to explain how caste, religion language have influenced the identity politics in India
05HI503.4	They will be able to explain the ideology, social base and function of key political parties..
05HI503.5	The will be able to critically examine and explain the development issues in India especially in the farm and industrial sectors.



CourseCode:	05HI504
CourseTitle:	Federalism In India And Local Self Government
Course Outcomes:	
05HI504.1	. Students will be able to understand the nature of the Indian federal system and Centre-State relations
05HI504.2	Students will be able to understand the Sarkaria Commission report and the regional parties and federal system
05HI504.3	. Students will be able to understand the Emerging trends in Indian federalism, Development of local-self-Government after independence, 73th and 74th constitutional amendments.
05HI504.4	Students will be able to understand the Rural local self-government: Origination powers and functions, Urban local self-government: organization, powers and functions.
05HI504.5	Students will be able to understand the Finance and Local self Govt;Bureaucracy and Local self Govt;Women's reservation Panchayatand its effects,Local autonomy and its importance

CourseCode:	01PO701
CourseTitle:	Indian political system
Course Outcomes:	
01PO701.1	Students will be able to understand National Movements and itsEvolutions.
01PO701.2	Students will be able to understand Constituent Assembly Origin ,Organization and Functioning Silent Features
01PO701.3	Students will be able to understand Parliament, Composition, Power, Positions, Working and Pattern of Relations between Two Houses (Lok Sabha and Rajya Sabha).
01PO701.4	Students will be able to understand Federal System Evolution and Trends.
01PO701.5	Students will be able to understand Election Commission, Issues of Electoral reforms, Voting Behavior etc.



Course Code:	05PO505
Course Title:	Human rights theory and practice
Course Outcomes:	
05PO505.1	Students will be able to understand the meaning, nature, characters and basic concepts of Human Rights
05PO505.2	Students will be able to understand the social political history of Human Rights.
05PO505.3	Students will be able to understand International Conventional and Human Rights.
05PO505.4	Students will be able to understand Human Rights and Indian Constitution Preamble
05PO505.5	Students will be able to understand Human Rights in reference to Changing Human Society

Course Code:	05PO506
Course Title:	COLONIALISM AND NATIONALISM IN INDIA
Course Outcomes:	
05PO506.1	Students will be able to understand about various ways colonialism and nationalism
05PO506.2	Students will be able to understand colonial rule and its impact in India
05PO506.3	. Students will be able to understand about reform and resistance
05PO506.4	Students will be able to understand about nationalist politics and expansion in India
05PO506.5	Students will be able to understand varies social movement

Course Code:	04PO701
Course Title:	Research methodology
Course Outcomes:	
04PO701.1	Students will get in depth knowledge about the meaning and importance of Research.
04PO701.2	Students will get knowledge about the meaning and importance of review of literature and hypothesis
04PO701.3	Students will be able to describe the conditions for the interdisciplinary Research in Social Science
04PO701.4	Students get an understanding of Primary & Secondary sources.
04PO701.5	Students get in Depth knowledge about the data collection and writing.



CourseCode:	01PO801
CourseTitle:	Advance Political theory
Course Outcomes:	
01PO801.1	Students will be able to understand various interpretations of political theory, limitations of classical traditions.
01PO801.2	Students will be able to understand the influence of political theory and modern political theory.
01PO801.3	Students will be able to understand the views of Isa Berlin, Eric Boglin, Michael Oak Shot, Leo Strauss and John Rowley regarding the revival of political theory
01PO801.4	Students will be able to understand the end of ideology and its impact on political theory and new trends in political theory.
01PO801.5	Students will be able to understand democracy, socialism, modernism and postmodernism and feminism.

CourseCode:	05PO506
CourseTitle:	PUBLIC POLICY IN INDIA
Course Outcomes:	
05PO506.1	Students will be able to understand About the policy making process
05PO506.2	Students will be able to relate public policies to politics
05PO506.3	. Students will be able to relate public policies to political economy
05PO506.4	Students will be able to understand about policy decision making
05PO506.5	Students will be able to understand about Nehruvian vision ideology and policies



Programme: BA (ENGLISH)

Semester-I (Paper-I)

Course Code:	01EN101
Course Title:	Study of Poetry
Course Outcomes:	
01EN101.1	The Study of Poetry will not only instruct and delight the students,
01EN101.2	Student will able to have positivity. creativity and a new way of thinking After the study of this paper, the students will be able:
01EN101.3	Student will able to identify, interpret, analyze and appreciate the various elements of poetry
01EN101.4	Student will able to develop literary intellect and to appreciate the lyrical and sonorous quality of language
01EN101.5	Student will be able to know about various types of Short stories

Semester-II (Paper-I)

Course Code:	03ET202
Course Title:	Study of Drama
Course Outcomes:	
03ET202.1	Critically analyze and interpret the themes of fate and free will in Sophocles' "Oedipus Rex," demonstrating an understanding of how these concepts influence the narrative and the characters' actions within the play.
03ET202.2	Analyze the themes of knowledge, power, and the supernatural in Christopher Marlowe's "Dr. Faustus," understanding how these elements reflect the historical and cultural context of the Renaissance period.
03ET202.3	Examine the historical and cultural context of "Dr. Faustus," understanding how the Renaissance period's intellectual and religious conflicts influenced the play's themes and characters.
03ET202.4	Critically analyze the themes of identity and incompleteness in Girish Karnad's "Hayavadana" within the cultural and mythological context of Indian theatre.
03ET202.5	Student will be able to know about various types of Drama.



Course Code:	2ET302
Course Title:	STUDY OF FICTION
Course Outcomes:	
2ET302.1	Understand the evolution of early fiction through the study of seminal works by Defoe, Richardson, and Austen.
2ET302.2	Analyze the social, political, and economic contexts of Victorian England as reflected in the works of Dickens, Hardy, and Eliot.
2ET302.3	Explore the themes of psychological complexity and social change in early 20th-century literature through the works of Lawrence, Woolf, and Orwell.
2ET302.4	Examine the origins and development of detective and science-fiction genres through the pioneering works of Shelley, Stevenson, and Doyle.
2ET302.5	Student will be able to know about various types of Fiction

Course Code:	01EN501
Course Title:	English Language: Structure and Translation (Theory) (Group A Paper I)
Course Outcomes:	
01EN501.1	Define the English language structures and their functioning in relation to phonology and morphology,
01EN501.2	Evaluate the relationship between the English language and society,
01EN501.3	Establish an understanding of the English language's artistry and utility,
01EN501.4	Comprehend the elements and scope of translation,
01EN501.5	Apply and practice techniques of English Grammar,

Course Code:	05EN501
Course Title:	Indian English Poetry and Drama (Theory)
Course Outcomes:	
05EN501.1	Appreciate the historical trajectory of various genres of Indian Writing in English from colonial times until the present.
05EN501.2	Evaluate critically the contributions of major Indian English poets and dramatists.
05EN501.3	Analyze how the sociological, historical, cultural and political contexts impacted the texts selected for study.
05EN501.4	Interpret the strengths and constraints of Indian English as a literary medium.
05EN501.5	Student will be able to know about various types of Drama and Poetry



Course Code:	01EN601
Course Title:	Literary Criticism and Theories (Theory)
Course Outcomes:	
01EN601.1	Use literary theoretical concepts to develop their own interpretations of literary texts,
01EN601.2	Broaden their understanding of an author's work by summarizing, interpreting and exploring its value,
01EN601.3	Analyse and apply specific literary theories in order to distinguish them from other theories and to identify the structure and logic of their arguments,
01EN601.4	Think critically about a range of literary theories, Write in an insightful and informed way about specific literary theoretical works.
01EN601.5	Student will be able to know about various theories and criticism

Course Code:	05EN501
Course Title:	Indian Writing in English (Theory)(Group B Paper II)
Course Outcomes:	
05EN501.1	Depict the strengths and constraints of Indian English as a literary medium.
05EN501.2	Appreciate the historical trajectory of various genres of Indian Writing in English from colonial times till the present.
05EN501.3	Analyze Indian literary texts written in English in terms of colonialism, post colonialism, regionalism, and nationalism.
05EN501.4	Develop a literary sensibility and display an emotional response to the literary texts and cultivate a sense of appreciation for them.
05EN501.5	Evaluate critically the contributions of major Indian English poets, dramatists and novelists.

Course Code:	01EN501
Course Title:	English Language: Structure and Translation (Theory) (Group A Paper I)
Course Outcomes:	
01EN501.1	Define the English language structures and their functioning in relation to phonology and morphology,
01EN501.2	Evaluate the relationship between the English language and society,
01EN501.3	Establish an understanding of the English language's artistry and utility,
01EN501.4	Comprehend the elements and scope of translation,
01EN501.5	Apply and practice techniques of English Grammar,



Course Code:	05EN502
Course Title:	Famous Essayists and Their works
Course Outcomes:	
05EN502.1	Student will be able to know about literary work of Francis Bacon
05EN502.2	Student will be able to understand about literary work of Addison and Steele
05EN502.3	Student will be able to identify, interpret, analyze literary work of Charles Lamb
05EN502.4	Student will be able to develop literary work of Bertrand Russell
05EN502.5	Student will be able to know about literary work of Thomas Carlyle

Course Code:	05EN502
Course Title:	Indian Diaspora Literature (Theory) (Group A Paper II)
Course Outcomes:	
05EN502.1	Explain the theoretical backgrounds of international migration, race, and ethnicity.
05EN502.2	Define the various attributes of the Indian diaspora and the 'ambivalence of their attitudes towards their own motherland as well as their adopted homeland.
05EN502.3	Demonstrate the quest for cultural identity on the part of the citizens of the Indian diaspora and would be able to understand the psychological, social and political problems associated with diaspora culture.
05EN502.4	Discover their own country from a different prism through the eyes of writers who have lived in a composite culture.
05EN502.5	Create an interpretation of the texts in the context of diaspora conditions.

Course Code:	05EN601
Course Title:	Study of Poetry
Course Outcomes:	
05EN601.1	The Study of Poetry will not only instruct and delight the students,
05EN601.2	Student will be able to have positivity, creativity and a new way of thinking. After the study of this paper, the students will be able:
05EN601.3	Student will be able to identify, interpret, analyze and appreciate the various elements of poetry
05EN601.4	Student will be able to develop literary intellect and to appreciate the lyrical and sonorous quality of language
05EN601.5	Student will be able to know about various forms of Poetry



Course Code:	05EN602
Course Title:	History of English Literature
Course Outcomes:	
05EN602.1	Student will be able to know about from Renaissance to 17th century
05EN602.2	Student will able to understand about from Eighteenth to Romantic Age
05EN602.3	Student will able to identify literature of 19th century
05EN602.4	Student will able to develop literary intellect about literature of 20th century
05EN602.5	Students will be able to develop understanding about drama of 20th Century.

Course Code:	01EN701
Course Title:	Poetry, Types and stanza forms
Course Outcomes:	
01EN701.1	Student will be able to know about various form of Stanza.
01EN701.2	Student will able to understand about Poetry from Elizabethan period to Restoration Age
01EN701.3	Student will able to identify poetry from Neoclassical Age and PreRomantics
01EN701.4	Student will able to develop understanding about
01EN701.5	Students will be able to develop understanding about poetry of John Keats Lord Byron and Robert Southey.

Course Code:	05EN701
Course Title:	Study of Drama
Course Outcomes:	
05EN701.1	Student will be able to know about Drama and its elements.
05EN701.2	Student will able to understand about various types of Drama
05EN701.3	Student will able to identify, interpret, and analyze the Drama of Thomas Kid and William Shakespeare.
05EN701.4	Student will able to develop literary intellect about Drama of Gold Smith and Waiter Scott.
05EN701.5	Student will be able to know about Drama of G B Shaw and John Galsworthy.

**Semester-VII (Paper-III)**

Course Code:	05EN702
Course Title:	Elements of Short Story
Course Outcomes:	
05EN702.1	Student will be able to know about various approaches to Literature
05EN702.2	Student will able to understand about various approaches to Language
05EN702.3	Student will able to identify, interpret, analyze the research areas in English Language and Literature
05EN702.4	Student will able to develop literary intellect about library work of John Osborne
05EN702.5	Student will be able to know about literary work of Arther Miller

Semester-VII (Paper-IV)

Course Code:	02EN701
Course Title:	Research Methodology
Course Outcomes:	
02EN701.1	Student will be able to know about Meaning and Objectives of Research
02EN701.2	Student will able to understand about research in Language and Literature
02EN701.3	Student will able to identify, interpret, analyze the Materials and Tools of Research
02EN701.4	Student will able to develop literary intellect the Process of Research
02EN701.5	Student will be able to know about presentation of Research

Course Code:	01EN801
Course Title:	Literary Criticism
Course Outcomes:	
01EN801.1	Student will be able to know about various approaches to Literature
01EN801.2	Student will able to understand about various approaches to Language
01EN801.3	Student will able to identify, interpret, analyze the research areas in English Language and Literature
01EN801.4	Student will able to develop literary intellect about library work of John Osborne
01EN801.5	Student will be able to know about literary work of Arther Miller



Course Code:	02EN801
Course Title:	Famous Novelists and their works
Course Outcomes:	
02EN801.1	Student will be able to know about literary work of Henry Fielding
02EN801.2	Student will able to understand about literary work of Jane Austen
02EN801.3	Student will able to identify, interpret, analyze literary work of George Eliot
02EN801.4	Student will able to develop literary work of Charles Dickens
02EN801.5	Student will be able to know about literary work of Thomas Hardy



Programme: BA (HISTORY)

CourseCode:	1H1101
CourseTitle:	- History of Ancient India (from Early to 1205 AD
Course Outcomes:	
1H1101.1	Analyze the various stage of evolution and development of man in the Prehisrtoric Protohistoric and Historic age
1H1101.2	To have an in depth knowledge about the ancient civilization of India like Indus -Saraswati civilization,Vedic civilization ,later Vedic civilization etc.
1H1101.3	To explain in detail about golden past of India during the Mauryan andGupta period ,their conquests ,art ,architecture and literature etc.
1H1101.4	They will also able to write meningful essays on the nature state,society and economy during Early Medieval dynasties of Northern India
1H1101.5	They will also able to write meningful essays on the brave and courageous Rajput clans and the South Indian dynasties of India .

CourseCode:	1H1202
CourseTitle:	Idea of Bharat
Course Outcomes:	
1H1202.1	Acquire knowledge regarding the primitive life and cultural status of the people of Ancient India .
1H1202.2	They can gather knowledge about the society ,culture , religion and political History of Ancient India.
1H1202.3	changing socio- cultural scenarios of Ancient India .
1H1202.4	Students will get to know the golden past of India and feel proud of themselves.
1H1202.5	Students will be able to give presentation on Indian Economic tradition



CourseCode:	1HI301
Course Title:	History of Medieval India (from 1205 to 1739 AD)
Course Outcomes:	
1HI301.1	present clear cut ideas about the consolidation of the Delhi Sultanate
1HI301.2	Student will be able to draw the picture of period Mughal Empire and contemporary Indian rulers
1HI301.3	Students will be able to give an analytical view of various regional dynasties which dominated the political and cultural landscape of that period for a long time.
1HI301.4	Student will be able to write essay on nature and significance of Bhakti movement in India.
1HI301.5	- Students will be able to give presentation on art and architecture of Medieval Indian Period

Course Code:	1CA401
Course Title:	History of Modern India (From 1739 to 1947 AD)
Course Outcomes:	
1CA401.1	Students will be able to understand in detail about the colonial administration with all its salient features and the relation between the British and the Indian states .
1CA401.2	They will also have a clear view of the political condition and major events during last phase of the British Rule in India
1CA401.3	They will be able to answer queries related to formation of Indian National Congress .
1CA401.4	They will be able to prepare a short power point presentation of the Gandhian era .
1CA401.5	Students will write a short biography of prominent leaders who sacrificed their everything for the country .



CourseCode:	01HI501
CourseTitle:	Main Currents of World History (From 1453 to 1870 CE)
Course Outcomes:	
01HI501.1	Present clear cut ideas about the Bhakti movement in India and beginning of New Era in Europe
01HI501.2	Student will present a critical analysis of the causes of Industrial revolution and it's impact on the trade.
01HI501.3	Students will able to Prepare a chronological flow chart of the major revolutions and events of the world
01HI501.4	Student will able to write essay on nature and significance of Napoleon ,Metternich and Eastern Question.
01HI501.5	Students will be able to present an informative lecture on the unification of Italy and Germany

CourseCode:	05HI511
CourseTitle:	- History of Contemporary India (from 1947 to 2004AD)
Course Outcomes:	
05HI511.1	Analyze the Political Integration & Constitution of India
05HI511.2	To have an in depth knowledge about the Recognition of states & Parliamentary Democracy
05HI511.3	To explain in detail about Goa Liberation Movement ,Indo - China war & Indo -Pak Wars .
05HI511.4	They will also able to write meaningful essays on Indian Economy ,Status of Women & Emergency
05HI511.5	They will also able to write meaningful essays on the Foreign Policy of India & Emergence of Terrorism



CourseCode:	05HI512
CourseTitle:	History of Indian Culture
Course Outcomes:	
05HI512.1	Analyze the various stage of evolution and development of Art , Culture and civilization in Ancient India
05HI512.2	To have an in depth knowledge about the ancient religious condition and development
05HI512.3	To explain in detail about composition and stratification of society.
05HI512.4	They will also able to write meningful essays on the various religious and social reform movement .
05HI512.5	They will also able to write meningful essays on Social legislation and colonial Architecture

CourseCode:	01HI601
CourseTitle:	Main Currents of World History (From 1871 to 1950 CE)
Course Outcomes:	
01HI601.1	Students will learn about Indian renaissance and Rise of Germany
01HI601.2	Students will learn about the political scenario of the world and understand some famous personalities like Bismarck and Kaiser William II
01HI601.3	They will Prepare a research paper on important topics like Eastern questions, Berlin Congress and the Balkan Wars I and II .
01HI601.4	They will be able to understand all the aspects of world war closely and assess it's impact not only in Europe but Also in Europe .
01HI601.5	Students will be able to give a detailed description of the formation of the United Nations and it's role in various global differences



CourseCode:	05HI504
CourseTitle:	Ancient Indian Religion and Philosophy
Course Outcomes:	
05HI504.1	The students will be able to understand History of Various religious activities in India
05HI504.2	Students will know about different religious and philosophical ideologies emerged here .
05HI504.3	Students will also enriched with the knowledge of religion and philosophy prevalent in Ancient India .
05HI504.4	Students will also be aware of the circumstances of the development of various religions and Sects .
05HI504.5	Student will get rid of misconceptions related to Indian religions and their religious beliefs will get rationality

CourseCode:	05HI502
CourseTitle:	Ancient Indian Temple Architecture
Course Outcomes:	
05HI502.1	The students will be able to analyze the great heritage of temple architecture.
05HI502.2	To have an in depth knowledge of Ancient Indian various rock cut and caves .
05HI502.3	To explain in detail about temple architecture and different styles of temple architecture in India
05HI502.4	They will also able to write meaningful essay on various temples of Orissa and Rajasthan
05HI502.5	They will also able to write meaningful essays great construction of Engineering skills of temples of Chalukyas and Pallava.



CourseCode:	05HI503
CourseTitle:	Living Tradition in Ancient India
Course Outcomes:	
05HI503.1	Analyze the Living traditions in religion ,policy, education and wisdom
05HI503.2	To have an in depth knowledge about Living tradition in Art ,Crafts and textiles
05HI503.3	To explain in detail about living tradition in Performing Art ,Music ,Dance and Theatre
05HI503.4	They will also able to write meaningful essays on the spread of Indianculture and traditions abroad and its continuity
05HI503.5	They will also able to write meaningful essays on Protection , Preservation of Living tradition , Institutions , techniques and Laws

CourseCode:	05HI501
CourseTitle:	History of Freedom Movement in Madhya Pradesh (From 1836 to 1947 CE
Course Outcomes:	
05HI501.1	Understand the significance of various freedom movement and Satyagrah in Madhya Pradesh
05HI501.2	Know about the The revolt of 1857 and Non Co -operation movement in Madhya Pradesh
05HI501.3	To explain in detail about Civil Disobedience movement and Quit India Movement in Madhya Pradesh.
05HI501.4	They will also able to write meaningful essays on the role of Prajamandal and women & tribal in Madhya Pradesh
05HI501.5	Acquire knowledge about the contribution of the Princely States of Madhya Pradesh in the Freedom movement.



CourseCode:	01HI701
CourseTitle:	Historiography , Concepts , Methods and Tools
Course Outcomes:	
01HI701.1	Students will have a clear cut picture of the history and historiography in India and in other countries
01HI701.2	The students will know about the correlation of History with other discipline
01HI701.3	Students will be able to give a critical account of the various aspects related to historiography in ancient and medieval period
01HI701.4	Students will be able to answer crucial questions related to the Historiography in Modern period and Approaches
01HI701.5	Students will be able to give an Impressive enumeration on theories of History and themes in Indian History

CourseCode:	05HI505
CourseTitle:	Historical, Heritage and Tourism
Course Outcomes:	
05HI505.1	Student will learn about the definition, scope and significance of Heritage
05HI505.2	Students will gain Knowledge about the traditions of Stupa ,Gufa and chaitya in India
05HI505.3	Students will be able to throw light on the role of temples in the architectural tradition in Indian religious texts
05HI505.4	Students will get acquainted with the History and culture of various religious shrines and pilgrimage centers of India
05HI505.5	Students will be able to give a presentation on the importance of museums of India.



CourseCode:	04HI701
CourseTitle:	Research Methodology
Course Outcomes:	
04HI701.1	Students will get in depth knowledge about the meaning and importance of Research.
04HI701.2	Students will get knowledge about the meaning and importance of review of literature and hypothesis
04HI701.3	Students will be able to describe the conditions for the interdisciplinary Research in Social Science
04HI701.4	Students get an understanding of Primary & Secondary sources.
04HI701.5	Students get in Depth knowledge about the data collection and writing.

CourseCode:	05HI702
CourseTitle:	Women in Modern India
Course Outcomes:	
05HI702.1	Students will be able to understand the concept of gender and womanhood in Indian society
05HI702.2	Students will be able to understand its social, cultural, political and economic dimensions.
05HI702.3	Students will be able to know about the personalities, events, movements etc associated with the upliftment and emancipation of woman.
05HI702.4	Students will be able to develop empathy, sensitivity and appreciation for women.
05HI702.5	5-Students will be able to know about women's contribution towards our society through critical and analytical readings of the Indian society.



Course Code:	01HI801
Course Title:	Madhya Pradesh Through the Ages
Course Outcomes:	
01HI801.1	Students will have a clear cut picture of the History, culture ,art and architecture of Madhya Pradesh
01HI801.2	Students will be able to give a critical account of the various aspects related Madhya Pradesh
01HI801.3	Students will be able to Answer critical questions related to Madhya Pradesh in Political social and religious scenario.
01HI801.4	Students will be able to give an impressive enumeration on the development of Madhya Pradesh
01HI801.5	Students will be able to throw light on the events of Madhya Pradesh

Course Code:	02HI801
Course Title:	Religion and Philosophy
Course Outcomes:	
02HI801.1	Students will get the knowledge of the Philosophy of Ancient India.
02HI801.2	Students will get knowledge of Indus civilization and religion.
02HI801.3	Students will be able to study Buddhism and Jainism
02HI801.4	Students get knowledge of Shaivism and Shakta dharma and Vaishnism
02HI801.5	Students will be able to know the diverse Philosophical system of Ancient India.



Programme Name: B.A. (SOCIOLOGY)

Semester-I

Course Code:	01S0101
Course Title:	Indian Society and Culture
Course Outcomes:	
01S0101.1	Concept and nature of of Indian society. They will understand about the Ancient concepts like Varna, Ashram system, Theory of Karma etc.
01S0101.2	One of the important components of Indian society is the Tribal Society. Students get to know about the concept, classification, culture, beliefs, religion, customs, institutions as well as social problems, changes and mobility prevalent among the aboriginals and the schemes of tribal development.
01S0101.3	Learn the concepts of Indian Social Institutions, such as family, marriage, kinship etc., which will enable students to consider their roles in solving many social problems, Have a conceptual understanding of society, social groups, social structure, social institutions etc., which will help them in their day to day lives
01S0101.4	To explore and acquaint students about some vital issues and dimensions of the complex society they live in, by process of un-heartening of fact and figures about nature and structure of the urban regions historical trajectories.
01S0101.5	Learners will get an elaboration on Indian family system, issues and challenges of national Integration and issues of children, youth and elderly

Semester-II

Course Code:	01SO201
Course Title:	Basic Concepts of Sociology
Course Outcomes:	
01SO201.1	The Course will provide students with a solid grounding in the fundamentals of the sociology discipline
01SO201.2	One of the important components of Indian society is the Tribal Society. Students get to know about the concept, classification, culture, beliefs, religion, customs, institutions as well as social problems, changes and mobility prevalent among the aboriginals and the schemes of tribal development.
01SO201.3	Learn the concepts of Indian Social Institutions, such as family, marriage, kinship etc., which will enable students to consider their roles in solving many social problems, have a conceptual understanding of society, social groups, social structure, social institutions etc., which will help them in their day to day lives
01SO201.4	The course is designed to incorporate all the key concepts of Sociology which would enable the learner to develop keen insight to distinguish between the commonsense knowledge and Sociological knowledge
01SO201.5	Teaching of culture, socialization and civilization will emphasize not only the new agencies of socialization but also their significance in personality development.

**Semester-III**

Course Code:	01SO301
Course Title:	Basic Concepts of Social Research
Course Outcomes:	
01SO301.1	Understand meaning, scope, types and significance of Social Research, its scientific methods and the research processes.
01SO301.2	Know how to collect, analyze data, presentation and interpretation of data also able to write a qualitative and quantitative field report writing with different statistical analysis, classification and tabulation
01SO301.3	To give Students the Understanding about the Students are able to understand Nature of Scientific Method in Social Science Research. quantitative and qualitative approach to Research
01SO301.4	They understand the importance of research in social science. Student learns that research methods are universal and not bound by cultural location
01SO301.5	Understand meaning, scope, types and significance of Social Research, its scientific methods and the research processes.

Semester-IV

Course Code:	01SO401
Course Title:	Social Change and Development
Course Outcomes:	
01SO401.1	The Course will provide students with Explain meaning and types of social change
01SO401.2	Understand the process of social change
01SO401.3	Explain human development, social development sustainable development.
01SO401.4	Learn about development issues of ecology and environment
01SO401.5	Learn about development programmers in India and analyze its success and failures.

Semester-V

Course Code:	05SO501
Course Title:	Foundation of Sociological Thought
Course Outcomes:	
05SO501.1	Understanding the grand foundational themes of sociology.
05SO501.2	Appreciation of the classical concepts and theories to develop awareness of the limits of current knowledge
05SO501.3	Karl Marx, Max Weber, some of their important classical theories along with the development of sociological thoughts in India.
05SO501.4	Understand how theories reflect the historical and social contexts of the times and cultures in which they are developed
05SO501.5	Understand the concept and contributions of Mahatma Gandhi in the reform of Indian society. Explain Marxist perspective of B. R. Ambedkar,



Course Code:	01S0501
Course Title:	Crime and Society
Course Outcomes:	
01S0501.1	course will make the students to discover and analyze the fundamental knowledge of crime
01S0501.2	Demonstrate a rudimentary understanding of how race, gender and age affect offending and victimization;
01S0501.3	Identify and make use of different sources of media and other empirical data on crime and victimization, and assess its usefulness for
01S0501.4	Recognize the criminological importance of discrimination in shaping our understandings of crime and punishment;
01S0501.5	Understand the structure of the criminal justice system and the development of the institutions on which it is founded.

Course Code:	05SO502
Course Title:	Gender and Society
Course Outcomes:	
05SO502.1	To help the learners to understand the basic concepts related with gender and society.
05SO502.2	To enhance knowledge on wider issues of sexuality, body, gender and related aspects for better understanding
05SO502.3	To describe how gendered inequalities as social exclusions are differently expressed across different institutional domains.
05SO502.4	To explain the meaning and impact of Sexual Division of Labor, To learn about Socialization practice
05SO502.5	Understand interrelatedness of gender, race, ethnicity, class, disability, sexuality, age, religion, and other social categories Develop interpersonal, leadership and teamwork skills in group activities

Semester-VI

Course Code:	05SO602
Course Title:	Industrial Sociology
Course Outcomes:	
05SO602.1	The Students Sociological understanding of work and industry.
05SO602.2	The Students with the knowledge of industrialization process and work.
05SO602.3	To acquaint the student with dynamics of industrial relation and consequences
05SO602.4	Ability to describe the concepts and theoretical perspectives related to the workings of an industrial society
05SO602.5	Ability to explain and apply their understanding to specific issues of industrial organization and industrial relations



Course Code:	01SO601
Course Title:	Major Sociological Thinkers
Course Outcomes:	
01SO601.1	Students would be able to gain knowledge about the emergence and development of Sociology
01SO601.2	Explain contributions of Emile Durkheim. Describe the contribution of Herbert Spence
01SO601.3	Elaborate on contributions of Max Wabe, Analyse life & Major works of Karl Mark
01SO601.4	Learn about structural functional perspective of S. C. Dubey , Radhaamal Mukherjee, Govind Sadashiv Ghuriye
01SO601.5	Explain Marshiest perspective of B. R. Ambedkar, Understand the concept and contributions of Mahatma Gandhi in the reform of Indian society.

Course Code:	05SO601
Course Title:	Social Demography
Course Outcomes:	
05SO601.1	Understand the conceptual clarity and theoretical framework and perspectives with regard to demography.
05SO601.2	Understand the concept of demographic indicators and interpret theories of population growth
05SO601.3	Understand the concept of fertility, mortality and migration in the demographic processes
05SO601.4	Analyze population control in terms of social needs and appreciate population control measures and their implementation
05SO601.5	Learn about the various policies and programmers adopted in the country to check population

Course Code:	05SO604
Course Title:	Sociology of Indian Tribes
Course Outcomes:	
05SO604.1	This syllabus will provide the scientific knowledge and demography of tribes and scheduled tribes
05SO604.2	Students will be able to understand the socio-cultural specially of tribal society, their traditional economy and political organization
05SO604.3	Study of tribal problems, will be able to develop the feeling of resistance in students and will tars their thinking more logical and scientific
05SO604.4	Study of this paper will help the students to exceed in different competitive examination and interviews
05SO604.5	This course will provide students a vast area of job opportunities in the field of government, private, research and NGOs sector etc.



Course Code:	05SO603
Course Title:	Sociology of Media
Course Outcomes:	
05SO603.1	Students will be able to understand nature and recent trends in Sociology of Media.
05SO603.2	Discuss the relationship between media and culture using different theories
05SO603.3	Able to evaluate impact of media on Indian society.
05SO603.4	Critique ideological structures in society including those of gender, race, caste, class; discuss how the media propagates this
05SO603.5	They will be able to understand changing media scenario in the context of contemporary issues.

Semester-VII

Course Code:	01SO701
Course Title:	Indian Sociological Thought
Course Outcomes:	
01SO701.1	Analyze the historical development of Indian sociological thought, tracing its evolution from ancient times to contemporary perspectives.
01SO701.2	Evaluate the key concepts. Theories and methodologies employed within Indian sociology including caste. Modernization. Gender. Religion. And
01SO701.3	Critically assess the contributions of prominent Indian sociologists and their impact on the discipline
01SO701.4	Examine the intersectionality of various social structures and identities in Indian society. Including class, caste, religion, and region.
01SO701.5	Interpret the socio-cultural dynamics of Indian society through the lens of indigenous sociological frameworks. Considering both traditional and contemporary perspectives.

Course Code:	05SO701
Course Title:	Political Sociology
Course Outcomes:	
05SO701.1	Analyze the relationship between social strictures and political processes, demonstrating understanding of how societal factors shape Political behavior and outcomes.
05SO701.2	Evaluate key theories and concepts in political sociology, including but not limited to power authonts democracy. Citizenship. And globalization and apply them to real-work contexts.
05SO701.3	Examine the role of social movements and collective action in influencing Political change and shaping public policies.
05SO701.4.	Critically assess the dynamics of political power, governance structures, and state-society relations within diverse political systems.
05SO701.5	. Investigate the impact of inequality, social stratification, and identity politics on political participation, representation, and policy outcomes.



Course Code:	02SO701
Course Title:	Sociological Research Methods
Course Outcomes:	
02SO701.1	Understand the fundamental principles and theories underpinning sociological research. Including its historical context and contemporary relevance
02SO701.2	Demonstrate proficiency in identifying and formulating research questions that are sound
02SO701.3	Gain competence in designing research instruments such as surveys, interviews, observations, and experiments, while considering issues of reliability, validity, and bias.
02SO701.4	Cultivate ethical awareness and sensitivity to the ethical considerations inherent in sociological research, including issues of confidentiality, informed consent and the protection
02SO701.5	Engage in collaborative research activities and demonstrate the ability to work effectively in interdisciplinary and multicultural research teams, fostering intellectual exchange and mutual respect

Course Code:	05SO702
Course Title:	Social Psychology
Course Outcomes:	
05SO702.1	Understand the fundamental theories and concepts in social psychology, including social influence, social cognition, social perception, and group dynamics.
05SO702.2	Analyze and evaluate real-world social phenomena and behaviors through the lens of social psychological principles.
05SO702.3	Apply social psychological theories to explain individual and group behavior in various contexts such as relationships, culture, and organizational settings
05SO702.4	Apply knowledge of social psychology to address contemporary social issues and challenges, such as discrimination, social justice, and intergroup conflicts.
05SO702.5	Develop skills in self-reflection and self-awareness regarding one's own social behaviors, attitudes, and biases.



Semester-VIII

Course Code:	01SO801
Course Title:	Intersectionality and Social Stratification
Course Outcomes:	
01SO801.1	Analyze the concept of intersectionality and its significance in understanding the complexities of social stratification.
01SO801.2	Identify and describe various dimensions of social identity including but not limited to race, gender class, sexuality, and ability.
01SO801.3	Examine historical and contemporary examples of marginalized groups and their struggles for recognition, representation, and equality,
01SO801.4	Critically assess theoretical frameworks and methodologies used in intersectional analyses of social stratification
01SO801.5	Demonstrate an understanding of the ways in which systems of power and privilege conspire to marginalize certain groups while privileging other.

Course Code:	02SO801
Course Title:	Environmental Sociology
Course Outcomes:	
02SO801.1	Understand the interdisciplinary nature of economic sociology, integrating theories and methods from sociology and economics to analyse economic phenomena.
02SO801.2	Critically evaluate key theoretical frameworks within economic sociology, such as rational choice theory, embeddedness theory, and social network theory.
02SO801.3	Explore the role of social institutions, including markets, firms, and governments, in shaping economic behaviour and outcomes.
02SO801.5	Analyse the social construction of economic categories, such as money, labour, and value, and their implications for economic organisation and inequality.
02SO801.5	Examine the relationship between economic processes and broader social structures, including class, gender, race, and globalization.

**BA (ECONOMICS)**

CourseCode:	01EC101
CourseTitle:	Indian economy
Course Outcomes:	
01EC101.1	Analyze the trends and sectoral composition of national income, and demographic features
01EC101.2	TO explain green revolution and new technology in agriculture
01EC101.3	To explain in detail about MSME ,startup India, and make in India
01EC101.4	They will able to know about niti aayog and Indian economicproblem
01EC101.5	TO explain green revolution and new technology in agriculture

CourseCode:	01EC202
CourseTitle:	MICRO ECONOMICS
Course Outcomes:	
01EC202.1	Analyze the Relation of economics and methods of economics.
01EC202.2	TO explaine ordinal and cardinal approach ,law of demand andelasticity of demand
01EC202.3	To explain law of variable proportion , concept of revenue and cost.
01EC202.4	They will able to know about market and price determination
01EC202.5	They will also able to know factor pricing and concept of welfareeconomics

CourseCode:	01EC302
CourseTitle:	MACRO ECONOMICS
Course Outcomes:	
01EC302.1	Understand the role of expectations in macroeconomics
01EC302.2	Gain knowledge about the alternative theories of endogenous expectations formation
01EC302.3	Exposure to some later developments in macroeconomic theory like Real Business Cycle Hypothesis vs. New Keynesian Economics
01EC302.4	Understand about the basics of open economy macroeconomics.
01EC302.5	Develop knowledge and understanding of theory and concepts offinancial market system functions



CourseCode:	01EC401
Course Title:	Money, Banking and public finance
Course Outcomes:	
01EC401.1	Understand the concept of money and various approaches related to money.
01EC401.2	Concept of inflation, deflation and stagflation
01EC401.3	Know the working of money market, banking and financial system Concept of inflation, deflation and stagflation
01EC401.4	Learn the nature, scope and importance of public finance
01EC401.5	Know the various theories of public finance

CourseCode:	05EC501
Course Title:	Elementary economics
Course Outcomes:	
05EC501.1	derivatives, continuous and differentiable functions, Euler's Theorem and Implicit function and application in Comparative Statics
05EC501.2	inequality constraints and Kuhn-Tucker Conditions
05EC501.3	Value function and Envelope theorem applied to consumer theory
05EC501.4	Linear programming; Duality Theorem
05EC501.5	Difference Equations and applications in economic models e.g. cobweb models

CourseCode:	01EC501
Course Title:	Economic growth and development
Course Outcomes:	
01EC501.1	Understanding of concepts and approaches in Economic Development and Economic Growth.
01EC501.2	Explain different measures and indicators of development
01EC501.3	students will understand theories of growth .big push theory
01EC501.4	they will be able to learn development model and interlinkages between environment and development
01EC501.5	Explain development planning in Indian perspective



CourseCode:	05EC502
Course Title:	Public finance
Course Outcomes:	
05EC502.1	Differentiate between public finance and private finance
05EC502.2	Explain tax and non- tax revenue, differentiate between direct and indirect tax, explain shifting of taxation and effects of taxation
05EC502.3	Describe the effects of taxation on production, distribution and economic stability, role of public expenditure in developing country
05EC502.4	Explain the types of public debt and how debt is repaid
05EC502.5	Explain the main objectives of fiscal policy

CourseCode:	05EC604
CourseTitle:	Demography
Course Outcomes:	
05EC604.1	understanding of concepts and approaches in demography, growth in world population
05EC604.2	Explain different techniques of analysis ,measurement ofpopulation
05EC604.3	Explain population and development theory demographic transition
05EC604.4	Understanding concept of urbanization in India
05EC604.5	Understanding population policy and population projection inIndia

CourseCode:	05EC603
CourseTitle:	Mathematics for economics
Course Outcomes:	
05EC603.1	Learn the basic mathematical prerequisites for other papers in the Honors, Masters, and Ph.D. program
05EC603.2	Learn mathematical techniques and methods used in academics, research, and industry
05EC603.3	Able to express economic ideas using mathematics and analyze economic models using mathematical methods
05EC603.4	student will learn to become more logical in making or refutingarguments
05EC603.5	Learn techniques of single-variable optimization and think abouttheir



CourseCode:	05EC601
CourseTitle:	GENDER ECONOMICS
Course Outcomes:	
05EC601.1	Analyze gender economics, role of women studies centers , Vedic teaching and women.
05EC601.2	TO explain women demography and though of dominant Indianwomen
05EC601.3	To explain in participation of women in Indian economy andwomen in labor market.
05EC601.4	They will able to know women empowerment, role of self-helpgroups
05EC601.5	They will also know women and entrepreneurship ,sidbi, IIE

CourseCode:	01EC601
CourseTitle:	Statistics
Course Outcomes:	
01EC601.1	To impart knowledge on Statistical concepts like Data Collection, Measures of Central Tendency and Dispersion
01EC601.2	TO explain Weighted Arithmetic, Median and Mode, MeanDeviation
01EC601.3	To explain in detail Correlation and Regression
01EC601.4	They will able to know about Time Series and Index Number
01EC601.5	They will also able to know Probability and Sources of Data inIndia



CourseCode:	05EC602
CourseTitle:	International Economics
Course Outcomes:	
02SO801.1	analyze and apply the trade theories and theories of tariff;
02SO801.2	apply and analyze the different policies for BOPs adjustments of developing countries like India
02SO801.3	Comment critically on and participate in current debates on international economic policy.
02SO801.4	Develop the ability to explain concepts and theories related to international trade.
02SO801.5	Develop the ability to understand the basic economic terms like exchange rates, Balance of payments, terms of trade etc.

CourseCode:	01EC701
Course Title:	History of economic thought
Course Outcomes:	
01EC701.1	Students Learn about controversies between the various theoretical approaches.
01EC701.2	Able to understand economics in effective manner and can compare the different
01EC701.3	Develop a chronological understanding of the development of economic thought Relate the developments in different schools of thought with contemporary issues.
01EC701.4	Demonstrate competence in written and oral communication and convincingly present arguments with virtual tools.
01EC701.5	Engage in reflective thinking leading to self-learning and lifelong learning.

Course Code:	01EC801
Course Title:	International Economics
Course Outcomes:	
01EC801.1	analyze and apply the trade theories and theories of tariff
01EC801.2	apply and analyze the different policies for BOPs adjustments of developing countries like India
01EC801.3	Comment critically on and participate in current debates on international economic policy.
01EC801.4	Develop the ability to explain concepts and theories related to international trade.
01EC801.5	Develop the ability to understand the basic economic terms like exchange rates, Balance of payments, terms of trade etc.



CourseCode:	05EC701
Course Title:	Agricultural Economics
Course Outcomes:	
05EC701.1	To understand the importance of agriculture in economic development.
05EC701.2	To apply principles of farm management/agricultural production economics benefitting farm decision making.
05EC701.3	To examine various policies (credit, input, pricing, food security, marketing, trade) pertaining to Indian agricultural sector
05EC701.4	To enhance the students_ awareness on contemporary debates of problems of agriculture sector.
05EC701.5	To enhance the students_ awareness on contemporary debates of problems of agriculture sector.

CourseCode:	02EC801
Course Title:	Infrastructure Economics
Course Outcomes:	
02EC801.1	Understand infrastructure economics, distinguishing between physical and social components
02EC801.2	Apply traditional and modern methodologies for economic growth through infrastructure.
02EC801.3	Excel in evaluating infrastructure as a public good, mastering marginal cost pricing and handling pricing controversies.
02EC801.4	Skillfully address pricing challenges, harmonizing free- market principles with equity and efficiency goals.
02EC801.5	Adeptly apply economic concepts to assess infrastructure projects, recognizing the role of non-rivals in consumption and shaping development.

CourseCode:	02EC701
Course Title:	Research Methodology
Course Outcomes:	
02EC701.1	Understand the scientific methods of research, research process and research design
02EC701.2	Understand the sampling techniques and sampling procedures
02EC701.3	Know the various methods of data collection, tools and techniques
02EC701.4	Know the reliability and validity of measurement of scaling
02EC701.5	Know the purpose of project proposal and project report



Faculty of Paramedical Science and Technology



Programme: Ph.D.inPharmaceutical Sciences

Course Work

Course Title:	Research Methodology
Course Code:	151PH01
Course Outcomes:	
151PH01.1	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01.2	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01.3	Develop insights about the statistical analysis tools and techniques for better research outcomes
151PH01.4	To explain the art of interpretation and the art of writing research reports
151PH01.5	Evaluate the role and functioning of computer in research

Course Title:	Advances in Pharmaceutical Sciences
Course Code:	151PY02
Course Outcomes:	
151PY02.1	Students will be able to understand the Introduction and Application of New Drug Development strategies, Extraction methods for Herbal Drugs and Applications of Nanotechnology in Pharmaceutical Science.
151PY02.2	The student will enable to utilize the GMP Guidelines.
151PY02.3	Identify Drug discovery and Development.
151PY02.4	Understand about the Polymers and Modern synthetic methods.
151PY02.5	Student will be able to explore Methods of extraction, isolation and purification of plant constituents_ novel solvent extraction methods, modern chromatographic methods (HPLC, HPTLC and GLC).



Course Title:	Research and Publication Ethics
Course Code:	151PH03
Course Outcomes:	
151PH03.1	Students will be able to understand the ethics in conduct of scientific research
151PH03.2	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03.3	Identify research misconduct and predatory publications.
151PH03.4	Understand about the infer the ethical framework and principles
151PH03.5	Student will be able to explore plagiarism tools for a valid and ethical research report.
151PH03.6	Develop a valid and ethical research report.

Course Title:	Review of Literature
Course Code:	151PH11
Course Outcomes:	
151PH11.1	Students will able to produce his/her research outcome on writing a review of literature in respect of recent trends and technologies.



Programme

M. Pharmacy (Pharmaceutical Chemistry)

Semester-I

Course Code:	MPC 101T
Course Title:	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES
Course Outcomes:	
MPC 101T.1	CO1: To understand the basic principle, instrumentation & application of UV- Visible spectroscopy, IR spectroscopy, Spectrofluorimetry, Flame emission spectroscopy & Atomic absorption spectroscopy.
MPC101T.2	CO2: To acquired the knowledge of principle, instrumentation & application of NMR spectroscopy.
MPC 101T.3	CO3: To understanding the Mass Spectroscopy.
MPC 101T.4	CO4: To familiarize with basic concept of chromatography & various different types of Chromatography.
MPC 101T.5	CO5: To comprehend the basic concepts of Electrophoresis & X ray Crystallography.
MPC 101T.6	CO6: To understand the basic principle, instrumentation & application of Potentiometry & Thermal Techniques.

Course Code:	MPC 102T
Course Title:	ADVANCED ORGANIC CHEMISTRY-I
Course Outcomes:	
MPC 102T.1	CO1: To understand the Basic Aspects of Organic Chemistry and Addition reactions.
MPC 102T.2	CO2: To understand the Study of mechanism and synthetic applications of following named Reactions.
MPC 102T.3	CO3: To understand the Synthetic Reagents & Applications and Protecting groups.
MPC 102T.4	CO4: To understand the Heterocyclic Chemistry.
MPC102T.5	CO5: To understand the Synthons approach and retrosynthesis applications.

Course Code:	MPC 103T
Course Title:	ADVANCED MEDICINAL CHEMISTRY
Course Outcomes:	
MPC 103T.1	CO1: To understand the different stages of drug discovery.
MPC 103T.2	CO2: To understand the Study of Role of medicinal chemistry in drug research.
MPC 103T.3	CO3: To understand the different techniques for drug discovery.
MPC 103T.4	CO4: To understand the various strategies to design and develop new drug like molecules for biological targets.
MPC 103T.5	CO5: To understand the in study of Peptidomimetics.



Course Code:	MPC 104T
Course Title:	CHEMISTRY OF NATURAL PRODUCTS
Course Outcomes:	
MPC 104T.1	CO1: To understand the Basic Aspects of natural compounds and their chemistry and medicinal importance.
MPC 104T.2	CO2: To understand the Study of natural compounds as lead molecules for new drug discovery.
MPC 104T.3	CO3: To understand the the concept of rDNA technology tool for new drug discovery.
MPC 104T.4	CO4: To understand the structural elucidation of compounds of natural origin.
MPC 104T.5	CO5: To understand the Isolation, purification and characterization of simple chemical constituents from natural source.

Semester-II

Course Code:	MPC 201T
Course Title:	ADVANCED SPECTRAL ANALYSIS
Course Outcomes:	
MPC 201T.1	CO1: To understand about the basic concept of UV and IR spectroscopy.
MPC 201T.2	CO2: To understand about the concept, working and importance of NMR spectroscopy
MPC 201T.3	CO3: To understand the concept of Mass spectroscopy and fragmentation.
MPC 201T.4	CO4: To understand the principle, instrumentation and application of Chromatography.
MPC 201T.5	CO5: To understand about the Raman spectroscopy and Radio immune assay.

Course Code:	MPC 202T
Course Title:	ADVANCED ORGANIC CHEMISTRY-II
Course Outcomes:	
MPC 202T.1	CO1: To understand the Basic Aspects of Green Chemistry and Introduction, principles of green chemistry addition reactions.
MPC 202T.2	CO2: To understand the Study of Chemistry of peptides and . Coupling reactions in peptide synthesis.
MPC 202T.3	CO3: To understand the Synthetic Basic principles of photochemical reactions. Photo-oxidation, photo-addition and photo-fragmentation.
MPC 202T.4	CO4: To understand the Catalysis.
MPC 202T.5	CO5: To understand the Stereochemistry & Asymmetric Synthesis.



Course Code:	MPC 203T
Course Title:	COMPUTER AIDED DRUG DESIGN
Course Outcomes:	
MPC 203T.1	CO1: To understand the Basic Aspects of Role of Computer aided drug design indrug discovery.
MPC203T.2	CO2: To understand the Study of different Computer aided drug design techniques and their applications.
MPC 203T.3	CO3: To understand the various strategies to design and develop new drug likemolecules.
MPC 203T.4	CO4: To understand the working with molecular modeling soft wares to designnew drug.
MPC 203T.5	CO5: To understand the in screening virtual screening protocols.

Course Code:	MPC 204T
Course Title:	PHARMACEUTICAL PROCESS CHEMISTRY
Course Outcomes:	
MPC 204T.1	CO1: To understand the strategies of scale up process of apis and intermediates.
MPC 204T.2	CO2: To understand the various unit operations and various reactions in processchemistry.
MPC 204T.3	CO3: To understand the process is to develop synthetic routes that are safe, cost-effective, environmentally friendly, and efficient.
MPC204T.4	CO4: To understand the subject is designed to impart knowledge on the development and optimization of a synthetic route/s and the pilot plant procedure.
MPC 204T.5	CO5: To understand the manufacture of Active Pharmaceutical Ingredients (APIs) and new chemical entities (NCEs) for the drug development phase.

Semester-III

Course Code:	MRM 301T
Course Title:	RESEARCH METHODOLOGY AND BIOSTATISTICS
Course Outcomes:	
MRM 301T.1	CO1: To Understand General Research Methodology.
MRM 301T.2	CO2: To Evaluate the Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, (students —tll test, ANOVA, Correlation coefficient, regression), null hypothesis.
MRM 301T.3	CO3: To Analyze the Medical Research: History, values in medical ethics, autonomy, beneficence, non-maleficence, double effect, conflicts between autonomy and beneficence/non-maleficence, euthanasia.
MRM 301T.4	CO4: To Understand CPCSEA guidelines for laboratory animal facility.
MRM 301T.5	CO5: To Understand Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical researchcombined with medical care.



Programme

M. Pharmacy (Pharmaceutics-MPH)

Semester-I

Course Code:	MPH 101T
Course Title:	MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES
Course Outcomes:	
MPH 101T.1	CO1: To understand the working, Principals& applications of various analytical instruments like UV-Visible spectroscopy, IR spectroscopy, Spectrofluorimetry and Flame emission spectroscopy and Atomic absorption spectroscopy.
MPH 101T.2	CO2: To know the various basic working, Principals& applications of NMRspectroscopy
MPH 101T.3	CO3: To know the various basic working, Principals& applications of MassSpectroscopy
MPH 101T.4	CO4: To understandabout the Chromatography: Principle,apparatus, instrumentation
MPH 101T.5	CO5: To understand the Electrophoresis Principle, Instrumentation, Working&conditions & their applications
MPH 101T.6	CO6: To understand about the Immunological assay

Course Code:	MPH 102T
Course Title:	DRUG DELIVERY SYSTEM
Course Outcomes:	
MPH 102T.1	CO1: To understand about the sustained release and controlled release formulation.
MPH 102T.2	CO2: To understand about the Rate Controlled Drug Delivery Systems.
MPH 102T.3	CO3: To understand about the Gastro-Retentive Drug Delivery Systems.
MPH 102T.4	CO4: To understand about the Ocular Drug Delivery Systems.
MPH 102T.5	CO5: To understand about the Transdermal Drug Delivery Systems.
MPH 102T.6	CO6: To understand about the Protein and Peptide Delivery.
MPH 102T.7	CO7: To understand about the Vaccine delivery systems.

Course Code:	MPH 103T
Course Title:	MODERN PHARMACEUTICS
Course Outcomes:	
MPH 103T.1	CO1: To understand about the Preformation concept of pharmaceutical products.
MPH 103T.2	CO2: To understand about the Validation and calibration of Master plan, ICH &WHO guidelines of equipment and dosage form.
MPH 103T.3	CO3: To understand about the c-GMP & Industrial Management for layout ofbuildings, services, equipments and their Production.
MPH 103T.4	CO4: To understand the Compression and compaction of tablets.



MPH 103T.5	CO5: To understand about the consolidation parameters like Diffusion, Dissolution and Pharmacokinetic parameters of pharmaceutical products.
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Course Code:	MPH 104T
Course Title:	REGULATORY AFFAIR
Course Outcomes:	
MPH 104T.1	CO1: To understand about the Concepts of innovator and generic drugs and drug development process Regulatory guidance's and guidelines for filing and approval process.
MPH 104T.2	CO2: To understand about the Submission of global documents in CTD/ eCTD formats and Post approval regulatory requirements for actives and drug products.
MPH 104T.3	CO3: To understand about the Preparation of Dossiers and their submission to regulatory agencies in different countries.
MPH 104T.4	CO4: To understand about the Pharmacy vigilance and process of monitoring in clinical trials.

Semester-II

Course Code:	MPH 201T
Course Title:	MOLECULAR PHARMACEUTICS (NANO TECHNOLOGY & TARGETED DDS) (NTDS)
Course Outcomes:	
MPH 201T.1	CO1: To understand the target Drug Delivery System.
MPH 201T.2	CO2: To understand targeting method.
MPH 201T.3	CO3: To understand the micro capsule /micro sphere.
MPH 201T.4	CO4: To understand the pulmonary Drug Delivery System.
MPH 201T.5	CO5: To understand nucleic acid based therapeutic delivery system.

Course Code:	MPH 202T
Course Title:	ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS
Course Outcomes:	
MPH 202T.1	CO1: The basic concepts in Biopharmaceutics and pharmacokinetics.
MPH 202T.2	CO2: The use raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination.
MPH 202T.3	CO3: The critical evaluation of biopharmaceutic studies involving drug product equivalence.
MPH 202T.4	CO4: The design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters.
MPH 202T.5	CO5: The potential clinical pharmacokinetic problems and application of basics of pharmacokinetic.



Course Code:	MPH 203T
Course Title:	COMPUTER AIDED DRUG DELIVERY SYSTEM
Course Outcomes:	
MPH 203T.1	CO1: History of Computers in Pharmaceutical Research and Development and Computational Modeling of Drug Disposition.
MPH 203T.2	CO2: Computers in Preclinical Development.
MPH 203T.3	CO3: Optimization Techniques in Pharmaceutical Formulation Computers in Market Analysis.
MPH 203T.4	CO4: Computers in Clinical Development Artificial Intelligence (AI) and Robotics.
MPH 203T.5	CO5: Computational fluid dynamics (CFD).

Course Code:	MPH 204T
Course Title:	COSMETIC AND COSMECEUTICALS
Course Outcomes:	
MPH 204T.1	CO1: Key ingredients used in cosmetics and cosmeceuticals.
MPH 204T.2	CO2: Key building blocks for various formulations.
MPH 204T.3	CO3: Current technologies in the market.
MPH 204T.4	CO4: Various key ingredients and basic science to develop cosmetics and Cosmeceuticals.
MPH 204T.5	CO5: Scientific knowledge to develop cosmetics and cosmeceuticals with Desired Safety, stability, and efficacy.

Semester-III

Course Code:	MRM 301T
Course Title:	RESEARCH METHODOLOGY AND BIOSTATISTICS
Course Outcomes:	
MRM 301T.1	CO1: To Understand General Research Methodology.
MRM 301T.2	CO2: To Evaluate the Biostatistics: Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, (students —tll test, ANOVA, Correlation coefficient, regression), null hypothesis.
MRM 301T.3	CO3: To Analyze the Medical Research: History, values in medical ethics, autonomy, beneficence, non-male ficence, double effect, conflicts between autonomy and beneficence/non-male ficence, euthanasia.
MRM 301T.4	CO4: To Understand CPCSEA guidelines for laboratory animal facility.
MRM 301T.5	CO5: To Understand Declaration of Helsinki: History, introduction, basic principles for all medical research, and additional principles for medical research combined with medical care.



Programme: B. Pharmacy

Semester-I

Course Code:	BP101T/99PY101
Course Title:	HUMAN ANATOMY AND PHYSIOLOGY I–THEORY
Course Outcomes:	
BP101T/99PY101.1	To recognize the various homeostatic mechanisms, basic anatomical Term, cellular level organization & characteristics of different types of tissues and their locations in various organs.
BP101T/99PY101.2:	To organize the structure and functions of skin, bones and joints of humanbody.
BP101T/99PY101.3	To analyze the importance of blood, lymphatic system and immunity in human body.
BP101T/99PY101.4	To relate the physiology of sympathetic, parasympathetic, spinal/cranial nerves and organization of special senses.
BP101T/99PY101.5	To adapt the anatomy and physiology of heart and blood vessels, cardiaccycle & their disorders.

Course Code:	BP102 T/99PY102
Course Title:	PHARMACEUTICAL ANALYSIS-I
Course Outcomes:	
BP102 T/99PY102.1.	To explain about accuracy, precision, error, sources of errors & minimizing techniques & significant figure
BP102 T/99PY102.2.	To compute analytical results and understand the physiochemical concepts of analysis, theories of acids and bases, stoichiometry etc
BP102 T/99PY102.3.	To understand the principles of volumetric/gravimetric and gasometric analytical techniques
BP102 T/99PY102.4.	To analyze the technique of redox titration
BP102 T/99PY102.5.	To analyze various electro chemical titrations.

Course Code:	BP103 T/99PY103
Course Title:	PHARMACEUTICS - I
Course Outcomes:	
BP103 T/99PY103.1	Understand Historical background and development of profession of pharmacy, dosage form, prescription and posology.
BP103 T/99PY103.2.	Learn about pharmaceutical calculation and preparation of powder dosage form and liquid dosage form and their preparation.
BP103 T/99PY103.3.	Understand monophasic, biphasic liquid dosage form and learn about suspension and Emulsion and preparation of above dosage form.
BP103 T/99PY103.4.	Understand suppositories and evaluation of suppositories and pharmaceutical Incompatibilities
BP103 T/99PY103.5.	Learn about Semisolid dosage forms, penetration of drugs. Preparation of ointments, pastes, creams and gels. Evaluation of semi solid dosages forms.



Course Code:	BP104 T99PY104
Course Title:	PHARMACEUTICAL INORGANIC CHEMISTRY
Course Outcomes:	
BP104 T99PY104.1.	To understand the sources of impurities and methods to determine the impurities in drugs and pharmaceuticals.
BP104 T99PY104.2.	To determine the level of specific impurities in the given inorganic compounds by performing different limit tests
BP104 T99PY104.3.	To Use different chemical methods to prepare inorganic pharmaceuticals
BP104 T99PY104.4.	To perform identification tests as per Indian Pharmacopoeia.
BP104 T99PY104.5.	Understand the medicinal and pharmaceutical importance of radiopharmaceuticals.

Course Code:	BP105 T/99SD105
Course Title:	COMMUNICATION SKILLS
Course Outcomes:	
BP105 T/99SD105.1.	Students will be able to summarize and explain an expanded world perspective that demonstrates an appreciation of a diverse range of individuals, communities, and viewpoints
BP105 T/99SD105.2.	Students will demonstrate an understanding of human communication styles and events related to culture, self-concept, perception, listening, verbal communication and non-verbal communication.
BP105 T/99SD105.3.	Students will paraphrase information from outside sources effectively and accurately therefore Strengthen their ability to write academic papers, essays and summaries using the process approach
BP105 T/99SD105.4.	Students will earn any job they want both in the near future and later in their lives as well as it will enhance their professional profile by showcasing top-notch presentation skills that set them apart in their field.
BP105 T/99SD105.5.	Students will develop critical thinking skills, improve communicationskills, increase self- confidence, and build teamwork.

Course Code:	BP106 T/99BS106
Course Title:	REMEDIAL BIOLOGY THEORY
Course Outcomes:	
BP106 T/99BS106.1.	To understand about diversity in living world, five kingdom classification and morphology of different plants.
BP106 T/99BS106.2.	To know the composition of blood, digestion and respiration in humans.
BP106 T/99BS106.3.	To understand excretory products and their elimination, neural control in human as well as reproductive systems of humans
BP106 T/99BS106.4.	To understand about plants with essential minerals and their related different cycles including photosynthesis
BP106 T/99BS106.5.	Understand the overall development of the plants.



Semester-II

Course Code:	BP201T/99PY201
Course Title:	HUMAN ANATOMY & PHYSIOLOGY-II
Course Outcomes:	
BP201T/99PY201.1.	To relate the basic knowledge about central nervous system including nervous tissue, brain & spinal cord.
BP201T/99PY201.2.	To illustrate the structure & functions of gastrointestinal tract & to learn about ATP/CTP/BMR
BP201T/99PY201.3.	To learn about structure and functions of respiratory system and various mechanism involved in regulation of respiration and categorize the anatomy of urinary system and physiology of urine formation /micturition
BP201T/99PY201.4.	To appraise the essentiality of endocrine glands, their hormones and disorders.
BP201T/99PY201.5.	To predict the anatomy and physiology of male and female reproductive organs, pregnancy, process of delivery and concept of genetics.

Course Code:	BP202T/99PY202
Course Title:	PHARMACEUTICAL ORGANIC CHEMISTRY - I
Course Outcomes:	
BP202T/99PY202.1.	To understand the Classification, nomenclature and isomerism of organic compound
BP202T/99PY202.2.	To understand the alkanes, alkenes and conjugated dienes
BP202T/99PY202.3.	To use different, kinetics, order of reactivity of alkyl-halides and alcohols
BP202T/99PY202.4.	Understand the Carbonyl compounds*(Aldehydes and ketones), Nucleophilic addition reaction.
BP202T/99PY202.5.	Understand the Carboxylic acids and aliphatic amines.

Course Code:	BP203T/99PY207
Course Title:	BIOCHEMISTRY (THEORY)
Course Outcomes:	
BP203T/99PY207.1.	To explain about Bio-molecules and Bioenergetics such as carbohydrate, lipids, nucleic acids, amino acids and proteins.
BP203T/99PY207.2.	To understand about the Carbohydrate metabolism and Biological oxidation
BP203T/99PY207.3.	To understand about the Lipid metabolism and Amino acid metabolism
BP203T/99PY207.4.	To understand the Nucleic acid metabolism and genetic information transfer.
BP203T/99PY207.5.	To understand about the enzymes, enzyme inhibitor and coenzymes.



Course Code:	BP204T/99PY204
Course Title:	PATHOPHYSIOLOGY
Course Outcomes:	
CO-BP204.1.	To Know the basic principle of cell injury, Cell adaptations & inflammations
CO-BP204.2.	To know various causes symptoms of diseases related to cardiovascular system, Respiratory system & Urinary system
CO-BP204.3.	To understanding Disease progress process along with symptoms of endocrine System, Nervous system & Gastrointestinal system
CO-BP204.4.	To Describe the etiology and pathogenesis of various disease states, of bones and joints & Principles of cancer.
CO-BP204.5.	To understand the complications that can arise from the disease like HIV, Typhoid, Meningitis & Tuberculosis with their management

Course Code:	BP205T/99CA205
Course Title:	COMPUTER APPLICATIONS IN PHARMACY
Course Outcomes:	
BP205T/99CA205.1.	Understand the basic structure, operation and characteristics of digital computer
BP205T/99CA205.2.	To determine the level of web programming and design the pharmacy database.
BP205T/99CA205.3.	To Use different Application of computers in Pharmacy.
BP205T/99CA205.4.	Know the concept of Bioinformatics and Impact of Bioinformatics in vaccine Discovery
BP205T/99CA205.5.	Understand the Computers as data analysis in Preclinical development.

Course Code:	BP206T/99EV206
Course Title:	ENVIRONMENTAL SCIENCES
Course Outcomes:	
BP206T/99EV206.1.	Create the awareness about environmental problems among learners
BP206T/99EV206.2.	Impart basic knowledge about the environment and its allied problems.
BP206T/99EV206.3.	Develop an attitude of concern for the environment.



B Pharmacy 2nd years)
Semester-III

Course Code:	BP301T/ 99PY301
Course Title:	PHARMACEUTICAL ORGANIC CHEMISTRY-II
Course Outcomes:	
BP301T/ 99PY301.1.	To understand the Analytical, synthetic and other evidences in the derivation of structure of benzene, Orbital picture, resonance in benzene, Reactions of benzene
BP301T/ 99PY301.2.	To understand the Structure and uses of phenol, aromatic amine, aromatic acids.
BP301T/ 99PY301.3.	To use different chemical methods to find Acid value, Saponification value, Ester value, Iodine value.
BP301T/ 99PY301.4.	Understand the medicinal and pharmaceutical importance of Naphthalene, Phenanthrene, Anthracene.
BP301T/ 99PY301.5.	Understand the Stabilities the cycloalkane.

Course Code:	BP302T/99PY305
Course Title:	PHYSICAL PHARMACEUTICS-I THEORY
Course Outcomes:	
BP302T/99PY3 05.1.	To Understand the concept of solubility and its importance in preparation of pharmaceutical products
BP302T/99PY3 05.2.	We read about the state of matter, their changes and physicochemical properties of drug molecule with importance
BP302T/99PY3 05.3.	To understand the surface and interfacial phenomenon with their measurement and use of HLB scale.
BP302T/99PY3 05.4.	To gain knowledge about complexion, protein binding with complex and drug distribution.
BP302T/99PY3 05.5.	To understand the functioning of pH, buffers and their uses in pharmaceutical and biological systems.

Course Code:	BP303T/99PY303
Course Title:	PHARMACEUTICAL MICROBIOLOGY
Course Outcomes:	
BP303T/99PY3 03.1	To understand the methods of identification, cultivation and preservation of various micro-organisms.
BP303T/99PY3 03.2.	To understand the importance and implementation of sterilization in pharmaceutical processing and industry.
BP303T/99PY3 03.3.	To acquire knowledge of co concepts of microbiology and learn sterility testing of pharmaceutical products
BP303T/99PY3 03.4.	To evaluate the methods used in studying bacteria and classifying them. To carried out microbiological standardization of pharmaceuticals.
BP303T/99PY3 03.5.	To understand the cell culture technology and its application in pharmaceuticals industries.



Course Code:	BP304T/99PY304
Course Title:	PHARMACEUTICAL ENGINEERING
Course Outcomes:	
BP304T/99PY3 04.1.	To know the various unit operations used in Pharmaceutical industries.
BP304T/99PY3 04.2.	To understand the material handling techniques.
BP304T/99PY3 04.3.	To perform various processes involved in pharmaceutical manufacturing process.
BP304T/99PY3 04.4.	To carry out various test to prevent environmental pollution.
BP304T/99PY3 04.5.	To appreciate and comprehend significance of plant lay out design for optimum use of resources. Preventive methods used for corrosion control in Pharmaceutical industries.

Semester-IV

Course Code:	BP401T/99PY401
Course Title:	PHARMACEUTICAL ORGANIC CHEMISTRY - III
Course Outcomes:	
BP401T/99PY4 01.1.	To understand the Stereoisomerism, Optical isomerism– Optical activity, enantiomerism, diastereoisomerism, Mesocompounds.
BP401T/99PY4 01.2.	To determine the Geometrical isomerism Nomenclature of geometrical isomers.
BP401T/99PY4 01.3.	To Use different heterocyclic compounds: nomenclature and classification.
BP401T/99PY4 01.4.	To Use different Synthesis, reactions and medicinal uses of Pyrazole, Imidazole, Oxazole and Thiazole Compounds
BP401T/99PY4 01.5.	To Understand the Reactions of synthetic importance.

Course Code:	BP402T/99PY402
Course Title:	MEDICINAL CHEMISTRY – I
Course Outcomes:	
BP402T/99PY4 02.1.	To understand the brief Introduction of Medicinal Chemistry, History and development of medicinal chemistry Physicochemical properties in relation to biological action & Drug metabolism.
BP402T/99PY4 02.2.	To understand the Drugs acting on Autonomic Nervous System, Adrenergic Neurotransmitters, SAR of Sympathomimetic agents with structure, mechanism of action, Structure activity relationship, synthesis and uses of Adrenergic Antagonists.
BP402T/99PY4 02.3.	To understand the Cholinergic neurotransmitters, SAR of Para sympathomimetic agents, with structure, mechanism of action, Structure activity relationship, synthesis and uses of Para sympathomimetic agents and Cholinergic Blocking agents.



BP402T/99PY402.4.	To understand the structure, mechanism of action, Structure activity relationship, synthesis and uses of Sedatives and Hypnotics, Antipsychotics & Anticonvulsants agents.
BP402T/99PY402.5.	To understand the structure, mechanism of action, Structure activity relationship, synthesis of General anesthetics and Narcotic and non-narcotic analgesics.

Course Code:	BP403T/99PY403
Course Title:	PHYSICAL PHARMACEUTICS-II(THEORY)
Course Outcomes:	
BP403T/99PY403.1.	To understand various physicochemical properties of drug molecules in the designing the dosage forms.
BP403T/99PY403.2.	To understand about the flow properties of Newtonian and non-Newtonian system.
BP403T/99PY403.3.	Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP403T/99PY403.4.	To understand the Micromeretics- fundamental and derived properties such as Particle size and distribution by different methods and determination of date of formulations.
BP403T/99PY403.5.	To understand the principles of chemical kinetics of drug stability. Accelerated stability testing in expiration dating of pharmaceutical dosage forms.

Course Code:	BP404T/99PY404
Course Title:	PHARMACOLOGY I – THEORY
Course Outcomes:	
BP404T/99PY404.1.	To understand the general pharmacology, introduction to pharmacology & pharmacokinetics.
BP404T/99PY404.2.	To acquire the knowledge of pharmacodynamics, adverse drug reactions, drug interactions (pharmacokinetic and pharmacodynamic) & drug discovery and clinical evaluation of new drugs.
BP404T/99PY404.3.	To understanding the pharmacology of drugs acting on peripheral nervous system.
BP404T/99PY404.4.	To familiarize with basic concept of pharmacology of drugs acting on central nervous system.
BP404T/99PY404.5.	To comprehend the basic concepts of pharmacology of drugs acting on central nervous system.

Course Code:	BP405T/99PY405
Course Title:	PHARMACOGNOSY AND PHYTOCHEMISTRY I– THEORY
Course Outcomes:	
BP405T/99PY405.1.	To know the techniques in the cultivation and production of crude drugs.
BP405T/99PY405.2.	To know the crude drugs, their uses and chemical nature.



BP405T/99PY4 05.3.	To know the evaluation techniques for the herbal drugs
BP405T/99PY4 05.4.	To carry out the microscopic and morphological evaluation of crude drugs.
BP405T/99PY4 05.5.	To modern methods of extraction, application.

**B Pharmacy 3rd years)
Semester-V**

Course Code:	BP501T/99PY501
Course Title:	MEDICINAL CHEMISTRY – II
Course Outcomes:	
BP501T/99PY5 01.1.	To understand the structure, mechanism of action, Structure activity relationship, synthesis and uses of antihistaminic agent and anti-neoplastic agents.
BP501T/99PY5 01.2.	To understand the structure, mechanism of action, Structure activity relationship, synthesis and uses of Anti-anginal agents and Anti-hypertensive agents.
BP501T/99PY5 01.3.	To understand the structure, mechanism of action, Structure activity relationship, synthesis and uses of Anti-arrhythmic agents, Anti-hyperlipidemic agents, Coagulant & Anticoagulants, and Drugs used in Congestive Heart Failure agents
BP501T/99PY5 01.4.	To understand the Drugs acting on Endocrine system and structure, mechanism of action, synthesis and uses of Sex hormones, Drugs for erectile dysfunction, Oral contraceptives, Corticosteroids and Thyroid and antithyroid drugs
BP501T/99PY5 01.5.	To understand the structure, mechanism of action, Structure activity relationship, synthesis of Antidiabetic agents and Local Anesthetics with SAR of Local Anesthetics

Course Code:	BP502T/99PY502
Course Title:	INDUSTRIAL PHARMACY-I
Course Outcomes:	
BP502T/99PY5 02.1.	To understand the various pharmaceutical dosage forms and their manufacturing techniques
BP502T/99PY5 02.2.	To understand about various considerations in development of pharmaceutical dosage forms
BP502T/99PY5 02.3	To Formulate solid, liquid and semisolid dosage forms and evaluates them for their quality
BP502T/99PY5 02.4.	To prepare and evaluate the sterile product and perform some Quality control tests (Parenteral Products Ophthalmic Preparations).
BP502T/99PY5 02.5.	Formulation and evaluation of the cosmetic product and Pharmaceutical Aerosols and packaging of pharmaceutical products.



Course Code:	BP503T/99PY503
Course Title:	PHARMACOLOGY-II
Course Outcomes:	
BP503T/99PY503.1.	To understand the mechanism of drug action and its relevance in the treatment of different diseases of cardio vascular system.
BP503T/99PY503.2.	To acquire the knowledge of mechanism of drug action and its relevance in the treatment of different diseases of cardio vascular system and urinary system.
BP503T/99PY503.3.	To understanding the various types of autacoids, their classification and related drugs.
BP503T/99PY503.4.	To familiarize with basic concept in endocrine pharmacology and action of drugs on endocrine system
BP503T/99PY503.5.	To comprehend the basic concepts of bio-assay.

Course Code:	BP504T/99PY504
Course Title:	PHARMACOGNOSY AND PHYTOCHEMISTRY-II
Course Outcomes:	
BP504T/99PY504	Discuss the general technique of biosynthesis of phytoconstituents in plants.
BP504T/99PY504.2.	Apprehended the composition, chemistry & chemical classes, bio- sources, therapeutic uses and commercial applications of different plants secondary metabolites.
BP504T/99PY504.3.	Accomplished in the Isolation, Identification and Analysis of Phyto-constituents.
BP504T/99PY504.4.	Accomplished in the production estimation and utilization of Phyto-constituents in industrial scale.
BP504T/99PY504.5.	Accomplished in the estimation and analysis of the different photo constituents with help of Instrument based on chromatography and spectroscopy.

Course Code:	BP505T/99PY505
Course Title:	PHARMACEUTICAL JURISPRUDENCE (Theory)
Course Outcomes:	
BP505T/99PY505.1.	To understand about the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals.
BP505T/99PY505.2.	To understand about the Various Indian pharmaceutical Acts and Laws..
BP505T/99PY505.3.	To understand about the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.
BP505T/99PY505.4.	To understand about the code of ethics during the pharmaceutical practice.
BP505T/99PY505.5.	To understand about the Medical Termination of Pregnancy Act and rights.

Semester-VI



Course Code:	BP601T/99PY601
Course Title:	MEDICINAL CHEMISTRY-III
Course Outcomes:	
BP601T/99PY601.1.	To recall the classification and nomenclature of drugs of natural and synthetic origin
BP601T/99PY601.2.	To explain the concept of pro-drugs and their importance
BP601T/99PY601.3.	To identify the mechanism of action and therapeutic uses of drugs
BP601T/99PY601.4.	To understand the relationship between structure of compound and its biological activity And to choose the synthetic out for selected category of drugs
BP601T/99PY601.5.	To discuss the approaches in drug design including QSAR, pharmacophore modeling, docking and combinatorial chemistry

Course Code:	BP602T/99PY602
Course Title:	PHARMACOLOGY III
Course Outcomes:	
BP602T/99PY602.1.	To understand the Pharmacology of drugs acting on Respiratory system & Gastrointestinal Tract
BP602T/99PY602.2.	To know the various principles of chemotherapy & various drugs used for the treatment of bacterial infection.
BP602T/99PY602.3.	To know the various chemotherapeutic agents for treatment of tuberculosis, leprotic, viral, fungal Infection & malignancy along with Immune pharmacology of drugs.
BP602T/99PY602.4.	To know the drugs used for the treatment of urinary tract infections, sexually transmitted diseases.
BP602T/99PY602.5.	To understand the Principles of toxicology & Chronopharmacology.

Course Code:	BP603T/99PY603
Course Title:	HERBAL DRUG TECHNOLOGY
Course Outcomes:	
BP603T/99PY603.1.	To understand raw material as source of herbal drugs from cultivation to herbal drug product
BP603T/99PY603.2.	To know the WHO and ICH guidelines for evaluation of herbal drugs..
BP603T/99PY603.3.	To know the herbal cosmetics, natural sweeteners, nutraceutical.
BP603T/99PY603.4.	To carry out the appreciate patenting of herbal drugs, GMP
BP603T/99PY603.5.	To know Good Manufacturing Practice of Indian systems of medicine.



Course Code:	BP604T/99PY604
Course Title:	BIOPHARMACEUTICS AND PHARMACOKINETIC
Course Outcomes:	
BP604T/99PY604.1.	To gain knowledge of drug absorption, distribution & protein binding with importance.
BP604T/99PY604.2.	Understand bio-availability & bioequivalence phenomenon as well as in-vivo & in-vitro correlations
BP604T/99PY604.3.	Understand definition & introduction of pharmacokinetics including their parameters.
BP604T/99PY604.4.	Study about the functioning construction & significance of multi-compartment model.
BP604T/99PY604.5.	Understand & learn about the nonlinear pharmacokinetics with factors causing nonlinearity.

Course Code:	BP605T/99PY605
Course Title:	PHARMACEUTICAL BIOTECHNOLOGY
Course Outcomes:	
BP605T/99PY605.1.	To elaborate the basic theories that correlate pharmaceutical science with biotechnology
BP605T/99PY605.2.	To acquire the knowledge of basic microbiological sciences and genetic engineering
BP605T/99PY605.3.	To explain the various mechanisms of Immunological response
BP605T/99PY605.4.	To determine the immunological techniques and mutational study
BP605T/99PY605.5.	To comprehend the basic concepts of Fermentation technology

Course Code:	BP606T/99PY606
Course Title:	PHARMACEUTICAL QUALITY ASSURANCE (Theory)
Course Outcomes:	
BP606T/99PY606.1.	To gain knowledge of ICH guidelines, Quality control processes
BP606T/99PY606.2.	Understanding the concept of Hygiene, premises and equipment and raw materials
BP606T/99PY606.3.	To understand about good Laboratories practices.
BP606T/99PY606.4.	To gain knowledge about the complaints and their resolutions.
BP606T/99PY606.5.	To gain knowledge of different calibration and validation techniques.

(B Pharmacy 4th years)**Semester-VII**

Course Code:	BP701T/99PY701
Course Title:	INSTRUMENTAL METHODS OF ANALYSIS
Course Outcomes:	
BP701T/99PY701.1.	To understand the basic principle, instrumentation & application of UV Visible spectroscopy & Fluorimetry.
BP701T/99PY701.2.	To acquire the knowledge of principle, instrumentation & application of IR spectroscopy, flame photometry, atomic absorption spectroscopy & nepheloturbidometry.
BP701T/99PY701.3.	To understanding the various types of chromatography like- Adsorption and partition column chromatography, Thin layer chromatography, Paper chromatography & Electrophoresis.
BP701T/99PY701.4.	To familiarize with basic concept of Gas chromatography & High performance liquid chromatography (HPLC).
BP701T/99PY701.5.	To comprehend the basic concepts of Ion exchange chromatography, Gel chromatography & Affinity chromatography

Course Code:	BP702T/99PY702
Course Title:	INDUSTRIAL PHARMACY II (Theory)
Course Outcomes:	
BP702T/99PY702.1.	Understand Pilot plant scale up techniques, SUPAC guidelines, Introduction to platform technology.
BP702T/99PY702.2.	To Learn Technology development and transfer and TT agencies in India - APCTD, NRDC, TIFAC, BCIL, TBSE / SIDBI
BP702T/99PY702.3.	Understand Regulatory affairs and Regulatory requirements for drug approval.
BP702T/99PY702.4.	To Understanding Quality management systems in pharmaceutical.
BP702T/99PY702.5.	Learn about Central Drug Standard Control Organization (CDSCO) and State Licensing Authority

Course Code:	BP703T/99PY703
Course Title:	PHARMACY PRACTICE (THEORY)
Course Outcomes:	
BP703T/99PY703.1.	To Understand the Organization Structure of a Hospital and. Know the basics of ADR with regulatory aspects.
BP703T/99PY703.2.	To know various drug distribution methods in a hospital. monitor drug therapy of patient through medication chart review and clinical review
BP703T/99PY703.3.	To know pharmaceutical care services & patient counseling in community pharmacy
BP703T/99PY703.4.	To know the appreciate Rational uses of drug. Budget preparation and implementation



BP703T/99PY703.5.	To understand the inventory management system & Interpretation of Clinical Laboratory Tests
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Course Code:	BP704T/99PY704
Course Title:	NOVEL DRUG DELIVERY SYSTEMS (THEORY)
Course Outcomes:	
BP704T/99PY704.1.	To understand the various approaches for development of novel drug delivery systems.
BP704T/99PY704.2.	To acquire the knowledge of Mucosal Drug Delivery system and Implantable Drug Delivery Systems
BP704T/99PY704.3.	To understanding the various types of drug delivery systems.
BP704T/99PY704.4.	To familiarize with basic concept in Targeted drug Delivery
BP704T/99PY704.5.	To acquire the knowledge of Ocular Drug Delivery Systems and Intrauterine Drug Delivery Systems. .

Semester - VIII

Course Code:	BP801T/99PY801
Course Title:	BIOSTATISTICS AND RESEARCH METHODOLOGY (THEORY)
Course Outcomes:	
BP801T/99PY801.1	To understand the applications of Biostatistics in Pharmacy.
BP801T/99PY801.2	This subject deals with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non Parametric tests, ANOVA.
BP801T/99PY801.3.	Understand introduction to Design of Experiments and Phases of Clinical trials
BP801T/99PY801.4.	To Understanding observational and experimental studies, SPSS, R and MINITAB Statistical software's, analyzing the statistical data using Excel
BP801T/99PY801.5.	Learn about Design and Analysis of experiments, Factorial Design and Response Surface Methodology.

Course Code:	BP802T/99PY802
Course Title:	SOCIAL AND PREVENTIVE PHARMACY (THEORY)
Course Outcomes:	
BP802T/99PY802.1.	To understand Concept of health and diseases, Role of hygiene in health system
BP802T/99PY802.2.	To know the various treatment approach for microbial infections like Ebola virus, influenza, etc
BP802T/99PY802.3.	To know the various National health programs run by Govt. of India., its objectives, functioning and outcome
BP802T/99PY802.4.	To know the role of WHO in national health intervention programs for mother child, elder Etc
BP802T/99PY802.5.	To understand the Community services in rural, urban and school health.



Course Code:	BP803T/99PY804-E
Course Title:	PHARMA MARKETING MANAGEMENT (THEORY)
Course Outcomes:	
BP803T/99PY804-E.1.	To understand the marketing & pharmaceutical market.
BP803T/99PY804-E.2.	To acquire the knowledge of product decision & product management in pharmaceutical industry
BP803T/99PY804-E.3.	To understanding the promotion & online promotional techniques for OTC Products.
BP803T/99PY804-E.4.	To familiarize with basic concept of pharmaceutical marketing channels & professional sales, representative (PSR)
BP803T/99PY804-E.5.	To comprehend the basic concepts of pricing & emerging concepts in marketing.

Course Code:	BP804ET/99PY803-E
Course Title:	PHARMACEUTICAL REGULATORY SCIENCE
Course Outcomes:	
BP804ET/99PY803-E.1.	To understand about the drug discovery and development of generic drug
BP804ET/99PY803-E.2.	To know about the processes and rules during new drug development.
BP804ET/99PY803-E.3.	To understand about the procedure of registration of Indian drug product in overseas market
BP804ET/99PY803-E.4.	To gain the knowledge about clinical trials protocols & ethics committee
BP804ET/99PY803-E.5.	Understand about the technical terms, guidelines, law and acts and code of federal regulatory.

Course Code:	BP805T/99PY803-A
Course Title:	PHARMACOVIGILANCE
Course Outcomes:	
BP805T/99PY803-A.1.	To understand the need & development of Pharmacovigilance System
BP805T/99PY803-A.2.	To know the various basic terminology, establishment & regulatory drugs dictionary used in Pharmacovigilance
BP805T/99PY803-A.3.	To know the various active surveillance methods for vaccine safety & drug safety in Pharmacovigilance study.
BP805T/99PY803-A.4.	To know the ICH Guidelines for Pharmacovigilance
BP805T/99PY803-A.5.	To understand the role of CIOMS, CDSCO & Pharmacogenomics of adverse drug reactions.



Course Code:	BP806ET/99PY803-B
Course Title:	QUALITY CONTROL AND STANDARDIZATION OF HERBALS
Course Outcomes:	
BP806ET/99PY 803-B.1.	To understand the WHO guidelines for quality control of herbal drugs
BP806ET/99PY 803-B.2.	To understand about the Quality assurance in herbal drug industry
BP806ET/99PY 803-B.3.	To appreciate EU and ICH guidelines for quality control of herbal drugs
BP806ET/99PY 803-B.4.	To understand about the regulatory approval process and their registration in Indian and international markets
BP806ET/99PY 803-B.5.	To understand about Regulatory requirements for herbal medicines..

Course Code:	BP807ET/99PY804-A
Course Title:	COMPUTER AIDED DRUG DESIGN
Course Outcomes:	
BP807ET/99PY804-A.1	To understand the Introduction to Drug Discovery and Development.
BP807ET/99PY804-A.2	To understand the Study of Quantitative Structure Activity Relationship
BP807ET/99PY804-A.3	To understand the Molecular Modeling and virtual screening techniques
BP807ET/99PY804-A.4	To understand the Informatics & Methods in drug design.
BP807ET/99PY804-A.5	To understand the Molecular Modeling.

Course Code:	BP808ET/99PY804-B
Course Title:	CELL AND MOLECULAR BIOLOGY
Course Outcomes:	
BP808ET/99PY 804-B.1.	To Know & understand the Cell & Cell organelles with their importance.
BP808ET/99PY 804-B.2.	To Know & understand the Nucleic acid with their contents. Importance of DNA & RNA
BP808ET/99PY 804-B.3.	To know the various types of Proteins, Protein Pathways, & significance of Protein Synthesis
BP808ET/99PY 804-B.4.	To know about cell cycle, gene, Mitosis and Meiosis & Cellular activities
BP808ET/99PY 804-B.5.	To understand the role of Cell Signals: Receptors for Cell Signals



Course Code:	BP809ET
Course Title:	COSMETIC SCIENCE/99PY803-C
Course Outcomes:	
BP809ET.1.	To understand the details of Cosmetic Excipients and Basic structure and function of skin, Basic structure of hair with described the Oral Cavity
BP809ET.2.	To understand the Principles of formulation and building blocks of skin care products, Antiperspirants & deodorants and Principles of formulation and building blocks of Hair care products.
BP809ET.3.	To acquire the knowledge of Role of herbs in cosmetics and Analytical cosmetics
BP809ET.4.	To understand the Principles of Cosmetic Evaluation.
BP809ET.5.	Basic understanding of the terms comedogenic, dermatitis with explain Cosmetic Problems associated with Hair and scalp, Cosmetic problems associated with skin and Anti perspirant and Deodorants.

Course Code:	BP810ET
Course Title:	PHARMACOLOGICAL SCREENING METHOD
Course Outcomes:	
BP810ET.1.	Appreciate the applications of various commonly used laboratory animals.
BP810ET.2.	Appreciate and demonstrate the various screening methods used in preclinical research, animal dose calculation
BP810ET.3.	Appreciate and demonstrate the various screening methods used in preclinical research
BP810ET.4.	Appreciate and demonstrate the various screening methods used in preclinical research.
BP810ET.5.	Appreciate and demonstrate the importance of biostatistics and research methodology

Course Code:	BP811ET/99PY804-C
Course Title:	ADVANCED INSTRUMENTATION TECHNIQUES
Course Outcomes:	
BP811ET/99PY 804-C.1.	To understand the Nuclear Magnetic Resonance spectroscopy & Mass Spectrometry
BP811ET/99PY 804-C.2.	To acquire the knowledge of Thermal Methods of Analysis & X-Ray Diffraction Methods.
BP811ET/99PY 804-C.3.	To understanding the Calibration and validation
BP811ET/99PY 804-C.4.	To familiarize with basic concept of Radio immune assay & Extraction techniques.
BP811ET/99PY 804-C.5.	To comprehend the basic concepts of Hyphenated techniques.



Course Code:	BP812ET/99PY804-D
Course Title:	DIETARY SUPPLEMENTS AND NUTRACEUTICALS
Course Outcomes:	
BP812ET/99PY 804-D.1.	To understand the importance of public health nutrition and healthy diet with source.
BP812ET/99PY 804-D.2.	To gain the knowledge about phyto-chemicals, their occurrence and characteristics.
BP812ET/99PY 804-D.3.	Understand about the free radicals and dietary fibres with significance
BP812ET/99PY 804-D.4.	Understand about the involvement of free radicals in diseases and functional food for chronic diseases prevention.
BP812ET/99PY 804-D.5.	Understand about the regulatory aspects on food safety.



Faculty of Law



Department of LAW



Ph.D. Programme

Course Code:	151LWC02
Course Title:	Advance Legal Studies
Course Outcomes:	
151LWC02.1	Upon completing the unit on Indian Constitution & Federalism, students will be able to demonstrate a comprehensive understanding of the historical evolution of federalism in India, including the distribution of powers and responsibilities between the Centre and the states, and analyze the constitutional provisions and implications of the Centre's responsibilities in managing internal disturbances within states.
151LWC02.2	Upon completing the unit on Law, Justice, and Social Change, students will be equipped to critically evaluate and apply various legal theories, including Natural Law, Analytical School, and Modern Theories of Justice, to analyze legal issues and their implications for social change, demonstrating an understanding of the dynamic relationship between law and societal transformation.
151LWC02.3	Upon completing the unit on Sources of Law, students will be proficient in identifying and analyzing the various sources of law, including legislation, precedents (stare decisis), and customs, and will be able to effectively use these sources to conduct legal research and formulate well-founded legal arguments in diverse legal contexts.
151LWC02.3	Upon completing the unit on Legal Personality, students will be able to critically examine and understand the dimensions of modern legal personality, including its application to both human and non-human entities. They will demonstrate the ability to assess and analyze legal issues related to legal personality in various legal contexts, facilitating a nuanced understanding of this fundamental aspect of legal theory and practice.
151LWC02.4	Upon completing the unit on Liability, students will be proficient in assessing and understanding the conditions for imposing liability, including strict liability and vicarious liability, in a variety of legal situations. They will demonstrate the ability to analyze and apply liability principles effectively, enabling them to navigate complex legal scenarios and provide sound legal advice in different areas of law. including strict liability and vicarious liability, in a variety of legal situations. They will demonstrate the ability to analyze and apply liability principles effectively, enabling them to navigate complex legal scenarios and provide sound legal advice in different areas of law.



Course Code:	151PH01
Course Title:	Research Methodology
Course Outcomes:	
151PH01 CO1:	Students will be able to understand and comprehend the basics in research methodology and applying them in research/ project work.
151PH01CO2:	The student will enable to collect the data, edit it properly and analyze it accordingly. Thus, it will facilitate their prosperity in higher education.
151PH01 CO3:	Develop insights about the statistical analysis tools and techniques for better research outcomes.
151PH01CO4:	To explain the art of interpretation and the art of writing research reports
151PH01CO5:	Evaluate the role and functioning of computer in research

Course Code:	151PH03
Course Title:	Research and Publication Ethics
Course Outcomes:	
151PH03CO1:	Students will be able to understand the ethics in conduct of scientific research.
151PH03CO2:	The student will enable to utilize indexing and citation databases, open access publications, research.
151PH03 CO3:	Identify research misconduct and predatory publications.
151PH03CO4:	Understand about the infer the ethical framework and principles
151PH03CO5:	Develop a valid and ethical research report.

Course Code:	151PH11
Course Title:	Review of Literature
Course Outcomes:	
151PH11	151PH11



Programme LL.M.

Course Code:	155LW101
Course Title:	INDIAN CONSTITUTIONAL LAW
Course Outcomes:	
155LW101CO1 :	Define the conceptual position of federalism and analyze its historical evolution.
155LW101CO2 :	Understand the scheme of the distribution of legislative powers in India. Analyzing the judicial approach and the present position regarding legislative powers. Exploring the recommendations of the Sarkaria Commission and the Venkatachaliah Commission.
155LW101CO3 :	Understand the structure and role of the Supreme Court of India. Analyzing its jurisdiction and powers and exploring the Supreme Court's role as the guardian of the Constitution.
155LW101CO4 :	Understand the scope of the right to equality and Analyzing the new approach of Article 14 and Exploring equality of opportunity in matters of public employment and admission to educational institutions.
155LW101CO5 :	Identify and critically assess contemporary challenges to the federal structure of governance in India.

Semester- II

Course Code:	155LW201
Course Title:	LEGAL EDUCATION AND RESEARCH METHODOLOGY
Course Outcomes:	
155LW201CO1 :	Understand the objectives of legal education and goals of legal education, including its role in developing legal professionals and promoting justice.
155LW201CO2 :	Evaluate the lecture method of teaching and advantages and disadvantages of the lecture method as a teaching approach in legal education.
155LW201CO3 :	Understand the fundamental concepts of research, its purpose, and the importance of research in the legal field. They should also be aware of different types of research and the criteria for conducting good research.
155LW201CO4 :	Learn about the significance of research methodology and become acquainted with the procedural guidelines for conducting research. They should understand the process of formulating research problems and the various steps involved in conducting research.



155LW201CO5 :	Acquire practical skills in conducting research, including surveying existing literature, formulating working hypotheses, determining appropriate sample designs, collecting and analyzing data, and testing hypotheses and also understand the importance of indexing and citation styles in legal writing.
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Semester-III

Course Code:	155LW301
Course Title:	LAW AND SOCIAL TRANSFORMATION IN INDIA
Course Outcomes:	
155LW301CO1 :	Understand how insights from various social sciences contribute to the development and understanding of legal principles.
155LW301CO2 :	Evaluate the influence of colonial legacies, including legal pluralism and the adaptation of common law, on indigenous legal traditions and the legacy of colonial legal institutions,
155LW301CO3 :	Examine the role of legislation, legal responses to technological advancements, and the impact of globalization on legal harmonization,
155LW301CO4 :	Critically analyze the philosophical foundations of legal idealism, including natural law theory and legal positivism, and investigate the relationship between social morality and the legal order,
155LW301CO5 :	Analyze the concept of the rule of law and its implications for individuals, exploring its intersection with issues such as crime against women, gender injustice, and the role of constitutional and legal provisions

Semester-IV

Course Code:	155LW401
Course Title:	JUDICIAL PROCESS
Course Outcomes:	
155LW401CO1 :	Analyze various theories of justice in Western thought, including the views of ancient Greek philosophers, utilitarianism, social contract theory, Rawls theory, and libertarian perspectives.
155LW401CO2 :	Examine the concept of judicial creativity in law, analyzing the role of courts in interpreting laws, evolving legal precedents, and exercising judicial discretion to promote social equity and uphold the rule of law.
155LW401CO3 :	Demonstrate an understanding of the evolving nature of the judicial process in the Indian context, including the role of judges, constitutional interpretation, and the challenges facing the Indian Judiciary.



155LW401CO4 :	Demonstrate an understanding of the provisions in the Indian Constitution guaranteeing the independence of the judiciary and analyze their significance in ensuring the separation of powers and upholding the rule of law.
155LW401CO5 :	Analyze landmark cases illustrating the impact of judicial activism on civil rights and the promotion of social justice.

Course Code:	155LW451 & 155LW452
Course Title:	DISSERTATION & VIVA-VOCE
Course Outcomes:	
155LW451 & 155LW452CO1 :	Communicate complex legal concepts and research findings orally in clear and articulate manner.
155LW451 & 155LW452CO2 :	Engage in a critical discussion of the dissertation topic.
155LW451 & 155LW452CO3 :	Incorporate constructive feedback from the dissertation evaluation into the viva-voce presentation.
155LW451 & 155LW452CO4 :	Apply legal knowledge to broader theoretical and practical contexts.
155LW451 & 155LW452CO5 :	Articulate a robust defense of the chosen research approach, methodology, and conclusions.

SCHEDULE-B OPTIONAL GROUPS

GROUP- A: CONSTITUTIONAL LAW

Course Code:	155LW01-A
Course Title:	Constitutionalism And Constitutional Development In India And England
Course Outcomes:	
155LW01-A CO1 :	Completion of the course on Foundations of Constitutionalism, students will develop a comprehensive understanding of the historical evolution, principles, and significance of constitutionalism in shaping modern governance structures and protecting individual rights.
155LW01-A CO2 :	By the end of the course on Rule of Law and Separation of Powers, students will be able to demonstrate a thorough understanding of the principles and practical applications of the rule of law and separation of powers, recognizing their essential roles in maintaining accountability, upholding justice, and preserving democratic governance.



155LW01-A CO3:	Upon completion of the course on Sovereignty and Powers of Parliament, students will gain a comprehensive understanding of the theoretical concepts and practical implications of parliamentary sovereignty, recognizing its central role in the legislative process and its impact on the distribution of powers within a constitutional framework.
155LW01-A CO4:	By the conclusion of the course on The King of England, Prerogatives, and Cabinet System, students will have a deep understanding of the historical development and contemporary significance of the monarchy, prerogatives, and the cabinet system in England, recognizing their influence on governance structures and constitutional evolution.
155LW01-A CO5:	Upon completing the course on Judicial System, Judicial Review, and Prerogative Writs, students will demonstrate a comprehensive understanding of the role of the judiciary in upholding the rule of law, the principles and procedures of judicial review, and the significance of prerogative writs in safeguarding individual rights and ensuring governmental accountability within constitutional frameworks.

Course Code:	155LW02-A
Course Title:	COMPARATIVE AND COOPERATIVE FEDERALISM
Course Outcomes:	
155LW02-A CO1:	Upon completing the course on Fundamentals of Federalism, students will possess a comprehensive understanding of the definition, evolution, and key characteristics of federalism, enabling them to critically analyze the comparative dynamics between federal and unitary systems and evaluate the balance between federal control and state autonomy in diverse political contexts.
155LW02-A CO2:	By the conclusion of the course on the Indian Federal Constitution, students will have gained a thorough understanding of the historical development of federalism in India and will be able to critically analyze the present structure of the Indian federal constitution, including its key features, challenges, and significance in the Indian political system.
155LW02-A CO3:	Upon completing the course on Changing Dimensions of Modern Federal Constitutions, students will be equipped with the analytical tools to critically evaluate the implications of national supremacy, cooperative federalism, and other changing dimensions in various federal systems, with a focus on their impacts on state autonomy and the structural dynamics of federal governance.
155LW02-A CO4:	Upon completion of the course on Distribution of Legislative Powers and Emergency Provisions, students will have developed a comprehensive understanding of the distribution of legislative powers in India, including the specific powers related to defense and external affairs, and will be able to critically analyze emergency provisions in comparative perspective, examining their impact on federal structures and judicial approaches in India, the U.S.A., and other relevant jurisdictions.



C155LW02-A O5:	Upon completion of the course on Judicial Review and Constituent Power, students will demonstrate a nuanced understanding of the scope and significance of judicial review, particularly in federal constitutions, and will be able to conduct a comparative analysis of the approaches taken by the Indian and American Supreme Courts in exercising judicial review within their respective constitutional frameworks.
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Course Code:	155LW03-A
Course Title:	CIVIL AND POLITICAL RIGHTS: COMPARATIVE STUDY OF SELECT CONSTITUTIONS
Course Outcomes:	
155LW03-A CO1:	Upon completing the course on Constitutional Basis for Protection of Individual Rights, students will possess a deep understanding of the constitutional foundations for the protection of individual rights, including the principles of balancing individual liberty with societal needs, the scope of rights available to different individuals and groups, and the circumstances under which rights may be suspended or restricted.
155LW03-A CO2:	Upon completing the course on Right to Equality and Protective Discrimination, students will have developed a comprehensive understanding of the right to equality within constitutional frameworks, including the general principles governing equality rights, and will be able to conduct a comparative study of Indian and American courts' decisions on this topic. Additionally, they will be equipped to analyze emerging judicial responses to group inequalities, examine affirmative action and protective discrimination measures, and conduct a comparative analysis of decisions addressing group-based inequalities, thereby gaining insights into the complexities of promoting equality and combating discrimination in diverse legal systems.
155LW03-A CO3:	Upon completing the course on Freedom of Speech and Expression, students will possess a thorough understanding of the general principles underlying freedom of speech and expression, including a comparative study of interpretations in Indian and American legal contexts. Additionally, they will have gained insights into the interpretation of the liberty of the press by the Indian Supreme Court and conducted a comparative analysis of the freedoms guaranteed by the First Amendment of the American Constitution, thereby acquiring a nuanced understanding of the complexities and variations in protecting freedom of speech and expression across different legal systems.



155LW03-A CO4:	Upon completing the course on Right to Life and Personal Liberty, students will have developed a comprehensive understanding of the judicial determination of the scope of "personal liberty" and "procedure established by law," including a comparative analysis of American expressions such as "liberty" and "due process." Additionally, they will have examined radical changes in judicial thinking in the area of the right to life and personal liberty, and analyzed case studies illustrating evolving interpretations, thereby gaining insights into the complexities and nuances of protecting these fundamental rights in diverse legal contexts.
155LW03-A CO5:	Upon completing the course on Freedom of Religion, Amendment of Rights, and Elections, students will have acquired an in-depth understanding of the judicial interpretation of freedom of religion under the Constitution of India and the United States, including a comparative analysis of religious freedom protections. Additionally, they will have examined the adaptability of constitutional law to changing societal needs and will have gained insights into the power and procedure for amending rights under the American and Indian constitutions. Furthermore, they will have explored the constitutional foundation of the right to vote, including the Voting Rights Act and judicial supervision of elections, thereby comprehensively understanding the constituent power and amending processes in federal constitutions, along with judicial responses to constitutional amendments, particularly in the Indian context.

GROUP-B: FAMILY LAW

Course Code:	155LW01-B
Course Title:	HINDU LAW INCLUDING HINDU JURISPRUDENCE
Course Outcomes:	
155LW01-B CO1:	Gain a comprehensive understanding of the historical development and foundational principles of Hindu jurisprudence, including its comparison with other legal systems and its influence on contemporary legal thought.
155LW01-B CO2:	Identify and analyze the sources of Hindu law, including ancient texts like Manusmriti and Dharmashastra, and modern legal sources, while examining the role of judicial decisions in shaping Hindu jurisprudence.
155LW01-B CO3:	Evaluate the concept of marriage under Hindu law, including key provisions, conditions for validity, and comparisons with other Personal laws, while analyzing evolving trends and changes.
155LW01-B CO4:	Analyze matrimonial remedies under Hindu law, including grounds, procedures, and contemporary perspectives, through a comparative lens and an understanding of changing social attitudes and legal responses.



155LW01-B CO5:	Understand the changing concept of adoption and inheritance, transitioning from religious to secular perspectives, while examining the legal framework governing adoption, succession to property under the Hindu Succession Act, and general principles of succession.
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Course Code:	155LW02-B
Course Title:	MUSLIM LAW INCLUDING MUSLIM JURISPRUDENCE
Course Outcomes:	
155LW02-B CO1:	Understanding the Historical Development and Evolution of Islamic Jurisprudence
155LW02-B CO2:	Exploring Foundational Principles and Values in Islamic Jurisprudence
155LW02-B CO3:	Students will compare and contrast major schools of Muslim law, such as Hanafi, Maliki, Shafi'i, and Hanbali, identifying key differences, commonalities, and evolving trends within these schools, and assessing their relevance in contemporary legal practice.
155LW02-B CO4:	Students will critically evaluate the principles and legal framework governing family law under Muslim jurisprudence, including marriage, dower, maintenance, and dissolution, analyzing their application in modern legal contexts and their implications for societal norms
155LW02-B CO5:	Students will conduct a comparative analysis of divorce procedures, dissolution of marriage laws, and inheritance principles under Muslim law, assessing their compatibility with modern legal standards and societal expectations, and examining debates surrounding the concept of a Uniform Civil Code.

Course Code:	155LW03-B
Course Title:	CHRISTIAN & PARSI AND JEWISH LAWS
Course Outcomes:	
155LW03-B CO1:	Understanding the Historical Development and Evolution of Christian Jurisprudence
155LW03-B CO2:	Exploring Foundational Principles of Christian, Parsi and Jewish Marriage laws.
155LW03-B CO3:	Students will critically evaluate the principles and legal framework governing family law under Christian, Parsi and Jewish laws.



155LW03-B CO4:	Students will critically evaluate the principles and legal framework governing Inheritance under Christian, Parsi and Jewish laws. The Course shall comprise of the following:
155LW03-B CO5:	Students will critically evaluate the Legal Issues and Contemporary Challenges

GROUP- C: LAW OF TORTS

Course Code:	155LW01-C
Course Title:	DEVELOPMENT OF LAW OF TORTS AND TORT ACTIONS GENERALLY
Course Outcomes:	
155LW01-C CO1:	Understand the historical origins and evolution of the law of torts, including its development during medieval times, the industrial revolution, and legislative reforms.
155LW01-C CO2:	Analyze and apply legal principles related to the justification and extinguishment of liability in various contexts, including self-defense, defense of property, necessity, privilege, etc.
155LW01-C CO3:	Analyze and apply legal concepts, including duty of care, standard of care, breach of duty, legal frameworks, laws, regulations, legal procedures, legal rights and responsibilities, etc.
155LW01-C CO4:	Analyze and apply the principles of strict liability, including understanding the concept, its application to various types of cases, and the implications for compensation and public policy considerations.
155LW01-C CO5:	Differentiate between legal and equitable remedies in torts and evaluate their application in various scenarios.

Course Code:	155LW03-C
Course Title:	SPECIFIC TORTS- II
Course Outcomes:	
155LW03-C CO1:	Understand and analyze the basics, theories, and historical development of negligence.
155LW03-C CO2:	Analyze the application of the doctrine of res ipsa loquitur and its significance in contemporary legal practice.



155LW03-C CO3:	Analyze the legal aspects of nervous shock, including the concepts of foreseeability, proximity, and the distinction between primary and secondary victims.
155LW03-C CO4:	Analyze and evaluate the legal consequences of nuisances, including their impact on public safety and the environment.
C155LW03-C O5:	Analyze and apply the principles of strict liability in assessing manufacturer, importer, and seller liabilities under the Consumer Protection Act.

GROUP- D: LAW OF CRIMES

Course Code:	155LW01-D
Course Title:	CRIMINOLOGY AND PENOLOGY
Course Outcomes:	
155LW01-D CO1:	Gain a comprehensive understanding of the foundational concepts, terminology, and theoretical frameworks of criminology, exploring its nature, scope, and utility in addressing crime and deviance.
C155LW01-D O2:	Demonstrate an understanding of the key figures, theories, and methodologies within various schools of criminology.
C155LW01-D CO3:	Able to analyze and evaluate the impact of biological, psycho-analytical, and sociological theories on understanding criminal behavior and its etiology.
C155LW01-D CO4:	Critically analyze the subjective realities of crime through a phenomenological lens, exploring the lived experiences of offenders, victims, and criminal justice professionals.
C155LW01-D CO5:	Demonstrate an understanding of the various theories and perspectives surrounding punishment, retributive, utilitarian, and rehabilitative approaches,

Course Code:	155LW03-D
Course Title:	CRIMES AGAINST SOCIAL AND ECONOMIC SECURITY AND PROBLEMS OF THEIR CONTROL
Course Outcomes:	
155LW03-D CO1:	Able to analyze the nature, scope, and impact of socio-economic crimes, its understanding the economic, social, and political consequences on society.
155LW03-D CO2:	Analyze the impact of globalization on the rise of transnational crime and propose preventive measures to address this phenomenon.



155LW03-D CO3:	Able to assess and analyze the regulatory frameworks, enforcement mechanisms, and penalties associated with offenses such as food adulteration, hoarding, and black marketing.
155LW03-D CO4:	Demonstrate an understanding of the legal and regulatory framework surrounding drug addiction, drug peddling, and professional deviance.
155LW03-D CO5:	Analyze the regulatory framework and enforcement mechanisms related to organized crimes, corporate crimes, and corruption.

GROUP- E: INTERNATIONAL LAW

Course Code:	155LW01-E
Course Title:	LAW OF TREATIES
Course Outcomes:	
155LW01-E	155LW01-E
C155LW01-E O2:	Analyze and evaluate the evolution of treaty-making processes from ancient times to the modern era.
155LW01-E CO3:	Analyze the negotiation process of treaties, from drafting to finalization, and understand the significance of each stage in ensuring the effectiveness.
155LW01-E CO4:	Demonstrate an understanding of the principles and methods of treaty interpretation, including textual, contextual, and teleological approaches.
C155LW01-E O5:	Understand the legal framework and mechanisms involved in amending treaties and the process and consequences of treaty termination.

Course Code:	155LW02-E
Course Title:	INTERNATIONAL COURT OF JUSTICE
Course Outcomes:	
155LW02-E CO1:	Demonstrate an understanding of the establishment and evolution of international judicial mechanisms.
C155LW02-E O2:	Analyze the establishment and legal basis of the ICJ, including its composition, functions, and relationship with other international and national courts and tribunals."
155LW02-E CO3:	Analyze and evaluate the various sources and limits of jurisdiction, including contentious, advisory, and voluntary jurisdiction.



155LW02-E CO4:	Analyze and apply the evolving nature of sources of law in ICJ jurisprudence to interpret and resolve disputes related to property and legal interests in international cases.
155LW02-E CO5:	Understand the legal basis, purpose, types, conditions, procedures, and enforcement mechanisms related to provisional measures in court proceedings.

Course Code:	155LW03-E
Course Title:	INDIA AND INTERNATINAL LAW
Course Outcomes:	
C155LW03-E O1:	Demonstrate an understanding of the origins and evolution of ancient international law, including its foundational principles, customary practices, and the role of diplomatic relations.
155LW03-E	155LW03-E
155LW03-E CO3:	Analyze the legal framework for resolving territorial disputes, including the principles of recognition in international law and the mechanisms for resolving such disputes.
155LW03-E CO4:	Analyze and evaluate the implementation and enforcement mechanisms of international human rights instruments and humanitarian law in addressing contemporary challenges and issues.
C155LW03-E O5:	Analyze and critically evaluate the legal frameworks surrounding international crimes, including genocide, crimes against humanity, war crimes, aggression, and terrorism.

GROUP- F: CONTRACT & INSURANCE

Course Code:	155LW01-F
Course Title:	GENERAL PRINCIPLES OF CONTRACT
Course Outcomes:	
155LW01-F CO1:	Critically analyze and compare various theories of contracts and the Critical Legal Studies Perspective, to understand their implications on the development and interpretation of contract law.
C155LW01-F O2:	Critically examine the concept of offer and acceptance, demonstrating a deep understanding of the essential elements.
155LW01-F CO3:	Critically analyze and evaluate the historical development, critiques, modern applications, international perspectives, reforms, and alternatives of the doctrine of consideration and the doctrine of privity of contract.



C155LW01-F O4:	Analyze the legal implications of contracts involving minors, their capacity to contract, voidable contracts, ratification, liability, and public policy considerations.
C155LW01-F O5:	Analyze and differentiate between void agreements and valid contracts, with a special emphasis on trade and wagering agreements.

Course Code:	155LW02-F
Course Title:	SPECIFIC CONTRACTS
Course Outcomes:	
155LW02-F	Explain the definition and nature of the contract of indemnity, its fundamental characteristics and elements.
155LW02-F	Understand the legal framework and enforceability of contracts of guarantee, including the rights and obligations of parties involved.
155LW02-F	Analyze and apply the legal remedies available in cases of breach of contract of bailment or pledge, considering the rights and liabilities of the parties involved.
155LW02-F	Analyze and differentiate between the various methods of terminating agency relationships, including revocation, renunciation, operation of law, and termination due to impossibility or changed circumstances.
155LW02-F	Conduct a comprehensive comparative analysis of contractual provisions and apply practical strategies for resolving contract-related disputes.

Course Code:	155LW03-F
Course Title:	INSURANCE
Course Outcomes:	
155LW03-F CO1:	Understand the definition and principles of the Contract of Insurance, its lavatory nature, legal implications, risk allocation between parties, and the concept of utmost good faith in insurance contracts.
155LW03-F CO2:	Understand the concept of insurable interest and its significance in various types of insurance, including property, life, liability, and fire insurance.
155LW03-F CO3:	Demonstrate a comprehensive understanding of various risk management strategies applicable in business contexts.
155LW03-F CO4:	Understand the regulatory framework of the insurance sector, the establishment, role, and functions of the Insurance Regulatory and Development Authority (IRDA).



155LW03-F CO5:	Analyze and evaluate the impact of emerging issues such as digitalization, climate change, and technological advancements on insurance practices and regulations.
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GROUP- G: ADMINISTRATIVE LAW

Course Code:	155LW01-G
Course Title:	ADMINISTRATIVE LAW IN INDIA-1
Course Outcomes:	
155LW01-G CO1:	Understand the significance of administrative law in modern states, including its scope, sources, historical evolution, and its relationship with other branches of law.
155LW01-G CO2:	Analyze the historical development and contemporary significance of the Rule of Law and Separation of Powers, with a focus on their application in constitutional frameworks,
155LW01-G CO3:	Analyze and evaluate the constitutional provisions and limitations related to delegated legislation in the Indian context.
155LW01-G CO4:	Critically analyze the role and functions of various types of Ombudsman institutions in India, including Lokpal and Lokayukta, within the constitutional framework,
155LW01-G CO5:	Analyze the powers and limitations of commissions of inquiry established under the Commission of Inquiry Act, 1952, in order to evaluate their effectiveness in addressing various societal and governmental challenges.

Course Code:	155LW02-G
Course Title:	ADMINISTRATIVE LAW IN INDIA-II
Course Outcomes:	
155LW02-G CO1:	Demonstrate an understanding of the scope and purpose of judicial review, including the grounds for review such as illegality, irrationality, and procedural impropriety.
155LW02-G CO2:	Demonstrate a comprehensive understanding of the principles of natural justice, including the right to be heard (Audi Alteram Partem) and the rule against bias (Nemo Judex in Causa Sua).
155LW02-G CO3:	Demonstrate an understanding of the concept of administrative finality and its implications in decision-making processes within government and corporate sectors.
C155LW02-G O4:	Analyze and apply various types of public law remedies, including declaratory remedies, prohibitory remedies, mandatory remedies, and revolutionary remedie.



155LW02-G CO5:	Analyze and evaluate emerging trends and challenges in administrative law, including the impact of recent amendments and legislative changes, to propose innovative solutions and strategies for effective governance.
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Course Code:	155LW03-G
Course Title:	COMPARATIVE ADMINISTRATIVE LAWS
Course Outcomes:	
155LW03-G CO1:	Discuss the historical development of administrative law in France, including its constitutional framework, administrative institutions, and key principles such as legality, equality, and impartiality.
155LW03-G CO2:	Analyze and differentiate between the various standards of review used by courts in the United States, including rational basis, intermediate scrutiny, and strict scrutiny.
155LW03-G CO3:	Evaluate the application of promissory estoppel in government actions, considering its elements, exceptions, and limitations in both domestic and comparative legal contexts.
155LW03-G CO4:	Access the significance, impact, and challenges in implementing the Right to Information Act, 2005.
155LW03-G CO5:	Understand the scope and limitations of legitimate expectations in administrative law, considering various principles and criteria for assessing such expectations.

GROUP- K: JURISPRUDENCE

Course Code:	155LW01-K
Course Title:	THEORIES OF LAW (INCLUDING FEMINIST THEORY)
Course Outcomes:	
155LW01-K CO1:	Demonstrate a comprehensive understanding of the nature, scope, and historical development of legal theory.
CO2: 155LW01-K	Demonstrate an understanding of the evolution of legal institutions and philosophical frameworks through critical analysis of Savigny's legal philosophy and the philosophical perspectives of Kant and Hegel.
C155LW01-K O3:	Analyze and evaluate the ethical considerations surrounding social engineering practices and realist theories, considering their impact on society, welfare, and international relations. CO4: Critically analyze the historical perspectives, interactions, and challenges within the law-morality relationship.
155LW01-K CO4:	Critically analyze the historical perspectives, interactions, and challenges within the law-morality relationship.



155LW01-K CO5:	Demonstrate an understanding of the relationship between law and capitalism through the analysis of legal institutions within the capitalist state within the framework of Marxian theory.
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Course Code:	155LW02-K
Course Title:	THEORIES OF JUSTICE
Course Outcomes:	
C155LW02-K O1:	Demonstrate an understanding of the historical evolution of justice from ancient to modern perspectives.
CO2155LW02-K:	Critically analyze and compare various theoretical perspectives on justice, including utilitarianism, deontology, rights-based approaches, Rawlsian theory, etc.
155LW02-K CO3:	Analyze the foundational principles and contemporary relevance of liberal traditions in justice theory.
155LW02-K CO4:	Analyze the principles of distributive justice in socialist society and evaluate their application in addressing contemporary social and economic inequalities.
C155LW02-K O5:	Evaluate the role of legal frameworks in addressing societal inequalities and explore potential avenues for systemic change towards a more just society.

Course Code:	155LW03-K
Course Title:	THEORIES OF RIGHTS
Course Outcomes:	
C155LW03-K O1:	Analyze the historical development of rights, tracing their origins in ancient civilizations, evolution in Western legal thought, and contributions of human rights movements.
155LW03-K CO2:	Analyze the development of legal discourse on rights, including the evolution from ancient civilizations to contemporary challenges.
155LW03-K CO3:	Critically analyze and evaluate the different philosophical perspectives on rights, including natural rights theory, legal positivism, utilitarianism, feminist perspectives, and intersectional approaches.
155LW03-K CO4:	Analyze and evaluate the relationship between rights and duties, considering both legal and moral obligations associated with rights.
155LW03-K CO5:	Demonstrate an understanding of the various philosophical, legal, and cultural foundations of rights.



Programme B.A.LL.B.

Course Code:	152EN101
Course Title:	English- I
Course Outcomes:	
C152EN101O1.	Develop effective communication skills.
152EN101CO2.	Understand sentence structure and transformations.
152EN101CO3	Gain a solid understanding of strong and weak verbs, infinitives, participles, gerunds, auxiliary verbs, articles, determiners, and punctuation rules, enabling them to use them correctly in their writing and speech.
152EN101CO4.	Develop article writing skills.
152EN101CO5.	Enhance translation and communication abilities.

Course Code:	152PO102
Course Title:	Political Science – I
Course Outcomes:	
152PO102CO1.	Demonstrate a clear understanding of foundational concepts in Political Science.
152PO102CO2.	Interpret and explain the various theories and principles presented in the course, such as behaviorism's impact on political analysis, social contract theories, pluralistic challenges to sovereignty, and the relationship between power and legitimacy.
152PO102CO3.	Apply theoretical frameworks to analyze real-world political scenarios, illustrating how concepts like sovereignty, legitimacy, rights, and the rule of law influence political decision-making and governance structures.
152PO102CO4.	Analyze the complexities of power dynamics, evaluating different sources of authority, the balance between rights and duties, and the ethical implications of political actions, fostering critical thinking about political systems.
C152PO102O5.	Synthesize the diverse concepts studied to evaluate the intricate relationships between governance elements, weighing the impacts of various theories on state legitimacy, individual liberties, equality, and the Overarching role of the rule of law in just societies.



Course Code:	152HI103
Course Title:	History- I
Course Outcomes:	
152HI103CO1:	Demonstrate comprehensive knowledge of the historical development of ancient India, including the Vedic Age, Mahajanpadas, and the governance structures of different dynasties up to 1206 AD, along with understanding the religious and philosophical tenets of Vedic religion, Buddhism, and Jainism.
C152HI103O2:	Interpret the socio-political and legal structures of ancient India, analyzing the organization of central and local governments, caste systems, economic arrangements, and the roles of women and education during different historical periods.
152HI103CO3:	Apply historical and cultural context to explain the differences in administrative systems, economic practices, and legal frameworks between various dynasties and periods, evaluating their impacts on governance, society, and economy.
152HI103CO4:	Analyze the evolution of governance systems, economic patterns, and societal norms across different time periods, comparing and contrasting the administrative, legal, and social elements within and between dynasties.
152HI103CO5:	Synthesize the knowledge gained to critically assess the contributions and limitations of different historical periods, evaluating their influence on modern India, and demonstrating an informed understanding of the religious, philosophical, and societal foundations of ancient India.

Course Code:	152LW104
Course Title:	Law of Contract (General Principles of Law of Contracts)
Course Outcomes:	
152LW104CO1:	Acquaint with the conceptual and operational parameters of various general principles relating to contract law.
152LW104CO2:	Equip with the basics of contract law so as to enable them to apply it effectively on the various disputes related to contracts.
152LW104CO3:	Examine the essential elements of a contract and how a contract can come to an end.
152LW104CO4:	Examine the contractual obligations.
152LW104CO5:	Deep understanding of specific performance of contracts.



Course Code:	152LW105
Course Title:	Law of Torts Including Motor Vehicle Accident & Consumer Protection Law_s
Course Outcomes:	
152LW105CO1	Gain knowledge of the historical development of the Law of Torts, including its origins in England and its adoption and modifications in India. They will understand the advantages and disadvantages of adopting the principles of justice, equity, and good conscience.
152LW105CO2	Understand the concept of a wrongful act, the violation of a duty imposed by law, and the distinction between <i>damnum sine injuria</i> and <i>injuria sine damnum</i> . They will also differentiate between torts, crimes, breach of contract, and trusts. Additionally, they will understand the scope and changing character of duties owed in modern society.
152LW105CO3	Gain insights into the justifications for tortious liability; including <i>volenti non fit injuria</i> , necessity (private and public), plaintiff's default, act of God, inevitable accident, private defense, statutory authority, and more. They will also learn about situations where liability is extinguished.
152LW105CO4	Comprehend the Doctrine of Sovereign Immunity and its relevance in India. They will also explore concepts such as vicarious liability, torts against persons and personal relations (including defamation), parental and master-servant relations, malicious prosecution, wrongful confinement, and wrongs affecting property.
152LW105CO5	Understand the concept of nuisance, its types, acts of obstructions, absolute and strict liability, legal remedies, and extra-legal remedies and explore Consumer Protection Act and Motor Vehicle Act.

Course Code:	VAC-101
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
VAC-101.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
VAC-101.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
VAC-101.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.



VAC-101.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
VAC-101.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	152EN201
Course Title:	ENGLISH – II
Course Outcomes:	
152EN201CO1:	Demonstrate proficiency in using functional grammar, including tenses, sentence correction, active and passive voices, direct and indirect speech, connectives, modifiers, questions, negatives, reported speech, and word usage. They will apply these skills to construct grammatically correct and coherent sentences.
152EN201CO2:	Exhibit improved composition writing skills through activities such as paragraph and précis writing, letter and formal correspondence, note-taking and making, report and project drafting, abstract writing, and summary writing. They will also demonstrate enhanced reading comprehension skills by analyzing and understanding various texts and extracting key information.
152EN201CO3:	Critically analyze and interpret the short story "The Mark of Vishnu" by Kushwant Singh. They will demonstrate an understanding of its themes, characters, plot, and literary devices, showcasing their ability to engage with literary works and articulate their analysis effectively.
152EN201CO4:	Showcase the ability to write well-structured essays on contemporary issues. They will critically analyze and present their perspectives on current topics, demonstrating their research skills, critical thinking abilities, and the capacity to present well-supported arguments.
152EN201CO5:	Participate in debates and deliver speeches on contemporary issues. They will demonstrate their public speaking skills, including the ability to present and defend arguments, engage in meaningful discussions with their peers, and showcase effective communication and presentation skills.



Course Code:	152PO202
Course Title:	POLITICAL SCIENCE – II
Course Outcomes:	
152PO202CO1:	Develop a clear understanding of fundamental concepts related to constitutional governance, including the meaning and characteristics of constitutions, classifications of constitutions, the concept of constitutionalism, and the rule of law.
152PO202CO2:	Interpret and explain the interplay between different organs of government, such as the legislature, executive, and judiciary, along with comprehending the dynamics of their functions and relationships within a constitutional framework.
152PO202CO3:	Apply the theory of separation of powers, including the concept of checks and balances, to real-world political scenarios, identifying instances where these principles are put into practice in various countries, particularly in the United States and India.
152PO202CO4:	Analyze the principles and characteristics of federalism, distinguishing between unitary and cooperative forms, and evaluating the merits and demerits of each. Differentiate between various forms of government – unitary, federal, parliamentary, and presidential – and critically assess their features and potential advantages and disadvantages.
152PO202CO5:	Synthesize the knowledge gained to critically evaluate the effectiveness of different forms of government in promoting stable governance and safeguarding citizens' rights, while also understanding how the concepts of separation of powers and federalism contribute to the distribution of authority in diverse political systems.

Course Code:	152EC204
Course Title:	ECONOMICS – I
Course Outcomes:	
152EC204CO1:	Students will explore the subject matter of economics, scope and subject matter of economics and central problems of economics.
152EC204CO2:	Students will know about Supply and Demand, Elasticity of Demand and Consumer Surplus.
152EC204CO3:	Students will become aware of Consumer Behaviour, Giffen Goods and Indifference Curve.



152EC204CO4:	Students will understand Theory of production and costs, Production with one and more variable, short run and long run costs, Elasticity of Substitution.
152EC204CO5:	Students will have knowledge about various theories of rent, wages and interest.

Course Code:	152LW203
Course Title:	SPECIFIC CONTRACT
Course Outcomes:	
152LW203CO1	Shall develop an understanding of the concepts of Indemnity and Guarantee.
152LW203CO2	Acquire conceptual clarity about Special Contracts of Bailment and Pledge.
152LW203CO3	Acquire conceptual clarity about the contract of Agency.
152LW203CO4	Evaluate and Comprehend Indian Partnership Act and Limited Liability Partnerships.
152LW203CO5	Understand the Sale of Goods Act with reference to a contract of Sale, its essentials, rights and duties of buyers and sellers, conditions and warranties etc.

Course Code:	152LW205
Course Title:	Jurisprudence (Legal Method, Indian Legal System & Basic Theory)
Course Outcomes:	
152LW205CO1	Clear understanding of the term "Jurisprudence" and its significance in the study of law. They will also comprehend the definition of law and its various types, including the concepts of justice and different kinds of justice.
152LW205CO2	Analyze and evaluate various schools of Jurisprudence, including Natural law school, Analytical school, Historical school, Sociological school, Realistic school, and Feminist schools. They will understand the foundational theories and perspectives of each school and their influence on legal thinking.
152LW205CO3	Explore the different sources of law, including legislation, precedents (concept of stare decisis), and customs. They will understand the significance and application of each source in the Indian legal system.



152LW205CO4	Gain knowledge of the concept of legal rights, including their kinds and meanings. They will also understand the concept of duty and the relationship between rights and duties. Additionally, students will explore the nature of personality, the status of different individuals (unborn, minor, lunatic, etc.),
152LW205CO5	Gain an understanding of the corporate personality, possession, ownership, theories of possession and ownership, and the difference between possession and ownership and Conditions for imposing liability, including wrongful acts, strict liability, and vicarious liability. They will explore the nature and kinds of obligations, as well as the difference between being obliged and having an obligation.

Course Code:	IKS
Course Title:	Indian Knowledge System
Course Outcomes:	
CO- IKS. 1	To understand the ancient civilization, Indian Knowledge Systems, Concept of PanchMahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
CO- IKS.II	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
CO- IKS.III	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
CO- IKS. IV	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
CO- IKS. V	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethno medicine, Nature conservation, World Heritage Sites etc.

Semester-III

Course Code:	152PO301
Course Title:	POLITICAL SCIENCE- III
Course Outcomes:	
152PO301CO1:	Acquire a comprehensive knowledge of international relations, encompassing diverse theoretical perspectives such as idealism, liberalism, realism, neo-realism, and Marxism, along with an understanding of power dynamics, foreign policy determinants, and the intricacies of diplomacy.



152PO301CO2:	Interpret and explain the key concepts within international relations, including the nature and types of power, national interest, ideology's role, foreign policy formulation processes, and various forms of diplomacy, enhancing your comprehension of global political dynamics.
152PO301CO3:	Apply theoretical frameworks to analyze and evaluate real-world international scenarios, assessing the dynamics of power struggles, the impact of national interests on foreign policy decisions, and the role of diplomacy in conflict resolution and cooperation among states.
152PO301CO4:	Analyze the complexities of foreign policy determinants, critically evaluating the interplay of power and national interests, and examining how different ideologies influence state actions in the global arena, fostering a deeper understanding of international relations' intricacies.
152PO301CO5:	Synthesize knowledge across units to critically evaluate the strengths and limitations of various theoretical approaches, power dynamics, foreign policy strategies, and diplomatic methods, enabling you to evaluate international relations from an informed and analytical perspective. Apply theoretical frameworks to analyze and evaluate real-world international scenarios, assessing the dynamics of power struggles, the impact of national interests on foreign policy decisions, and the role of diplomacy in conflict resolution and cooperation among states.

Course Code:	152SO302
Course Title:	Sociology –1
Course Outcomes:	
152SO302CO1:	Understand the foundational concepts of sociology and their relevance in analyzing human behavior and societal dynamics.
152SO302CO2:	Analyze and evaluate the formation and dynamics of social groups, including the impact of ingroup-outgroup dynamics on social identity and bias.
152SO302CO3:	Critically analyze the various social reform movements in India and understand their impact on societal norms, structures, and institutions.
152SO302CO4:	Critically analyze the various social reform movements in India and understand their impact on societal norms, structures, and institutions. Demonstrate an understanding of the interplay between customs, laws, media, and public opinion in shaping social norms and behaviors.
152SO302CO5:	Students will demonstrate an understanding of the intricate interplay between cultural diversity, socioeconomic factors, and political dynamics in shaping the features and development of Indian society.



Course Code:	152HI303
Course Title:	HISTORY –II
Course Outcomes:	
152HI303CO1:	Develop a comprehensive knowledge of the history, administration, and societal aspects of the Sultanate period, the rise of regional kingdoms, and the Mughal invasion, while also understanding the historical significance of notable dynasties and their impact.
152HI303CO2:	Interpret and explain the complexities of administration, society, and economy during different historical periods, analyzing the achievements, reforms, and contributions of various rulers and dynasties.
152HI303CO3:	Apply historical knowledge to assess the outcomes of key events such as the Mongol invasion, Mughal invasion, and the rise of regional powers, and analyze their effects on political, economic, and societal structures.
152HI303CO4:	Analyze the administrative strategies, economic systems, and social conditions within different dynasties, comparing their policies, achievements, and influence on religious and cultural dimensions.
152HI303CO5:	Synthesize information from various units to critically evaluate the causes and consequences of significant events, such as the decline of the Mughal Empire and the impact of invasions, while also appreciating the contributions of artistic, religious, and cultural movements during the medieval period

Course Code:	152LW304
Course Title:	Family Law – I (Hindu Law)
Course Outcomes:	
152LW304CO1:	Understand the nature of Hindu law, including its historical evolution, cultural significance, and the various schools and sources that shape this legal system.
152LW304CO2:	Demonstrate proficiency in the legal aspects of marriage and divorce under Hindu law. They will be able to analyze different types of marriages, understand the grounds for nullity, and interpret the provisions of the Hindu Marriage Act, 1955, and the Special Marriage Act, 1954.
152LW304CO3:	Acquire expertise in Hindu Undivided Family (HUF) laws. They will understand the principles of joint family, coparcenaries, property under Mitakshara and Dayabhag, as well as the legal intricacies related to partition, re-union, women's estate, and stridhan.
152LW304CO4:	Possess comprehensive knowledge of laws related to gifts, wills, and adoption under Hindu law. They will be able to analyze legal provisions concerning Hindu adoption and maintenance (1956) and the Hindu Minority and Guardianship Act (1956).



152LW304CO5 :	Demonstrate expertise in the laws of inheritance and succession under Hindu law. They will understand the general rules of succession, disqualifications related to succession, and the provisions outlined in the Hindu Succession Act, 1956. Additionally, they will gain insight into the legal aspects of religious endowments.
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Course Code:	152LW305
Course Title:	Constitutional Law – I
Course Outcomes:	
152LW305CO1 :	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
152LW305CO2 :	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
152LW305CO3 :	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognize the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
152LW305CO4 :	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
152LW305CO5 :	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.



Semester-IV

Course Code:	152PO401
Course Title:	POLITICAL SCIENCE- IV
Course Outcomes:	
152PO401CO1:	Acquire comprehensive knowledge about fundamental concepts in political theory, including the nature and characteristics of democracy, models of democracy, theories of democracy, rights, duties, liberty, equality, justice, liberalism, totalitarianism, socialism, and Marxism
152PO401CO2:	Interpret and explain the complexities of different political concepts, such as the relationship between rights and duties, the various forms of democracy, the distinctions between negative and positive liberty, the types of equality, and the dimensions and theories of justice.
152PO401CO3:	Apply theoretical frameworks to analyze real-world scenarios and examples, understanding how democratic models function in practice, the interplay between rights and duties, and the implications of different political ideologies on governance and society.
152PO401CO4:	Analyze the merits and demerits of key political ideologies, including liberalism, totalitarianism, socialism, and Marxism, while also critically evaluating their features, impact, and historical contexts
152PO401CO5:	Synthesize knowledge across all units to critically evaluate the strengths and weaknesses of democracy models, theories, and ideologies, fostering the ability to assess their impact on individual rights, societal equality, governance, and justice.

Course Code:	152SO402
Course Title:	SOCIOLOGY-II
Course Outcomes:	
152SO402CO1:	Analyze and compare different types of kinship systems across cultures, highlighting their significance in shaping social organization and individual roles within societies.
152SO402CO2:	Demonstrate an understanding of the significance of major world religions, their beliefs, practices, and the role of sacred texts.
152SO402CO3:	Analyze and critically evaluate the historical development, structure, and persistence of caste systems, as well as their impact on social mobility, discrimination, and contemporary challenges in India and beyond.



152SO402CO4:	Analyze the impact of social theories and policies on marginalized groups and deviants, and develop strategies for addressing social problems facing these communities.
152SO402CO5:	Critically analyze the impact of societal norms and structures on the identities and rights of children and youth in India, and develop strategies for promoting their dignity and social justice.

Course Code:	152EC403
Course Title:	ECONOMICS- II
Course Outcomes:	
152EC403CO1:	Understand the interdependence of macro and microeconomics, and analyze the dynamic relationship between these two fields.
152EC403CO2:	Understand the functions of money, including its role as a medium of exchange, unit of account, and store of value.
152EC403CO3:	Comprehend the principles of taxation, including the canons of taxation and the principle of least aggregate sacrifice.
152EC403CO4:	Compare and contrast different national income metrics, including GNP, GDP, NNP, and NDP, and understand their significance, uses, key differences, and implications.
152EC403CO5:	Analyze the significance and role of the Balance of Payments (BoP) in the context of global economics, understanding its components and implications for exchange rate dynamics and policy formulation.

Course Code:	152LW404
Course Title:	MUSLIM LAW
Course Outcomes:	
152LW404CO1:	Analyze and interpret the principles and concepts of Muslim personal law, including the definition of a Muslim, conversion, apostasy, and the sources and schools of Muslim law. Students will be able to understand the legal framework and foundations of Muslim personal law.
152LW404CO2:	Understand the legal aspects of marriage under Muslim law, including the nature, capacity, essentials, and classifications of marriage. Students will be able to analyze the legal effects of marriage and comprehend the rights and obligations of the parties involved.
C152LW404O3:	Evaluate the concept and implications of divorce under Muslim law, including various forms of divorce such as Talaq, Talaq-tafweez, Mubarat, and Khula. Students will gain an understanding of the legal effects of divorce and its impact on the rights and responsibilities of the parties.



152LW404CO4 :	Examine and analyze the legal provisions related to maintenance of wives under Muslim law, with a specific focus on Section 125 of the Cr.P.C. and the Muslim Women (Protection of Rights on Divorce) Act, 1986. Students will understand the rights and entitlements of wives in terms of financial support.
152LW404CO5 :	Comprehensive understanding of the legal principles and societal implications surrounding parentage, with a focus on the acknowledgement process and grasp of the legal aspects related to succession and transactions made on the death bed.

Course Code:	152LW405
Course Title:	CONSTITUTIONAL LAW-II
Course Outcomes:	
152LW405CO1 :	Understand the constitutional provisions and mechanisms governing the administration of Union Territories, Panchayats, and Municipalities. Students will be able to analyze the roles, powers, and functioning of these entities and evaluate their significance in local governance.
152LW405CO2 :	Analyze the distribution of legislative power between the Union and the States, and comprehend the principles and mechanisms that govern legislative and administrative relations. Students will understand the division of powers and the impact on policymaking and governance in India.
152LW405CO3 :	Evaluate the financial provisions of the Constitution, including the regulation of property, contracts, rights, liabilities, and obligations. Students will gain an understanding of the legal framework governing financial matters and the implications for public finances and economic governance.
152LW405CO4 :	Examine the establishment and functioning of tribunals, the conduct of elections, and the special provisions relating to certain classes. Students will understand the role of tribunals in resolving disputes, the electoral process, and the constitutional safeguards for specific groups in society.
152LW405CO5 :	Analyze the emergency provisions in the Constitution, including the proclamation of emergency and its effects, as well as the concept of financial emergency. Students will understand the circumstances under which emergency powers can be invoked and the impact on democratic governance and examine the process and implications of constitutional amendments, including the procedures for amending the Constitution and the significance of amendments in shaping the legal and institutional framework of the country.



Semester-V

Course Code:	152PO501
Course Title:	POLITICAL SCIENCE- V
Course Outcomes:	
C152PO501O1:	Analyze and articulate the meaning and characteristics of the Balance of Power, distinguish between various types, and critically evaluate the devices employed to maintain it. Additionally, students will understand the concept of a balancer, the dynamics of the Balance of Terror, and appreciate the ongoing relevance of this concept in the contemporary global political landscape.
152PO501CO2:	Comprehend the nature, causes, and phases of the Cold War. They will be equipped to conduct case studies on significant Cold War events, such as the Korean Crisis, Vietnam Crisis, Cuban Crisis, Afghanistan Crisis, and Gulf War-I.
152PO501CO3:	Possess a comprehensive understanding of the United Nations, its six principal organs, and the mechanisms employed for the peaceful settlement of disputes. They will be proficient in analyzing and assessing the Collective Security Mechanism and recognize the role of the UN in maintaining international peace and security.
152PO501CO4:	Critically evaluate the roles and impacts of non-state actors, including NGOs and IGOs such as IMF, World Bank, WTO, OPEC, and regional organizations like EU, ASEAN, and SAARC.
152PO501CO5:	Define and categorize international terrorism, distinguishing between unorganized, organized, state-sponsored, and Islamic terrorism. They will analyze the root causes and changing faces of terrorism, considering issues related to resources, territorial claims, culture, and religion within the international scenario.

Course Code:	152LW503
Course Title:	Company law
Course Outcomes:	
152LW503CO1:	Describe the basics and guiding principles of Indian corporate law.
C152LW503O2:	Recognise and separate the key components of each business.
152LW503CO3:	Assess and recognise the relative merits and shortcomings of each business medium.
C152LW503O4:	Give a general summary of the parties' rights, responsibilities, obligations, and liabilities with respect to the various commercial businesses.



152LW503CO5 :	Use the information you've learned in the course to tackle actual commercial enterprise difficulties and use the information to select career paths like those in the business sector and exams like the CA, CS, business Lawyering, etc.
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Course Code:	152LW504
Course Title:	LABOUR AND INDUSTRIAL LAWS-I
Course Outcomes:	
152LW504CO1 :	Analyze and interpret the key concepts and principles of industrial jurisprudence and labor policy in India. Students will develop an understanding of the historical context of industrialization, the associated labor problems, and the evolution of labor legislation in the country.
152LW504CO2 :	Understand and apply the provisions of the Industrial Disputes Act, 1947. Students will be able to identify the authorities involved in resolving industrial disputes, comprehend the procedures and powers of these authorities, and analyze the implications of provisions related to strikes, lockouts, retrenchment, and penalties.
152LW504CO3 :	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
152LW504CO4 :	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
152LW504CO5 :	Evaluate the interpretation and legal status of standing orders, including their modification and temporary application. Students will understand the importance of proper interpretation and compliance with standing orders in maintaining harmonious industrial relations and ensuring legal compliance.

Course Code:	152LW505
Course Title:	LAW OF CRIMES(INDIAN PENAL CODE)
Course Outcomes:	



152LW505CO1 :	Analyze and interpret the provisions of the Indian Penal Code (IPC) and understand the elements of criminal liability. Students will be able to identify and apply the relevant provisions of the IPC to different situations, assess the mental state required for criminal liability, and analyze the factors that negate guilty intention.
152LW505CO2 :	Comprehend the various offenses against the human body and property as outlined in the IPC. Students will develop an understanding of offenses such as culpable homicide, murder, hurt, theft, robbery, cheating, and mischief. They will be able to distinguish between different types of offenses, evaluate the elements required for each offense, and analyze the corresponding punishments.
152LW505CO3 :	Evaluate the types of punishments available under the IPC and understand their social relevance. Students will be able to analyze the appropriateness and effectiveness of different types of punishments, including death penalty, imprisonment and forfeiture of property, fine, and the court's discretion in awarding punishment. They will also develop an understanding of the minimum punishment prescribed for certain offenses.
152LW505CO4 :	Distinctions between culpable homicide and murder, analysis of factors impacting right to private defense and comprehensive knowledge of assault and related offence.
152LW505CO5 :	Understanding the philosophical and ethical dimensions of death penalty, examine the social impact of capital punishment and comparative analysis of punitive measures.

Semester-VI

Course Code:	152PO601
Course Title:	POLITICAL SCIENCE- VI
Course Outcomes:	
152PO601O1:	Explore the foundational principles, historical development, and contemporary roles of public administration.
152PO601CO2:	Analyze organizational aspects, emphasizing structure, and operational principles.
152PO601CO3:	Evaluate personnel administration, covering crucial elements like recruitment, promotion, training, classification, and public relations.
C152PO601O4:	Understand financial administration, dissecting budgeting processes, audit concepts, and the roles of key institutions in India. Finally.
152PO601CO5:	Identify the multifaceted control mechanisms, encompassing legislative, executive, and judicial oversight, along with specific entities like the Ombudsman, and the crucial aspects of good governance and e-governance.



Course Code:	152EC602
Course Title:	Economic – III
Course Outcomes:	
152EC602CO1:	Demonstrate an understanding of the determinants of economic growth and the obstacles to economic development.
152EC602CO2:	Analyze the key problems facing Indian agriculture, including fragmented land holdings.
152EC602CO3:	Analyze the impact of technological advancements on industrial development and economic growth.
152EC602CO4:	Understand the impact of foreign trade and foreign capital on economic growth and development.
152EC602CO5:	Analyze the impact of economic reforms, globalization, and privatization on income and wealth distribution.

Course Code:	152LW603
Course Title:	ENVIRONMENTAL LAW
Course Outcomes:	
152LW603CO1:	To familiarize the students with the overall environmental legal regime of the country as well as its international obligations and would further equip the students with basic knowledge and skills to understand environmental issues.
152LW603CO2:	To make the students aware about the provisions under the Indian Constitution for protection of environment and the various legislative measures.
152LW603CO3:	It also provides an opportunity to the students
152LW603CO4:	To understand the activist role played by Indian Judiciary in protection of environment and evolution of different principles.
152LW603CO5:	A spirit of inquiry to explore the development of Indian environmental law and various legislations and its application in India for the protection of environment and Awareness regarding the problem of environmental pollution and Law as a means of prevention of environmental pollution and protection of environment.



Course Code:	152LW604
Course Title:	LABOUR & INDUSTRIAL LAW- II
Course Outcomes:	
152LW604CO1 :	This unit makes the students able to understand of the role of insurance in worker welfare. State Employees Insurance Act 1948 is the academic topic of this unit.
152LW604CO2 :	Under this unit Students become able to understand of the minimum requirements of the living of the workers and the ways to ensure their attainment through this.
152LW604CO3 :	This unit makes the students able to understand the rules and regulations related to the payment of wages to the workers. The Payment of Wages Act 1936 is the academic subject of the Unit.
152LW604CO4 :	Through this unit the students got precious knowledge about the provisions related to health, safety and welfare of the workers working in a factory.
152LW604CO5 :	The central theme of this unit is the bonus provided to the workers. These unit able students to study the methods related to the bonus provided to the workers working in various business and industrial establishments.

Course Code:	152LW605
Course Title:	CRIMINAL PROCEDURE CODE
Course Outcomes:	
152LW605CO1 :	Differentiate between substantive and procedural criminal law.
152LW605CO2 :	Assess the Organisation, hierarchy, and operation of India's criminal courts.
152LW605CO3 :	Understand the function of officials such as the police, magistrates, courts, etc.
152LW605CO4 :	Examine key terms such as "offence," "charge," "bail," "examination of witnesses," "appeals," etc.
152LW605CO5 :	Outline the fundamental processes for FIRs, complaints, police reports, inquiries, searches, and seizures, among other things and Describe several trial types, including summary, warrant, and summons cases, as well as the various stages of each and also Examine the Cr.P.C.'s regulations on a wife's, children, and parent's maintenance.



Semester-VII

Course Code:	152LW701
Course Title:	CIVIL PROCEDURE CODE & LIMITATION ACT
Course Outcomes:	
152LW701CO1 :	Recognize the core ideas of the Civil Procedure Code and to describe civil jurisdiction.
152LW701CO2 :	Explore rule of pleadings.
152LW701CO3 :	Describe the Appearance, Examination, Trail and Suit in particular cases and Suits in Particular Cases.
152LW701CO4 :	Know about Appeals, Review, Reference and Revision.
152LW701CO5 :	Describe limitation period of civil cases.

Course Code:	152LW702
Course Title:	ADMINISTRATIVE LAW
Course Outcomes:	
152LW702CO1 :	The students will be able to describe the concept of Administrative law and recognize, articulate, and apply the administrative law principles presented in the course.
152LW702CO2 :	Deep understanding of Delegated Legislation.
152LW702CO3 :	Through a consideration of court case law and the judicial process, the students will be able to examine and forecast how unresolved or confusing administrative law matters could be handled by the courts.
152LW702CO4 :	The student will be able to describe the words Estoppel and Waiver, Official secrets, Right to information, Lokpal, Lokayukt, Central Vigilance Commissions and Commission of inquiry.
C152LW702O5 :	Describe the Administrative Tribunals in depth.



Course Code:	152LW703
Course Title:	Legal Language & Legal Writing
Course Outcomes:	
152LW703CO1	Deep knowledge of communication skills like listening, reading, writing and also able to explain sentences.
152LW703CO2	Understand Strong and Weak verbs, Article Writing, Précis Writing and Translation.
152LW703CO3	Describe need and importance of legal language and use appropriate legal jargon to communicate clearly and effectively.
152LW703CO4	Describe the meanings of Legal Terminology and Latin expressions, employ them in arguments, and use them to clarify key legal ideas and notions. When communicating on legal matters, use legal phrases, understand how they are used in different situations, and apply them.
152LW703CO5	Describe and explore of the legal maxims and analytically read and analyse court rulings, separating out their facts and guiding principles to determine what legal principles they (the judgments) uphold.

Course Code:	152LW704-A
Course Title:	BANKING LAW
Course Outcomes:	
152LW704-A CO1:	Describe the concepts of Bank, types of bank and E-commerce and e-banking are new, emergent aspects of financial systems.
152LW704-A CO2:	To understand the bankers and customers relation.
152LW704-A CO3:	Deep understanding of Negotiable Instruments like cheque and bill of exchange.
152LW704-A CO4:	Describe the working of RBI.
152LW704-A CO5:	Describe the Merchant banking in India in depth.



Course Code:	152LW704-B
Course Title:	HUMAN RIGHTS LAW & PRACTICES
Course Outcomes:	
152LW704-B	Describe and explore the Historical Development and concept of Human Right, Human Right in India ancient, medieval and modern concept of rights, Human Right in Western tradition, Human Right in legal tradition: International Law and National Law, UN and Human Rights, Universal Declaration of Human Rights (1980) and Covenant on political and Civil Rights (1966).
152LW704-B	Know about conventions related to various rights.
152LW704-B	Understand the Impact and Implementation of International Human Rights Norms in India.
152LW704-B	Explain human rights of women, prisoners, child, Dalits, victims, and Minorities.
152LW704-B	Describe and examine the remedies available for violation of human rights.

Course Code:	152LW704-C
Course Title:	PROBATION AND PAROLE
Course Outcomes:	
152LW704-C CO1:	Describe the concept of crime, nature and scope of criminology and causation of crime.
152LW704-C CO2:	Describe the theory of punishment.
152LW704-C CO3:	Describe the organized crime.
152LW704-C CO4:	Deep understanding of probation
152LW704-C CO5:	Deep understanding of parole.

Course Code:	152LW705
Course Title:	PROFESSIONAL ETHICS & PROFESSIONAL ACCOUNTING SYSTEM (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
152LW705CO1	About their rights as advocates, as well as the corresponding obligations and restrictions and to inform them of the Bar Council of India's stances on ethical violations.



152LW705CO2 :	About Ethics of Legal Profession.
152LW705CO3 :	Aware of Punishment for Professional or Other Misconduct
152LW705CO4 :	Familiarise with the legal requirements, ethical rules, and court rulings pertaining to the practise of law.
152LW705CO5 :	Deep understanding of Meaning and Categories of Contempt of Court.

Semester-VIII

Course Code:	152LW801
Course Title:	PROPERTY LAW
Course Outcomes:	
152LW801CO1 :	Understand the most basic concepts in property law, like meaning of property and Kinds of property.
152LW801CO2 :	Understand the Law relating to Transfer of Property under Transfer of Property Act, 1882.
152LW801CO3 :	Understand the Transfers of Immovable Properties and Movable Properties like Sale, Mortgage, Gift, Leases, Exchanges and Actionable claims.
152LW801CO4 :	Understand the M.P. Accommodation Control Act 1961 and Rent Controlling Authority.
152LW801CO5 :	Understand the Indian Easements Act, 1882.

Course Code:	152LW802
Course Title:	LAW OF EVIDENCE
Course Outcomes:	
152LW802CO1 :	Describe the main features of the Indian Evidence Act 1861, Applicability of Evidence Act, Administrative Tribunals, Industrial Tribunals, and Commissions of enquiry and Court- Martial.
152LW802CO2 :	Define the level of proof required in both civil and criminal proceedings.
152LW802CO3 :	Able to the justification for relevance of dying declarations and Relevance of judgments.
152LW802CO4 :	Define the processes to be followed in the conduct of a civil or criminal trial and analyse and assess the rules regulating examination in chief, cross examination, and re-examination.



152LW802CO5 :	Identify the different types of presumptions and determine the burden of proof and standard of proof in civil and criminal trials and also able to justification for Estoppel.
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Course Code:	152LW803
Course Title:	INTELLECTUAL PROPERTY LAW
Course Outcomes:	
152LW803CO1 :	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
152LW803CO2 :	Evaluate the general principles of law of insurance.
152LW803CO3 :	Deep understanding of life insurance.
152LW803CO4 :	Describe the Marine Insurance.
152LW803CO5 :	Describe the Social Insurance in India.

Course Code:	152LW804-A
Course Title:	INSURANCE LAW
Course Outcomes:	
152LW804-A CO1:	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
152LW804-A CO2:	Evaluate the general principles of law of insurance.
152LW804-A CO3:	Deep understanding of life insurance.
152LW804-A CO4:	Describe the Marine Insurance.
152LW804-A CO5:	Describe the Social Insurance in India.

Course Code:	152LW804-B
Course Title:	GENDER JUSTICE AND FEMINIST JURISPRUDENCE
Course Outcomes:	



152LW804-B CO1:	To examine feminist and patriarchal legal systems Pre-Independence India.
152LW804-B CO2:	To examine feminist and patriarchal legal systems in Post-Independence India.
CO3:	To evaluate critically how men's rights and women's rights are being misused.
152LW804-B CO4:	To evaluate critically matrimonial relations and its consequences.
152LW804-B CO5:	Describe the various social welfare laws for women and non-implementation of protective labor legislation.

Course Code:	152LW804-C
Course Title:	IPR MANAGEMENT
Course Outcomes:	
152LW804-C CO1:	Identify the many categories of intellectual properties (IPs), the ownership rights, the range of protection, and the methods for producing and monetizing IP.
152LW804-C CO2:	Acknowledge the Typology of IPR.
152LW804-C CO3:	Describe the Inventor ship, Ownership, Service works.
152LW804-C CO4:	IP agreements, Invention disclosure systems assessment.
C152LW804-C O5:	Describe the precautionary measures to be taken to prevent infringement of proprietary rights in the creation of products and technologies, as well as the actions that constitute IP infringements and the remedies available to the IP owner.

Course Code:	152LW805
Course Title:	Drafting pleading & Conveyance (clinical course) and viva-voce
Course Outcomes:	
152LW805CO1 :	Be able to manage the client over the course of the engagement and analyse and describe the notion of pleading and various norms of pleading.
152LW805CO2 :	Explain the reasoning process and use legal writing skills while speaking before courts and tribunals.
152LW805CO3 :	Recognize how to use various complaints to enter the criminal justice system.



152LW805CO4 :	Describe the many types of conveyancing deeds, such as sale deeds, gifts, mortgages, etc.
152LW805CO5 :	Use your legal writing abilities and knowledge of the practical aspects of document registration.

Semester-IX

Course Code:	152LW901
Course Title:	PRINCIPLES OF TAXATION LAW
Course Outcomes:	
152LW901CO1 :	Explore the history of tax law in India and fundamental principles relating to tax laws.
152LW901CO2 :	Describe concept of tax and scope of taxing powers of Parliament, state Legislature and local bodies.
152LW901CO3 :	Students would assess a person's level of total income and residential status.
152LW901CO4 :	Understanding the sources of income and tax authority.
152LW901CO5 :	Understanding the various tax legislation.

Course Code:	152LW902
Course Title:	INTERPRETATION OF STATUTES & PRINCIPLE OF LEGISLATION
Course Outcomes:	
152LW902CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
152LW902CO2 :	Students will be able to explore and examine the negotiation system.
152LW902CO3 :	Students will be able to explore and examine the negotiation system.
152LW902CO4 :	Students will be able to understand application of arbitration system.
152LW902CO5 :	CO5: Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.



Course Code:	152LW903-A
Course Title:	WOMEN AND CRIMINAL LAW
Course Outcomes:	
152LW903-A CO1:	Know about crimes against women.
152LW903-A CO2:	Compare the effects of several legislation passed to protect women from harassments, molestation, sexual abuse, and rape.
152LW903-A CO3:	Aware of particular and general offences.
152LW903-A CO4:	Aware of special offending act like immoral trafficking, female foeticide, kidnapping and abduction.
152LW903-A CO5:	Examine the concerns raised by the Protection of Women from Domestic Violence Act of 2005 in relation to violence against women.

Course Code:	152LW903-B
Course Title:	LOCAL SELF GOVERNMENT INCLUDING PANCHAYET ADMINISTRATION
Course Outcomes:	
152LW903-B CO1:	Describe the concept and meaning of local self government and also explore the doctrine of distribution of power.
152LW903-B CO2:	Know about the Constitutional provisions of panchayat system.
152LW903-B CO3:	Know about all provisions of Municipalities.
152LW903-B CO4:	Examine the M.P. Panchayati Raj Act, 1993.
152LW903-B CO5:	Examine the Nagar Palika Adhiniyam.

Course Code:	152LW903-C
Course Title:	EQUITY AND TRUST
Course Outcomes:	
152LW903-C CO1:	Describe the origin and development of equity and trust.
152LW903-C CO2:	Explore the definition, nature and kinds of trust.
152LW903-C CO3:	Aware about right and duties of trustee.



152LW903-C CO4:	Aware about powers and liabilities of trustee.
152LW903-C CO5:	Know about Rights and Liabilities of Beneficiaries.

Course Code:	152LW904-A
Course Title:	INFORMATION TECHNOLOGY
Course Outcomes:	
152LW904-A CO1:	Describe the concept and definition of computer, digital signature and Appreciate and grasp the overall influence that information technology (IT) has had on the practice of law, as well as how this technology has given rise to new national and international legal concerns and difficulties.
152LW904-A CO2:	Know about adjudication and penalties.
152LW904-A CO3:	Explore how the customer and victim protected.
152LW904-A CO4:	Globally aware of IT law.
152LW904-A CO5:	Know about right of privacy regarding internet and media.

Course Code:	152LW904-B
Course Title:	RIGHT TO INFORMATION
Course Outcomes:	
152LW904-B	Describe and examine the theories and legal framework behind India's right to information.
152LW904-B	Identify several pieces of law that either support or restrict freedom of information and Compare India's information law provisions to those found in the USA and UK.
152LW904-B	Know about various Indian Legislations.
152LW904-B	Explore and examine the Right to Information Act, 2005.
152LW904-B	Know all about RTI and Judiciary.



Course Code:	152LW904-C
Course Title:	COMPETITION LAW
Course Outcomes:	
152LW904-C CO1:	To be able to elaborate the development of competition law and its importance.
152LW904-C CO2:	In-depth knowledge of MRTP Act.
152LW904-C CO3:	Examine the Merger and Competition Law.
152LW904-C CO4:	Critically evaluate and examine some of the important concerns, such as how IPR laws, regulatory laws, environmental laws, and public procurement laws interact with one another.
152LW904-C CO5:	Know about Competition Authorities (Regulatory Mechanism).

Course Code:	152LW905
Course Title:	ALTERNATIVE DISPUTE RESOLUTION (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
152LW905CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute Resolution.
152LW905CO2 :	Students will be able to explore and examine the negotiation system.
152LW905CO3 :	Students will be able to describe in-depth mediation and conciliation.
152LW905CO4 :	Students will be able to understand application of arbitration system.
152LW905CO5 :	Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.

**Semester-X**

Course Code:	152LW1001
Course Title:	PUBLIC INTERNATIONAL LAW
Course Outcomes:	
152LW1001CO 1:	Students gain a thorough understanding of the sources of international law (treaties and customary international law), the subjects of international law (identifying rights and obligations of States, IOs, NGOs, and individuals), the institutional context (UN, WTO, regional agencies, etc.), and the dispute resolution framework (courts, arbitration tribunals, conciliation, as well as use of sanctions and force).
152LW1001CO 2:	Students will be able to describe and define states as a subject matter in the context of International Law.
152LW1001CO 3:	Ability to analyze all the necessary provisions related to state jurisdiction will develop.
152LW1001CO 4:	Students will be describe to provisions related to state and individuals.
152LW1001CO 5:	Students Know about The United Nations Organization.

Course Code:	152LW1002
Course Title:	LAND LAWS INCLUDING TENURE AND TENANCYSYSTEM
Course Outcomes:	
152LW1002CO 1:	Describe what is meant by the idea of agricultural land and apply principles from land law related to tenure holders, ownership, possession, succession, surrender, abandonment, mortgage, lease, and tenancies.
152LW1002CO 2:	Know about Revenue Board and Revenue Officer also become familiar with the upkeep and updating of local records and the effects of consolidation and mutation proceedings.
152LW1002CO 3:	Become familiar with the idea of Tenure Holders.
152LW1002CO 4:	Gain a thorough understanding of how local governments manage land and other types of property.
152LW1002CO 5:	Know about Gram Sabha, Wajib-ul-arz, Nistar Patrak, Rights in forest Easement, Exclusive Jurisdiction of Revenue Courts and Miscellaneous Provisions.



Course Code:	152LW1003-A
Course Title:	DIRECT TAXATION
Course Outcomes:	
152LW1003-A CO1:	Understand the historical development of Income Tax Law in India also able to explore the specific word used in taxation like Assessee, Assessment year, previous year, Agricultural income, income and person.
152LW1003-A CO2:	Recognizing the position of people and industry.
152LW1003-A CO3:	Calculation of capital gains and income from other sources.
152LW1003-A CO4:	Calculate the Income of other persons included in assessee_s total income.
152LW1003-A CO5:	Able to understand Search and Seizure, Procedure for assessment, Appeals and Revision.

Course Code:	152LW1003-B
Course Title:	CIVIL SOCIETY & PUBLIC GRIEVANCE
Course Outcomes:	
152LW1003-B CO1:	Learn about the idea of civil society that is prevalent in India.
152LW1003-B CO2:	Learn about Public Grievances.
152LW1003-B CO3:	Well informed about civil society, its grievances, and its remedy systems.
152LW1003-B CO4:	Know about role of NGO_s.
152LW1003-B CO5:	Examine the recent issues related to civil society in India.

Course Code:	152LW100-C
Course Title:	BIO DIVERSITY PROTECTION
Course Outcomes:	
152LW100-C CO1:	To comprehend the significance of biodiversity and its conservation for socially sustainable development
152LW100-C	To comprehend the fundamental ideas and ideologies guiding biodiversity



CO2:	
	and to examine how national biodiversity authority and policy have evolved.
152LW100-C CO3:	To examine the constitutional stances on protecting biodiversity.
152LW100-C CO4:	To examine National Bio Diversity Fund.
152LW100-C CO5:	To know about the develop National strategies plans for conservation of Bio Diversity, Bio Diversity Management Committees, NBDA to be bound by the instruction of Central Government, Power of State to give direction, Settlement of Dispute between State Bio Diversity Board and nature of office of members of NBDA, Appeals, Cognizance of offence and non bailable offences.

Course Code:	152LW1004-A
Course Title:	INDIRECT TAXATION
Course Outcomes:	
152LW1004-A CO1:	To describe and define the concept of VAT and its importance.
152LW1004-A CO2:	To define words associated with the Goods and Services Tax (GST) and know about application of GST.
152LW1004-A CO3:	To talk about the Important Definitions- Business, Capital Goods, Export and Import of Goods, Goods and Services. Classes of Officers under the Central goods and Services Tax Act (CGTST Act) and States Goods and Services Tax Act, their appointments and powers.
152LW1004-A CO4:	Students would comprehend the distinction between composite and mixed supply as well as the distinction between forward charge and reverse charge mechanisms and also talk about the importance, timing, and location of supplies and know about the content and structure of numerous papers, such as tax invoices, bills of supply, debit notes, and credit notes, among others, will be discussed by the students
152LW1004-A CO5:	To describe Custom Duty, types of custom Duties, Powers of Customs Officers, Power to Inspect, Power to X-ray bodies, Power of Search, Power of Seizure, Power to call for documents and examine a person, Power to summons, Power to arrest Penalty.



Course Code:	152LW1004-B
Course Title:	LAW ON EDUCATION
Course Outcomes:	
152LW1004-B CO1:	To describe the Constitutional provisions related to education.
152LW1004-B CO2:	To know about Right to Education, Fundamental Right to education for children below 14 years and Preamble and Right to Education.
152LW1004-B CO3:	To explore Articles 14, 15, 16, 21, 29(2) 41 and 45 of the Constitution of India.
152LW1004-B CO4:	To understand the minority and law.
152LW1004-B CO5:	To know all about Dispute Settlement Mechanism for Educational Institution.

Course Code:	152LW1004-C
Course Title:	OFFENCES AGAINST CHILD AND JUVENILE
Course Outcomes:	
C152LW1004- C O1:	Define concepts of term child, Juvenile and Causes of offence against child.
152LW1004-C CO2:	Describe Offences against Child.
152LW1004-C CO3:	Deep understanding of relationship between child and society.
152LW1004-C CO4:	Understand to Protection of Child and Juveniles under various legislations.
152LW1004-C CO5:	Understand to nature and causes of Juvenile Delinquency.

Course Code:	152LW1005
Course Title:	Moot Court Practices & Viva-Voce
Course Outcomes:	
152LW1005CO 1:	Students will be able to define, discuss the historical context, and explain the significance of moot court in legal education.



152LW1005CO 2:	Students will develop the ability to structure and organize a moot court brief effectively, adhering to competition-specific guidelines and requirements.
152LW1005CO 3:	Students will master techniques for effective communication in oral arguments, including delivery, tone, and maintaining a strong courtroom presence.
152LW1005CO 4:	Students will employ advanced advocacy techniques, including persuasive tactics, rhetorical devices, and storytelling, while responding adeptly to challenging questions and adapting their style to various moot court scenarios.
152LW1005CO 5:	Students will engage in individual and team reflection on their performance, identifying strengths and areas for improvement. They will develop strategies for ongoing skill development and preparation for future moot court competitions.



Programme

B.B.A. LL.B.

Course Code:	154EN101
Course Title:	English- I
Course Outcomes:	
154EN101CO1.	Develop effective communication skills.
154EN101CO2.	Understand sentence structure and transformations.
154EN101CO3	Gain a solid understanding of strong and weak verbs, infinitives, participles, gerunds, auxiliary verbs, articles, determiners, and punctuation rules, enabling them to use them correctly in their writing and speech.
154EN101CO4.	Develop article writing skills.
154EN101CO5.	Enhance translation and communication abilities.

Course Code:	154MT102
Course Title:	BUSINESS ORGANISATION AND COMMUNICATION
Course Outcomes:	
154MT102CO1	Apply the knowledge about stages of Development of Business, Evolution of Business, Modern Business, Forms of Business organization and MSMEs of India.
154MT102CO2	Plant Location, Layout and Size Plant Location: Factors affecting Plant location, Plant Layout. Size of business Unit: Criteria for measuring the size of unit, Factors affecting size, Optimum Unit Size and factors affecting Optimum Size.
154MT102CO3	Business Combination; Causes, Forms and Kinds of Business Combination, Rationalization: Meaning, Characteristics, Objectives, Principles, and Merits & Demerits: Difference between Rationalization & Nationalizations.
154MT102CO4	Concept of Management, nature and importance & Functions of Management, Taylor's Scientific Management, Henri Fayol's Principles of Management, Planning: Concept, Importance, Process, Types of Plans Decision making: Process, Individual vs. Group Decision Making
154MT102CO5	Organizations, Organization Structure: Factors affecting Organization structure, Features of Good Organization Structure, Span of Management, Delegation of Authority, Centralization and Decentralization; Line and staff Authority Staffing: Nature & Scope of Staffing, Man Power Planning-Concept and importance, Recruitment: Concept and Sources, e-recruitment, Selection: Concept, Important Tests and Types of Interview Directing: Concept and importance of Directing



Course Code:	154MT103
Course Title:	Business Statistics
Course Outcomes:	
154MT103CO1 :	Organize, manage and presentation of data. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
154MT103CO2 :	Analyze statistical data using measures of central tendency with different Averages.
154MT103CO3 :	Analyze statistical data using measures of dispersion and location.
154MT103CO4 :	Calculate and interpret the correlation between two variables.
154MT103CO5 :	Calculate the simple linear regression equation for a set of data. Employee the principles of linear regression and correlation, including least square method, predicting a particular value of X for a given value of Y and vice versa and significance of the correlation coefficient

Course Code:	154LW104
Course Title:	Law of Contract (General Principles of Law of Contracts)
Course Outcomes:	
154LW104	Acquaint with the conceptual and operational parameters of various general principles relating to contract law.
154LW104	Equip with the basics of contract law so as to enable them to apply it effectively on the various disputes related to contracts.
154LW104	154LW104
154LW104	Examine the contractual obligations.
154LW104	Deep understanding of specific performance of contracts.



Course Code:	152LW105
Course Title:	Law of Torts Including Motor Vehicle Accident & Consumer Protection Law's
Course Outcomes:	
152LW105CO1	Gain knowledge of the historical development of the Law of Torts, including its origins in England and its adoption and modifications in India. They will understand the advantages and disadvantages of adopting the principles of justice, equity, and good conscience.
152LW105CO2	Understand the concept of a wrongful act, the violation of a duty imposed by law, and the distinction between <i>damnum sine injuria</i> and <i>injuria sine damnum</i> . They will also differentiate between torts, crimes, breach of contract, and trusts. Additionally, they will understand the scope and changing character of duties owed in modern society.
152LW105CO3	Gain insights into the justifications for tortious liability; including <i>volenti non fit injuria</i> , necessity (private and public), plaintiff's default, act of God, inevitable accident, private defense, statutory authority, and more. They will also learn about situations where liability is extinguished.
152LW105CO4	Comprehend the Doctrine of Sovereign Immunity and its relevance in India. They will also explore concepts such as vicarious liability, torts against persons and personal relations (including defamation), parental and master-servant relations, malicious prosecution, wrongful confinement, and wrongs affecting property.
152LW105CO5	Understand the concept of nuisance, its types, acts of obstructions, absolute and strict liability, legal remedies, and extra-legal remedies and explore Consumer Protection Act and Motor Vehicle Act.

Course Code:	VAC-101
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC-102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC-102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC-102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC-102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and



	limitations of an argument for solution.
HSMC-102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	154EN201
Course Title:	ENGLISH – II
Course Outcomes:	
154EN201CO1:	Demonstrate proficiency in using functional grammar, including tenses, sentence correction, active and passive voices, direct and indirect speech, connectives, modifiers, questions, negatives, reported speech, and word usage. They will apply these skills to construct grammatically correct and coherent sentences.
154EN201CO2:	Exhibit improved composition writing skills through activities such as paragraph and précis writing, letter and formal correspondence, note-taking and making, report and project drafting, abstract writing, and summary writing. They will also demonstrate enhanced reading comprehension skills by analyzing and understanding various texts and extracting key information.
154EN201CO3:	Critically analyze and interpret the short story "The Mark of Vishnu" by Kushwant Singh. They will demonstrate an understanding of its themes, characters, plot, and literary devices, showcasing their ability to engage with literary works and articulate their analysis effectively.
154EN201CO4:	Showcase the ability to write well-structured essays on contemporary issues. They will critically analyze and present their perspectives on current topics, demonstrating their research skills, critical thinking abilities, and the capacity to present well-supported arguments.
154EN201CO5:	Participate in debates and deliver speeches on contemporary issues. They will demonstrate their public speaking skills, including the ability to present and defend arguments, engage in meaningful discussions with their peers, and showcase effective communication and presentation skills.



Course Code:	154MT202
Course Title:	MANAGERIAL ECONOMICS
Course Outcomes:	
154MT202CO1	Demand, Supply and Market equilibrium: individual demand, market demand, individual supply, market supply, market equilibrium; Elasticity of demand and supply: Price elasticity of demand, income elasticity of demand, cross price elasticity of demand, elasticity of supply.
154MT202CO2	Theory of consumer behavior : cardinal utility theory, ordinal utility theory(indifference curves, budget line, consumer choice, price effect, substitution effect, income effect for normal, inferior and giffen goods), revealed preference theory.
154MT202CO3	Producer and optimal production choice: optimizing behavior in short run(geometry of product curves, law of diminishing margin productivity, three stages of production), optimizing behavior in long run (isoquants, isocost line, optimal combination of resources) Costs and scale : traditional theory of cost (short run and long run, geometry of cot curves, envelope curves), modern theory of cost (short run and long run), economies of scale, economies of scope.
154MT202CO4	Theory of firm and market organization : perfect competition (basic features, short run equilibrium of firm/industry, long run equilibrium of firm/industry, effect of changes in demand, cost and imposition of taxes) ; monopoly (basic features, short run equilibrium, long run equilibrium, effect of changes in demand, cost and imposition of taxes, comparison with perfect competition, welfare cost of monopoly), price discrimination, multiplant monopoly, monopolistic competition (basic features, demand and cost, short run equilibrium, long run equilibrium, excess capacity) ; oligopoly (Cournot_s model, kinked demand curve model, dominant price leadership model, prisoner_s dilemma).
154MT202CO5	Factor market: demand for a factor by a firm under marginal productivity theory (perfect competition in the product market, monopoly in the product market), market demand for a factor, supply of labour, market supply of labour, factor market equilibrium.



Course Code:	154MT203
Course Title:	FUNDAMENTALS OF MANAGEMENT & ORGANISATIONAL BEHAVIOUR
Course Outcomes:	
154MT203CO1	Critically evaluate and recommend appropriate forms of business ownership, considering factors such as franchising, licensing, leasing, and corporate expansion strategies like mergers, acquisitions, joint ventures, and strategic alliances.
154MT203CO2	Analyze and apply various decision-making techniques in management, demonstrating a comprehensive understanding of the decision-making process and its significance in organizational behavior.
154MT203CO3	Analyze and explain the impact of emotional intelligence on leadership effectiveness and its integration into organizational behavior, fostering a comprehensive understanding of contemporary leadership challenges and the role of emotional intelligence in leadership development.
154MT203CO4	Analyze and apply the principles of group dynamics, distinguish between groups and teams, and demonstrate an understanding of the structural characteristics and performance dynamics.
154MT203CO5	Analyze and apply strategies for effectively managing organizational change, including understanding the nature of organizational politics, recognizing sources and types of conflict, and implementing change initiatives while addressing resistance and cognitive barriers in organizational behavior.

Course Code:	154LW204
Course Title:	SPECIFIC CONTRACT
Course Outcomes:	
154LW204CO1:	Shall develop an understanding of the concepts of Indemnity and Guarantee.
154LW204CO2:	Acquire conceptual clarity about Special Contracts of Bailment and Pledge.
154LW204CO3:	Acquire conceptual clarity about the contract of Agency.
154LW204CO4:	Evaluate and Comprehend Indian Partnership Act and Limited Liability Partnerships.



154LW204CO5:	Understand the Sale of Goods Act with reference to a contract of Sale, its essentials, rights and duties of buyers and sellers, conditions and warranties etc.
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Course Code:	154LW205
Course Title:	Jurisprudence (Legal Method, Indian Legal System & Basic Theory)
Course Outcomes:	
154LW205CO1	Clear understanding of the term "Jurisprudence" and its significance in the study of law. They will also comprehend the definition of law and its various types, including the concepts of justice and different kinds of justice.
C154LW205O2	Analyze and evaluate various schools of Jurisprudence, including Natural law school, Analytical school, Historical school, Sociological school, Realistic school, and Feminist schools. They will understand the foundational theories and perspectives of each school and their influence on legal thinking.
154LW205CO3	Explore the different sources of law, including legislation, precedents (concept of stare decisis), and customs. They will understand the significance and application of each source in the Indian legal system.
154LW205CO4	Gain knowledge of the concept of legal rights, including their kinds and meanings. They will also understand the concept of duty and the relationship between rights and duties. Additionally, students will explore the nature of personality, the status of different individuals (unborn, minor, lunatic, etc.),
154LW205CO5	Gain an understanding of the corporate personality, possession, ownership, theories of possession and ownership, and the difference between possession and ownership and Conditions for imposing liability, including wrongful acts, strict liability, and vicarious liability. They will explore the nature and kinds of obligations, as well as the difference between being obliged and having an obligation.



Course Code:	IKS
Course Title:	Indian Knowledge System
Course Outcomes:	
CO- IKS. 1	To understand the ancient civilization, Indian Knowledge Systems, Concept of PanchMahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
CO- IKS.II	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
CO- IKS.III	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
CO- IKS. IV	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
CO- IKS. V	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

Semester-III

Course Code:	154MT301
Course Title:	BUSINESS AND MARKETING RESEARCH
Course Outcomes:	
154MT301CO1	Demonstrate a comprehensive understanding of the role of marketing research in decision-making, including the application of marketing research, mastery of the research process and its steps, and the ability to distinguish between management decision problems and marketing research problems in formulating effective research proposals.
154MT301CO2	Critically evaluate and select appropriate secondary data sources for research, demonstrating a comprehensive understanding of the advantages, disadvantages, and criteria for evaluating secondary data, particularly in the context of Indian research.
154MT301CO3	Design and implement a comprehensive primary data collection strategy, distinguishing between survey and observational methods, evaluating various techniques such as self-administered surveys, telephone interviews, mail surveys, and email surveys.
154MT301CO4	Demonstrate proficiency in selecting appropriate sampling techniques, determining sample sizes, and conducting statistical analyses including Z tests (for mean, difference of means, and difference of proportions), t tests for



	means, paired t tests, and Chi-square tests.
154MT301CO5 :	Demonstrate a comprehensive understanding of the theoretical concepts underlying Analysis of Variance (ANOVA), Factor Analysis, and Discriminant Analysis.

Course Code:	154MT302
Course Title:	Financial Accounting
Course Outcomes:	
C154MT302O1 :	Acquire the knowledge in accounting system of maintenance of journal, ledger, Trial balance and final account.
154MT302CO2 :	Acquire the basic concept of accounting of depreciation and Royalty.
154MT302CO3 :	Exposed to various provision of hire purchase system and evaluate del credere commission, normal and abnormal loss, value of unsold stock in consignment account.
154MT302CO4 :	Familiarize and understand the basic accounting concepts of different type of branch and the Evaluate the unrealized profit under the departmental accounting.
154MT302CO5 :	Develop the application skills regarding the dissolution of a firm in case of insolvency

Course Code:	154MT303
Course Title:	MACRO ECONOMICS
Course Outcomes:	
154MT303CO1 :	Demonstrate an understanding of macroeconomic variables, including National Income Accounts, Gross Domestic Product, National Income, Personal and Personal disposable income, and the Classical theory of income and employment, including concepts like Say's Law, Market Mechanisms, Wage and Price Flexibility, the Role of Government in the Classical Framework, and Quantity Theory of Money – Cambridge version.
154MT303CO2 :	Assess the Keynesian framework by analyzing the components of aggregate demand, explaining equilibrium income and its changes, evaluating the impact of multipliers (investment, government expenditure, lump sum tax, and foreign trade), and critically assessing the effects of fiscal and monetary policy on economic growth, inflation, employment, and output.



154MT303CO3 :	Analyze the impact of monetary and fiscal policy on the ISLM model, evaluate factors influencing the position and slope of ISLM curves, and comprehend the determination of equilibrium income and interest rates in the context of economic stability and growth.
154MT303CO4 :	Analyze and evaluate the impact of monetary policy on both short-run and long-run Phillips curves, considering dynamic adjustments and inflation targeting strategies in macroeconomic policy.
154MT303CO5 :	Analyze and interpret Balance of Payments (BoP) accounts, demonstrating a comprehensive understanding of its components, the significance of BoP analysis, and the implications of BoP surplus and deficit.

Course Code:	154LW304
Course Title:	Family Law – I (Hindu Law)
Course Outcomes:	
154LW304CO1 :	Understand the nature of Hindu law, including its historical evolution, cultural significance, and the various schools and sources that shape this legal system.
154LW304CO2 :	Demonstrate proficiency in the legal aspects of marriage and divorce under Hindu law. They will be able to analyze different types of marriages, understand the grounds for nullity, and interpret the provisions of the Hindu Marriage Act, 1955, and the Special Marriage Act, 1954.
154LW304CO3 :	Acquire expertise in Hindu Undivided Family (HUF) laws. They will understand the principles of joint family, coparcenaries, property under Mitakshara and Dayabhag, as well as the legal intricacies related to partition, re-union, women's estate, and stridhan.
154LW304CO4 :	Possess comprehensive knowledge of laws related to gifts, wills, and adoption under Hindu law. They will be able to analyze legal provisions concerning Hindu adoption and maintenance (1956) and the Hindu Minority and Guardianship Act (1956).
154LW304CO5 :	Demonstrate expertise in the laws of inheritance and succession under Hindu law. They will understand the general rules of succession, disqualifications related to succession, and the provisions outlined in the Hindu Succession Act, 1956. Additionally, they will gain insight into the legal aspects of religious endowments.



Course Code:	154LW305
Course Title:	Constitutional Law – I
Course Outcomes:	
154LW305CO1	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
154LW305CO2	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
154LW305CO3	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognize the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
154LW305CO4	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
154LW305CO5	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.

Semester-IV

Course Code:	154MT401
Course Title:	Legal Aspects of Business
Course Outcomes:	
154MT401CO1	Students will recall various definitions and would be able to evaluate the provisions of Indian Contract Act, 1872.
154MT401CO2	Students would be able to understand various provisions of Sale of Goods Act, 1930.
154MT401CO3	Students will be familiar with Companies Act, 2013 and its various provisions and various documents which are required to be prepared under Companies Act.



154MT401CO4 :	Students will remember the Consumer Protection Act and various rights of consumers under the act.
154MT401CO5 :	Students will be able to apply and examine RTI Act, 2005.

Course Code:	154MT402
Course Title:	Management Accounting
Course Outcomes:	
154MT402CO1 :	Toprepare the managerial report of the company.
154MT402CO2 :	Be well versed in a thorough analysis of any company's financial statements such as profit and loss account and position statement, and be able to make accurate estimates of the financial position, solvency and profitability of that company.
154MT402CO3 :	By studying the cash flow statement, you will get the knowledge of proper use of cash in the organization and adequate availability of cash in the organization.
154MT402CO4 :	After getting the knowledge of marginal cost, will be able to make very important decisions for the company such as whether to make or buy the item, fix the price, stop production etc.
154MT402CO5 :	Learn to control costs by creating different types of budgets from budgetary control.

Course Code:	154MT403
Course Title:	PRINCIPLES OF MARKETING
Course Outcomes:	
154MT403CO1 :	Student will know about the evolution of marketing and important components and marketing environment.
154MT403CO2 :	Students will become aware about consumer behavior.
154MT403CO3 :	Students will learn about Product and its classifications, Branding, Packaging and Labelling.
154MT403CO4 :	Students will become familiar with the significance of pricing factors affecting price of a product, Channels of distribution and its various types.
154MT403CO5 :	Students can demonstrate the nature and importance of promotion, Communication and its types and various other means of marketing.



Course Code:	154LW404
Course Title:	MUSLIM LAW
Course Outcomes:	
154LW404CO1	Analyze and interpret the principles and concepts of Muslim personal law, including the definition of a Muslim, conversion, apostasy, and the sources and schools of Muslim law. Students will be able to understand the legal framework and foundations of Muslim personal law.
154LW404CO2	Understand the legal aspects of marriage under Muslim law, including the nature, capacity, essentials, and classifications of marriage. Students will be able to analyze the legal effects of marriage and comprehend the rights and obligations of the parties involved.
154LW404CO3	Evaluate the concept and implications of divorce under Muslim law, including various forms of divorce such as Talaq, Talaq-tafweez, Mubarat, and Khula. Students will gain an understanding of the legal effects of divorce and its impact on the rights and responsibilities of the parties.
154LW404CO4	Examine and analyze the legal provisions related to maintenance of wives under Muslim law, with a specific focus on Section 125 of the Cr.P.C. and the Muslim Women (Protection of Rights on Divorce) Act, 1986. Students will understand the rights and entitlements of wives in terms of financial support.
154LW404CO5	Comprehensive understanding of the legal principles and societal implications surrounding parentage, with a focus on the acknowledgement process and grasp of the legal aspects related to succession and transactions made on the death bed.

Course Code:	154LW405
Course Title:	CONSTITUTIONAL LAW-II
Course Outcomes:	
154LW405CO1	Understand the constitutional provisions and mechanisms governing the administration of Union Territories, Panchayats, and Municipalities. Students will be able to analyze the roles, powers, and functioning of these entities and evaluate their significance in local governance.
154LW405CO2	Analyze the distribution of legislative power between the Union and the States, and comprehend the principles and mechanisms that govern legislative and administrative relations. Students will understand the division of powers and the impact on policymaking and governance in India.



154LW405CO3	Evaluate the financial provisions of the Constitution, including the regulation of property, contracts, rights, liabilities, and obligations. Students will gain an understanding of the legal framework governing financial matters and the implications for public finances and economic governance.
154LW405CO4	Examine the establishment and functioning of tribunals, the conduct of elections, and the special provisions relating to certain classes. Students will understand the role of tribunals in resolving disputes, the electoral process, and the constitutional safeguards for specific groups in society.
154LW405CO5	Analyze the emergency provisions in the Constitution, including the proclamation of emergency and its effects, as well as the concept of financial emergency. Students will understand the circumstances under which emergency powers can be invoked and the impact on democratic governance and examine the process and implications of constitutional amendments, including the procedures for amending the Constitution and the significance of amendments in shaping the legal and institutional framework of the country.

Semester-V

Course Code:	154MT501
Course Title:	BUSINESS POLICY AND STRATEGY
Course Outcomes:	
154MT501CO1	Articulate and demonstrate a comprehensive understanding of the strategic management process, including the characteristics of corporate, business, and functional level strategic management decisions.
154MT501CO2	Demonstrate a comprehensive understanding of environmental analysis techniques, including the application of Michael E. Porter's 5 Forces model, internal analysis emphasizing organizational capabilities, competitive advantage, and core competence, as well as the utilization of Porter's Value Chain Analysis for strategic decision-making.
154MT501CO3	Understand and apply Michael E. Porter's generic competitive strategies to analyze and enhance organizational competitiveness in the business environment.
154MT501CO4	Analyze and evaluate different types of growth strategies, including concentrated growth, product development, integration, diversification, and international expansion (multi domestic approach, franchising,licensing, and joint ventures).
154MT501CO5	Formulate comprehensive strategic analyses, leveraging tools such as BCG and GE portfolio analyses, product market evolution matrix, experience curve, directional policy matrix, life cycle portfolio matrix, and grand strategy selection matrix.



Course Code:	154MT502
Course Title:	FINANCIAL MANAGEMENT
Course Outcomes:	
154MT502CO1 :	Student learn about basic concept of financial management and able to calculate capital budgeting.
154MT502CO2 :	Student will able to calculate various leverage, cost of capital
154MT502CO3 :	Student will be able to preparation of projected financial report.
154MT502CO4 :	Student will learn about dividend policy.
154MT502CO5 :	Student will learn about security analysis.

Course Code:	154LW503
Course Title:	Company law
Course Outcomes:	
154LW503CO1 :	Describe the basics and guiding principles of Indian corporate law.
154LW503CO2 :	Recognize and separate the key components of each business.
154LW503CO3 :	Assess and recognize the relative merits and shortcomings of each business medium.
154LW503CO4 :	Give a general summary of the parties' rights, responsibilities, obligations, and liabilities with respect to the various commercial businesses.
154LW503CO5 :	Use the information you've learned in the course to tackle actual commercial enterprise difficulties and use the information to select career paths like those in the business sector and exams like the CA, CS, business Lawyering, etc.

Course Code:	154LW504
Course Title:	LABOUR AND INDUSTRIAL LAWS-I
Course Outcomes:	
154LW504CO1 :	Analyze and interpret the key concepts and principles of industrial jurisprudence and labor policy in India. Students will develop an understanding of the historical context of industrialization, the associated labor problems, and the evolution of labor legislation in the country.



154LW504CO2	Understand and apply the provisions of the Industrial Disputes Act, 1947. Students will be able to identify the authorities involved in resolving industrial disputes, comprehend the procedures and powers of these authorities, and analyze the implications of provisions related to strikes, lockouts, retrenchment, and penalties.
154LW504CO3	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
154LW504CO4	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
154LW504CO5	Evaluate the interpretation and legal status of standing orders, including their modification and temporary application. Students will understand the importance of proper interpretation and compliance with standing orders in maintaining harmonious industrial relations and ensuring legal compliance.

Course Code:	154LW505
Course Title:	LAW OF CRIMES(INDIAN PENAL CODE)
Course Outcomes:	
154LW505CO1	Analyze and interpret the provisions of the Indian Penal Code (IPC) and understand the elements of criminal liability. Students will be able to identify and apply the relevant provisions of the IPC to different situations, assess the mental state required for criminal liability, and analyze the factors that negate guilty intention.
154LW505CO2	Comprehend the various offenses against the human body and property as outlined in the IPC. Students will develop an understanding of offenses such as culpable homicide, murder, hurt, theft, robbery, cheating, and mischief. They will be able to distinguish between different types of offenses, evaluate the elements required for each offense, and analyze the corresponding punishments.
154LW505CO3	Evaluate the types of punishments available under the IPC and understand their social relevance. Students will be able to analyze the appropriateness and effectiveness of different types of punishments, including death penalty, imprisonment and forfeiture of property, fine, and the court's discretion in awarding punishment. They will also develop an understanding of the minimum punishment prescribed for certain offenses.



154LW505CO4 :	Distinctions between culpable homicide and murder, analysis of factors impacting right to private defense and comprehensive knowledge of assault and related offence.
154LW505CO5 :	Understanding the philosophical and ethical dimensions of death penalty, examining the social impact of capital punishment and comparative analysis of punitive measures.

Semester-VI

Course Code:	154MT601
Course Title:	INDUSTRIAL RELATIONS
Course Outcomes:	
154MT601CO1 :	Demonstrate a comprehensive understanding of industrial relations, encompassing the historical perspectives, key components, and stakeholders involved.
154MT601CO2 :	Comprehensive understanding of workers' participation in management, including the foundations, models, and approaches to worker involvement.
154MT601CO3 :	Understand the legal framework governing labor relations, including the Trade Union Act 1926, the Industrial Employment (Standing Orders) Act 1946, and the Industrial Disputes Act 1947, with a focus on the immunity granted to registered trade unions.
154MT601CO4 :	Demonstrate a comprehensive understanding of the Payment of Gratuity Act 1972, including its salient features, entitlement criteria, calculation methods, and the associated obligations and implementation aspects for employers.
154MT601CO5 :	Demonstrate an understanding of the regulatory framework outlined in The Factories Act 1948, encompassing aspects such as definitions, approval, licensing, registration, health and welfare measures, employment regulations for women and young persons.

Course Code:	154MT602
Course Title:	MONEY AND BANKING
Course Outcomes:	
154MT602CO1 :	Able to understand about the origin of Money and Banking.
154MT602CO2 :	Able to understand about various concepts of Money, its functions, value, money market and monetary policy operations.



154MT602CO3 :	Able to develop the procedure involved in various banking institutions along with their basic functions and their credit creation role
154MT602CO4 :	Able to familiarize the skills about the Central bank of our country and assess the objectives and functions of Reserve Bank of India (RBI).
154MT602CO5 :	Able to analyze the Banking Sector Reforms and gauge at the recent trends in Banking System.

Course Code:	154LW603
Course Title:	ENVIRONMENTAL LAW
Course Outcomes:	
154LW603	To familiarize the students with the overall environmental legal regime of the country as well as its international obligations and would further equip the students with basic knowledge and skills to understand environmental issues.
154LW603	To make the students aware about the provisions under the Indian Constitution for protection of environment and the various legislative measures.
154LW603	It also provides an opportunity to the students
154LW603	To understand the activist role played by Indian Judiciary in protection of environment and evolution of different principles.
154LW603	A spirit of inquiry to explore the development of Indian environmental law and various legislations and its application in India for the protection of environment and Awareness regarding the problem of environmental pollution and Law as a means of prevention of environmental pollution and protection of environment.

Course Code:	154LW604
Course Title:	LABOUR & INDUSTRIAL LAW- II
Course Outcomes:	
154LW604CO1 :	This unit makes the students able to understand of the role of insurance in worker welfare. State Employees Insurance Act 1948 is the academic topic of this unit.
154LW604CO2 :	Under this unit Students become able to understand of the minimum requirements of the living of the workers and the ways to ensure their attainment through this.
154LW604CO3 :	This unit makes the students able to understand the rules and regulations related to the payment of wages to the workers. The Payment of Wages Act 1936 is the academic subject of the Unit.



154LW604CO4 :	Through this unit the students got precious knowledge about the provisions related to health, safety and welfare of the workers working in a factory.
CO5: 154LW604	The central theme of this unit is the bonus provided to the workers. These unit able students to study the methods related to the bonus provided to the workers working in various business and industrial establishments.

Course Code:	154LW605
Course Title:	CRIMINAL PROCEDURE CODE
Course Outcomes:	
154LW605CO1 :	Differentiate between substantive and procedural criminal law.
154LW605CO2 :	Assess the Organization, hierarchy, and operation of India's criminal courts.
154LW605CO3 :	Understand the function of officials such as the police, magistrates, courts, etc.
154LW605CO4 :	Examine key terms such as "offence," "charge," "bail," "examination of witnesses," "appeals," etc.
154LW605CO5 :	Outline the fundamental processes for FIRs, complaints, police reports, inquiries, searches, and seizures, among other things and Describe several trial types, including summary, warrant, and summons cases, as well as the various stages of each and also Examine the Cr.P.C.'s regulations on a wife's, children, and parent's maintenance.

Semester-VII

Course Code:	154LW701
Course Title:	CIVIL PROCEDURE CODE & LIMITATION ACT
Course Outcomes:	
154LW701CO1 :	Recognise the core ideas of the Civil Procedure Code and to describe civil jurisdiction.
154LW701CO2 :	Explore rule of pleadings.
154LW701CO3 :	Describe the Appearance, Examination, Trial and Suit in particular cases and Suits in Particular Cases.
154LW701CO4 :	Know about Appeals, Review, Reference and Revision.



Course Code:	154LW702
Course Title:	ADMINISTRATIVE LAW
Course Outcomes:	
154LW702CO1 :	The students will be able to describe the concept of Administrative law and recognise, articulate, and apply the administrative law principles presented in the course.
C154LW702O2 :	Deep understanding of Delegated Legislation.
154LW702CO3 :	Through a consideration of court case law and the judicial process, the students will be able to examine and forecast how unresolved or confusing administrative law matters could be handled by the courts.
154LW702CO4 :	The student will be able to describe the words Estoppel and Waiver, Official secrets, Right to information, Lokpal, Lokayukt, Central Vigilance Commissions and Commission of inquiry.
154LW702CO5 :	Describe the Administrative Tribunals in depth.

Course Code:	154LW703
Course Title:	Legal Language & Legal Writing
Course Outcomes:	
154LW703CO1 :	Deep knowledge of communication skills like listening, reading, writing and also able to explain sentences.
154LW703CO2 :	Understand Strong and Weak verbs, Article Writing, Précis Writing and Translation.
154LW703CO3 :	Describe need and importance of legal language and use appropriate legal jargon to communicate clearly and effectively.
154LW703CO4 :	Describe the meanings of Legal Terminology and Latin expressions, employ them in arguments, and use them to clarify key legal ideas and notions. When communicating on legal matters, use legal phrases, understand how they are used in different situations, and apply them.
154LW703CO5 :	Describe and explore of the legal maxims and analytically read and analyse court rulings, separating out their facts and guiding principles to determine what legal principles they (the judgments) uphold.

Course Code:	154LW704-A
Course Title:	BANKING LAW



Course Outcomes:	
154LW704-A CO1:	Describe the concepts of Bank, types of bank and E-commerce and e-banking are new, emergent aspects of financial systems.
154LW704-A CO2:	To understand the bankers and customers relation.
154LW704-A	Deep understanding of Negotiable Instruments like cheque and bill of exchange.
CO4: 154LW704-A	Describe the working of RBI.
154LW704-A	Describe the Merchant banking in India in depth.

Course Code:	154LW704-B
Course Title:	HUMAN RIGHTS LAW & PRACTICES
Course Outcomes:	
154LW704-B CO1:	Describe and explore the Historical Development and concept of Human Right, Human Right in India ancient, medieval and modern concept of rights, Human Right in Western tradition, Human Right in legal tradition: International Law and National Law, UN and Human Rights, Universal Declaration of Human Rights (1980) and Covenant on political and Civil Rights (1966).
154LW704-B CO2:	Know about conventions related to various rights.
154LW704-B CO3:	Understand the Impact and Implementation of International Human Rights Norms in India.
154LW704-B CO4:	Explain human rights of women, prisoners, child, Dalits, victims, and Minorities.
154LW704-B CO5:	Describe and examine the remedies available for violation of human rights.

Course Code:	154LW704-C
Course Title:	PROBATION AND PAROLE
Course Outcomes:	
154LW704-C CO1:	Describe the concept of crime, nature and scope of criminology and causation of crime.
154LW704-C CO2:	Describe the theory of punishment.



154LW704-C CO3:	Describe the organized crime.
154LW704-C CO4:	Deep understanding of probation
154LW704-C CO5:	Deep understanding of parole.

Course Code:	154LW705
Course Title:	PROFESSIONAL ETHICS & PROFESSIONAL ACCOUNTING SYSTEM (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
154LW705CO1 :	About their rights as advocates, as well as the corresponding obligations and restrictions and to inform them of the Bar Council of India's stances on ethical violations.
154LW705CO2 :	About Ethics of Legal Profession.
C154LW705O3 :	Aware of Punishment for Professional or Other Misconduct
154LW705CO4 :	Familiarise with the legal requirements, ethical rules, and court rulings pertaining to the practise of law.
154LW705CO5 :	Deep understanding of Meaning and Categories of Contempt of Court.



Semester-VIII

Course Code:	154LW801
Course Title:	PROPERTY LAW
Course Outcomes:	
154LW801CO1 :	Understand the most basic concepts in property law, like meaning of property and Kinds of property.
154LW801CO2 :	Understand the Law relating to Transfer of Property under Transfer of Property Act, 1882.
154LW801CO3 :	Understand the Transfers of Immovable Properties and Movable Properties like Sale, Mortgage, Gift, Leases, Exchanges and Actionable claims.
154LW801CO4 :	Understand the M.P. Accommodation Control Act 1961 and Rent Controlling Authority.
154LW801CO5 :	Understand the Indian Easements Act, 1882.

Course Code:	154LW802
Course Title:	LAW OF EVIDENCE
Course Outcomes:	
154LW802CO1 :	Describe the main features of the Indian Evidence Act 1861, Applicability of Evidence Act, Administrative Tribunals, Industrial Tribunals, and Commissions of enquiry and Court- Martial.
154LW802CO2 :	Define the level of proof required in both civil and criminal proceedings.
154LW802CO3 :	Able to the justification for relevance of dying declarations and Relevance of judgments.
154LW802CO4 :	Define the processes to be followed in the conduct of a civil or criminal trial and analyse and assess the rules regulating examination in chief, cross examination, and re-examination.
154LW802CO5 :	Identify the different types of presumptions and determine the burden of proof and standard of proof in civil and criminal trials and also able to justification for Estoppel.



Course Code:	154LW803
Course Title:	INTELLECTUAL PROPERTY LAW
Course Outcomes:	
154LW803CO1 :	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
154LW803CO2 :	Evaluate the general principles of law of insurance.
154LW803CO3 :	Deep understanding of life insurance.
154LW803CO4 :	Describe the Marine Insurance.
154LW803CO5 :	Describe the Social Insurance in India.

Course Code:	154LW804-A
Course Title:	INSURANCE LAW
Course Outcomes:	
154LW804-A CO1:	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
154LW804-A CO2:	Evaluate the general principles of law of insurance.
154LW804-A CO3:	Deep understanding of life insurance.
154LW804-A CO4:	Describe the Marine Insurance.
154LW804-A CO5:	Describe the Social Insurance in India.

Course Code:	154LW804-B
Course Title:	GENDER JUSTICE AND FEMINIST JURISPRUDENCE
Course Outcomes:	
154LW804-B CO1:	To examine feminist and patriarchal legal systems Pre-Independence India.
154LW804-B CO2:	To examine feminist and patriarchal legal systems in Post-Independence India.
154LW804-B CO3:	To evaluate critically how men's rights and women's rights are being misused.
154LW804-B CO4:	To evaluate critically matrimonial relations and its consequences.



154LW804-B CO5:	Describe the various social welfare laws for women and non-implementation of protective labour legislation.
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Course Code:	154LW804-C
Course Title:	IPR MANAGEMENT
Course Outcomes:	
154LW804-C CO1:	Identify the many categories of intellectual properties (IPs), the ownership rights, the range of protection, and the methods for producing and monetizing IP.
154LW804-C CO2:	Acknowledge the Typology of IPR.
154LW804-C CO3:	Describe the Inventor ship, Ownership, Service works.
154LW804-C CO4:	IP agreements, Invention disclosure systems assessment.
154LW804-C CO5:	Describe the precautionary measures to be taken to prevent infringement of proprietary rights in the creation of products and technologies, as well as the actions that constitute IP infringements and the remedies available to the IP owner.

Course Code:	154LW805
Course Title:	Drafting pleading & Conveyance (clinical course) and viva-voce
Course Outcomes:	
154LW805CO1 :	Be able to manage the client over the course of the engagement and analyse and describe the notion of pleading and various norms of pleading.
154LW805CO2 :	Explain the reasoning process and use legal writing skills while speaking before courts and tribunals.
154LW805CO3 :	Recognize how to use various complaints to enter the criminal justice system.
154LW805CO4 :	Describe the many types of convincing deeds, such as sale deeds, gifts, mortgages, etc.
154LW805CO5 :	Use your legal writing abilities and knowledge of the practical aspects of document registration.

**Semester-IX**

Course Code:	154LW901
Course Title:	PRINCIPLES OF TAXATION LAW
Course Outcomes:	
C154LW901O1 :	Explore the history of tax law in India and fundamental principles relating to tax laws.
154LW901CO2 :	Describe concept of tax and scope of taxing powers of Parliament, state Legislature and local bodies.
154LW901CO3 :	Students would assess a person's level of total income and residential status.
154LW901CO4 :	Understanding the sources of income and tax authority.
154LW901CO5 :	Understanding the various tax legislation.

Course Code:	154LW902
Course Title:	INTERPRETATION OF STATUTES & PRINCIPLE OF LEGISLATION
Course Outcomes:	
154LW902CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
154LW902CO2 :	Students will be able to explore and examine the negotiation system.
154LW902CO3 :	Students will be able to explore and examine the negotiation system.
154LW902CO4 :	Students will be able to understand application of arbitration system.
154LW902CO5 :	CO5: Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.



Course Code:	154LW903-A
Course Title:	WOMEN AND CRIMINAL LAW
Course Outcomes:	
154LW903-A CO1:	Know about crimes against women.
154LW903-A CO2:	Compare the effects of several legislation passed to protect women from harassments, molestation, sexual abuse, and rape.
154LW903-A CO3:	Aware of particular and general offences.
154LW903-A CO4:	Aware of special offending act like immoral trafficking, female foeticide, kidnapping and abduction.
CO154LW903-A 5:	Examine the concerns raised by the Protection of Women from Domestic Violence Act of 2005 in relation to violence against women.

Course Code:	154LW903-B
Course Title:	LOCAL SELF GOVERNMENT INCLUDING PANCHAYET ADMINISTRATION
Course Outcomes:	
154LW903-B CO1:	Describe the concept and meaning of local self government and also explore the doctrine of distribution of power.
154LW903-B CO2:	Know about the Constitutional provisions of panchayat system.
154LW903-B CO3:	Know about all provisions of Municipalities.
C154LW903-B O4:	Examine the M.P. Panchayati Raj Act, 1993.
154LW903-B CO5:	Examine the Nagar Palika Adhiniyam.

Course Code:	154LW903-C
Course Title:	EQUITY AND TRUST
Course Outcomes:	
154LW903-C	Describe the origin and development of equity and trust.
154LW903-C	Explore the definition, nature and kinds of trust.
154LW903-C	Aware about right and duties of trustee.
154LW903-C	Aware about powers and liabilities of trustee.



154LW903-C	Know about Rights and Liabilities of Beneficiaries.
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Course Code:	154LW904-A
Course Title:	INFORMATION TECHNOLOGY
Course Outcomes:	
154LW904-A CO1:	Describe the concept and definition of computer, digital signature and Appreciate and grasp the overall influence that information technology (IT) has had on the practice of law, as well as how this technology has given rise to new national and international legal concerns and difficulties.
154LW904-A CO2:	Know about adjudication and penalties.
154LW904-A CO3:	Explore how the customer and victim protected.
154LW904-A CO4:	Globally aware of IT law.
154LW904-A CO5:	Know about right of privacy regarding internet and media.

Course Code:	152LW904-B
Course Title:	RIGHT TO INFORMATION
Course Outcomes:	
152LW904-B CO1:	Describe and examine the theories and legal framework behind India's right to information.
152LW904-B CO2:	Identify several pieces of law that either support or restrict freedom of information and Compare India's information law provisions to those found in the USA and UK.
152LW904-B CO3:	Know about various Indian Legislations.
152LW904-B CO4:	Explore and examine the Right to Information Act, 2005.
152LW904-B CO5:	Know all about RTI and Judiciary.



Course Code:	154LW904-C
Course Title:	COMPETITION LAW
Course Outcomes:	
154LW904-C	To be able to elaborate the development of competition law and its importance.
154LW904-C	In-depth knowledge of MRTP Act.
154LW904-C	Examine the Merger and Competition Law.
154LW904-C	Critically evaluate and examine some of the important concerns, such as how IPR laws, regulatory laws, environmental laws, and public procurement laws interact with one another.
154LW904-C	Know about Competition Authorities (Regulatory Mechanism).

Course Code:	154LW905
Course Title:	ALTERNATIVE DISPUTE RESOLUTION (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
154LW905CO1	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
154LW905CO2	Students will be able to explore and examine the negotiation system.
154LW905CO3	Students will be able to describe in-depth mediation and conciliation.
154LW905CO4	Students will be able to understand application of arbitration system.
154LW905CO5	Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.

Semester-X

Course Code:	154LW1001
Course Title:	PUBLIC INTERNATIONAL LAW
Course Outcomes:	



154LW1001CO 1:	Students gain a thorough understanding of the sources of international law (treaties and customary international law), the subjects of international law (identifying rights and obligations of States, IOs, NGOs, and individuals), the institutional context (UN, WTO, regional agencies, etc.), and the dispute resolution framework (courts, arbitration tribunals, conciliation, as well as use of sanctions and force).
154LW1001CO 2:	Students will be able to describe and define states as a subject matter in the context of International Law.
154LW1001CO 3:	Ability to analyze all the necessary provisions related to state jurisdiction will develop.
154LW1001CO 4:	Students will be describe to provisions related to state and individuals.
154LW1001CO 5:	Students Know about The United Nations Organization.

Course Code:	154LW1002
Course Title:	LAND LAWS INCLUDING TENURE AND TENANCYSYSTEM
Course Outcomes:	
154LW1002CO 1:	Describe what is meant by the idea of agricultural land and apply principles from land law related to tenure holders, ownership, possession, succession, surrender, abandonment, mortgage, lease, and tenancies.
154LW1002CO 2:	Know about Revenue Board and Revenue Officer also become familiar with the upkeep and updating of local records and the effects of consolidation and mutation proceedings.
154LW1002CO 3:	Become familiar with the idea of Tenure Holders.
154LW1002CO 4:	Gain a thorough understanding of how local governments manage land and other types of property.
154LW1002CO 5:	Know about Gram Sabha, Wajib-ul-arz, Nistar Patrak, Rights in forest Easement, Exclusive Jurisdiction of Revenue Courts and Miscellaneous Provisions.

Course Code:	154LW1003-A
Course Title:	DIRECT TAXATION
Course Outcomes:	



154LW1003-A CO1:	Understand the historical development of Income Tax Law in India also able to explore the specific word used in taxation like Assessee, Assessment year, previous year, Agricultural income, income and person.
154LW1003-A CO2:	Recognizing the position of people and industry.
154LW1003-A CO3:	Calculation of capital gains and income from other sources.
154LW1003-A CO4:	Calculate the Income of other persons included in assessee_s total income.
C154LW1003-A A O5:	Able to understand Search and Seizure, Procedure for assessment, Appeals and Revision.

Course Code:	154LW1003-B
Course Title:	CIVIL SOCIETY & PUBLIC GRIEVANCE
Course Outcomes:	
154LW1003-B CO1:	Learn about the idea of civil society that is prevalent in India.
154LW1003-B CO2:	Learn about Public Grievances.
154LW1003-B CO3:	Well informed about civil society, its grievances, and its remedy systems.
154LW1003-B CO4:	Know about role of NGO_s.
154LW1003-B CO5:	Examine the recent issues related to civil society in India.

Course Code:	154LW100-C
Course Title:	BIO DIVERSITY PROTECTION
Course Outcomes:	
154LW100-C CO1:	To comprehend the significance of biodiversity and its conservation for socially sustainable development
154LW100-C CO2:	To comprehend the fundamental ideas and ideologies guiding biodiversity and to examine how national biodiversity authority and policy have evolved.
154LW100-C CO3:	To examine the constitutional stances on protecting biodiversity.
154LW100-C CO4:	To examine National Bio Diversity Fund.



154LW100-C CO5:	To know about the develop National strategies plans for conservation of Bio Diversity, Bio Diversity Management Committees, NBDA to be bound by the instruction of Central Government, Power of State to give direction, Settlement of Dispute between State Bio Diversity Board and nature of office of members of NBDA, Appeals, Cognizance of offence and non-bail able offences.
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Course Code:	154LW1004-A
Course Title:	INDIRECT TAXATION
Course Outcomes:	
154LW1004-A CO1:	To describe and define the concept of VAT and its importance.
154LW1004-A CO2:	To define words associated with the Goods and Services Tax (GST) and know about application of GST.
154LW1004-A CO3:	To talk about the Important Definitions- Business, Capital Goods, Export and Import of Goods, Goods and Services. Classes of Officers under the Central goods and Services Tax Act (CGTST Act) and States Goods and Services Tax Act, their appointments and powers.
154LW1004-A CO4:	Students would comprehend the distinction between composite and mixed supply as well as the distinction between forward charge and reverse charge mechanisms and also talk about the importance, timing, and location of supplies and know about the content and structure of numerous papers, such as tax invoices, bills of supply, debit notes, and credit notes, among others, will be discussed by the students
154LW1004-A CO5:	To describe Custom Duty, types of custom Duties, Powers of Customs Officers, Power to Inspect, Power to X-ray bodies, Power of Search, Power of Seizure, Power to call for documents and examine a person, Power to summons, Power to arrest Penalty.

Course Code:	154LW1004-B
Course Title:	LAW ON EDUCATION
Course Outcomes:	
154LW1004-B CO1:	To describe the Constitutional provisions related to education.
154LW1004-B CO2:	To know about Right to Education, Fundamental Right to education for children below 14 years and Preamble and Right to Education.
154LW1004-B CO3:	To explore Articles 14, 15, 16, 21, 29(2) 41 and 45 of the Constitution of India.
154LW1004-B CO4:	To understand the minority and law.



C154LW1004-B O5:	To know all about Dispute Settlement Mechanism for Educational Institution.
Course Code:	154LW1004-C
Course Title:	OFFENCES AGAINST CHILD AND JUVENILE
Course Outcomes:	
154LW1004-C CO1:	Define concepts of term child, Juvenile and Causes of offence against child.
C154LW1004-C O2:	Describe Offences against Child.
154LW1004-C CO3:	Deep understanding of relationship between child and society.
154LW1004-C CO4:	Understand to Protection of Child and Juveniles under various legislations.
154LW1004-C CO5:	Understand to nature and causes of Juvenile Delinquency.

Course Code:	154LW1005
Course Title:	Moot Court Practices & Viva-Voce
Course Outcomes:	
154LW1005CO 1:	Students will be able to define, discuss the historical context, and explain the significance of moot court in legal education.
154LW1005CO 2:	Students will develop the ability to structure and organize a moot court brief effectively, adhering to competition-specific guidelines and requirements.
154LW1005CO 3:	Students will master techniques for effective communication in oral arguments, including delivery, tone, and maintaining a strong courtroom presence.
154LW1005CO 4:	Students will employ advanced advocacy techniques, including persuasive tactics, rhetorical devices, and storytelling, while responding adeptly to challenging questions and adapting their style to various moot court scenarios.
154LW1005CO 5:	Students will engage in individual and team reflection on their performance, identifying strengths and areas for improvement. They will develop strategies for ongoing skill development and preparation for future moot court competitions.



Programme B.Com.LL.B.

Semester -1

Course Code:	153EN101
Course Title:	English- I
Course Outcomes:	
153EN101CO1.	Develop effective communication skills.
153EN101CO2.	Understand sentence structure and transformations.
153EN101CO3	Gain a solid understanding of strong and weak verbs, infinitives, participles, gerunds, auxiliary verbs, articles, determiners, and punctuation rules, enabling them to use them correctly in their writing and speech.
153EN101CO4.	Develop article writing skills.
153EN101CO5.	Enhance translation and communication abilities.

Course Code:	153AC102
Course Title:	Financial Accounting
Course Outcomes:	
153AC102CO1.	Acquire the knowledge in accounting system of maintenance of journal, ledger, Trial balance and final account.
153AC102CO2.	Acquire the basic concept of accounting of depreciation and Royalty.
153AC102CO3.	Used to various provision of hire purchase system and evaluate del credere commission, normal and abnormal loss, value of unsold stock in consignment account.
153AC102CO4.	Familiarize and understand the basic accounting concepts of different type of branch and the Evaluate the unrealized profit under the departmental accounting.
153AC102CO5.	Develop the application skills regarding the dissolution of a firm in case of insolvency



Course Code:	153AC103
Course Title:	BUSINESS LAW
Course Outcomes:	
C153AC103O 1:	Develop a clear understanding of the principles and concepts underlying contract law, including the nature of laws of contract, the classification of contracts, and the essential elements of a valid contract, such as offer, acceptance, and consideration.
153AC103CO 2:	Analyze and apply the legal principles related to special contracts, such as indemnity and guarantee, bailment, and pledge. They will understand the rights, obligations, and remedies associated with these specific types of contracts.
153AC103CO 3:	Gain knowledge of the Sale of Goods Act and its provisions. They will understand the formation of a contract of sale, conditions and warranties, the doctrine of caveat emptor, transfer of ownership, performance of contracts, and the rights of an unpaid seller.
153AC103CO 4:	Comprehensive understanding of negotiable instruments, including promissory notes, bills of exchange, and cheques. They will grasp the essential characteristics of negotiable instruments, the parties involved, the dishonor of such instruments, and the discharge of obligations related to them.
153AC103CO 5:	Gain knowledge of the Consumer Protection Act and its provisions. They will understand the definition of a consumer, the concept of unfair trade practices, the rights of consumers, the role of consumer protection councils, and the functioning of consumer dispute redressal agencies and comprehend the Indian Partnership Act and its significance. They will learn about the essential elements of a partnership, the nature of a partnership firm, the importance of a partnership deed, the process of registration, and the dissolution of a partnership firm.



Course Code:	153LW104
Course Title:	Law of Contract (General Principles of Law of Contracts)
Course Outcomes:	
153LW104CO1	Acquaint with the conceptual and operational parameters of various general principles relating to contract law.
153LW104CO2	Equip with the basics of contract law so as to enable them to apply it effectively on the various disputes related to contracts.
153LW104CO3	Examine the essential elements of a contract and how a contract can come to an end.
153LW104CO4	Examine the contractual obligations.
153LW104CO5	Deep understanding of specific performance of contracts.

Course Code:	153LW105
Course Title:	Law of Torts Including Motor Vehicle Accident & Consumer Protection Law's
Course Outcomes:	
53LW105CO1:	Gain knowledge of the historical development of the Law of Torts, including its origins in England and its adoption and modifications in India. They will understand the advantages and disadvantages of adopting the principles of justice, equity, and good conscience.
53LW105CO2:	Understand the concept of a wrongful act, the violation of a duty imposed by law, and the distinction between <i>damnum sine injuria</i> and <i>injuria sine damnum</i> . They will also differentiate between torts, crimes, breach of contract, and trusts. Additionally, they will understand the scope and changing character of duties owed in modern society.
53LW105CO3:	Gain insights into the justifications for tortious liability; including <i>volenti non fit injuria</i> , necessity (private and public), plaintiff's default, act of God, inevitable accident, private defense, statutory authority, and more. They will also learn about situations where liability is extinguished.
53LW105CO4:	Comprehend the Doctrine of Sovereign Immunity and its relevance in India. They will also explore concepts such as vicarious liability, torts against persons and personal relations (including defamation), parental and master-servant relations, malicious prosecution, wrongful confinement, and wrongs affecting property.
53LW105CO5:	Understand the concept of nuisance, its types, acts of obstructions, absolute and strict liability, legal remedies, and extra-legal remedies and explore Consumer Protection Act and Motor Vehicle Act.



Course Code:	VAC-101
Course Title:	Sustainable Development Goals (SDGs)
Course Outcomes:	
HSMC-102.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
HSMC-102.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
HSMC-102.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
HSMC-102.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
HSMC-102.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	153EN201
Course Title:	ENGLISH – II
Course Outcomes:	
C153EN201O1:	Demonstrate proficiency in using functional grammar, including tenses, sentence correction, active and passive voices, direct and indirect speech, connectives, modifiers, questions, negatives, reported speech, and word usage. They will apply these skills to construct grammatically correct and coherent sentences.
153EN201CO2:	Exhibit improved composition writing skills through activities such as paragraph and précis writing, letter and formal correspondence, note-taking and making, report and project drafting, abstract writing, and summary writing. They will also demonstrate enhanced reading comprehension skills by analyzing and understanding various texts and extracting key information.



153EN201CO3:	Critically analyze and interpret the short story "The Mark of Vishnu" by Kushwant Singh. They will demonstrate an understanding of its themes, characters, plot, and literary devices, showcasing their ability to engage with literary works and articulate their analysis effectively.
153EN201CO4:	Showcase the ability to write well-structured essays on contemporary issues. They will critically analyze and present their perspectives on current topics, demonstrating their research skills, critical thinking abilities, and the capacity to present well-supported arguments.
153EN201CO5:	Participate in debates and deliver speeches on contemporary issues. They will demonstrate their public speaking skills, including the ability to present and defend arguments, engage in meaningful discussions with

Course Code:	153AC202
Course Title:	Business Mathematics
Course Outcomes:	
153AC202CO1:	Apply the knowledge of Mathematics (Algebra, Matrices, Calculus, Optimization) in solving Business problems by using rules of ratio, percentage and commission.
153AC202CO2:	Demonstrate mathematical skills required in mathematically intensive areas with the help of Simultaneous equation in Commerce.
153AC202CO3:	Understand the important role of matrices plays in all facets of the business world.
153AC202CO4:	Understand the use of equations, formulae, and mathematical expressions and relationships In a variety of contexts.
153AC202CO5:	Solve the problems in the areas of business calculus simple and compound interest

Course Code:	153AC203
Course Title:	MICRO ECONOMICS
Course Outcomes:	
153AC203CO1:	Analyze the concept of economic problem in real life and also analyze the different economic systems such as capitalistic, socialistic and mixed economies
153AC203CO2:	Evaluate human wants, utility and consumer behaviour using marginal utility analysis. They will understand law of demand, elasticity of demand and equilibrium in the market



C153AC203CO3:	Understand the concept of supply, production and cost concepts also the determinants of supply, the law of supply and the producer's equilibrium in the market.
153AC203CO4:	Identify the different market structures and analyze their characteristics.
153AC203CO5:	Analyze business cycles, their phases, features and causes. They will be elaborating the determination of national income.

Course Code:	153LW203
Course Title:	SPECIFIC CONTRACT
Course Outcomes:	
153LW203CO1 :	Shall develop an understanding of the concepts of Indemnity and Guarantee.
153LW203CO2 :	Acquire conceptual clarity about Special Contracts of Bailment and Pledge.
153LW203CO3 :	Acquire conceptual clarity about the contract of Agency.
153LW203CO4 :	Evaluate and Comprehend Indian Partnership Act and Limited Liability Partnerships.
153LW203CO5 :	Understand the Sale of Goods Act with reference to a contract of Sale, its essentials, rights and duties of buyers and sellers, conditions and warranties etc.

Course Code:	153LW205
Course Title:	Jurisprudence (Legal Method, Indian Legal System & Basic Theory)
Course Outcomes:	
153LW203CO1 :	Clear understanding of the term "Jurisprudence" and its significance in the study of law. They will also comprehend the definition of law and its various types, including the concepts of justice and different kinds of justice.
153LW203CO2 :	Analyze and evaluate various schools of Jurisprudence, including Natural law school, Analytical school, Historical school, Sociological school, Realistic school, and Feminist schools. They will understand the foundational theories and perspectives of each school and their influence on legal thinking.
153LW203CO3 :	Explore the different sources of law, including legislation, precedents (concept of stare decisis), and customs. They will understand the significance and application of each source in the Indian legal system.



153LW203CO4 :	Gain knowledge of the concept of legal rights, including their kinds and meanings. They will also understand the concept of duty and the relationship between rights and duties. Additionally, students will explore the nature of personality, the status of different individuals (unborn, minor, lunatic, etc.),
C153LW203O5 :	Gain an understanding of the corporate personality, possession, ownership, theories of possession and ownership, and the difference between possession and ownership and Conditions for imposing liability, including wrongful acts, strict liability, and vicarious liability. They will explore the nature and kinds of obligations, as well as the difference between being obliged and having an obligation.

Course Code:	IKS
Course Title:	Indian Knowledge System
Course Outcomes:	
CO- IKS. 1	To understand the ancient civilization, Indian Knowledge Systems, Concept of PanchMahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
CO- IKS.II	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
CO- IKS.III	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovastu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
CO- IKS. IV	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
CO- IKS. V	Student will able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.



Semester-III

Course Code:	153AC301
Course Title:	MICRO ECONOMICS
Course Outcomes:	
C153AC301O1:	Analyze the concept of economic problem in real life and also analyze the different economic systems such as capitalistic, socialistic and mixed economies
153AC301CO2:	Evaluate human wants, utility and consumer behaviour using marginal utility analysis. They will understand law of demand, elasticity of demand and equilibrium in the market
153AC301CO3:	Understand the concept of supply, production and cost concepts also the determinants of supply, the law of supply and the producer's equilibrium in the market.
153AC301CO4:	Identify the different market structures and analyze their characteristics.
153AC301CO5:	Analyze business cycles, their phases, features and causes. They will be elaborating the determination of national income.

Course Code:	153AC302
Course Title:	Cost Accounting
Course Outcomes:	
153AC302CO1:	Understand the meaning, Advantages and Disadvantages of Cost accounting.
153AC302CO2:	Acquaint with the procedure of storekeeping, documentation of material receipt and issue, how to use a technique for setting stock levels, calculation of Economic Order Quantity.
153AC302CO3:	Understand the Methods of Labour Turnover, remuneration and bonus methods, also be able understand different types of overheads and its classification into various heads.
153AC302CO4:	Understand cost unit, cost centre and calculation of various costs by prepare a statement of cost and a cost sheet to find out cost also be able to calculate profit on different type contracts.
153AC302CO5:	Understand about calculation of profit under process costing including various wastages and to know how to prepare a reconciliation statement to find out the reasons for the difference in the net profit/net loss as per cost and financial records.



Course Code:	153AC303
Course Title:	BUSINESS ORGANISATION AND COMMUNICATION
Course Outcomes:	
153AC303CO1:	Apply the knowledge about stages of Development of Business, Evolution of Business, Modern Business, Forms of Business organization and MSMEs of India.
153AC303CO2:	Plant Location, Layout and Size Plant Location: Factors affecting Plant location, Plant Layout. Size of business Unit: Criteria for measuring the size of unit, Factors affecting size, Optimum Unit Size and factors affecting Optimum Size.
153AC303CO3:	Business Combination; Causes, Forms and Kinds of Business Combination, Rationalization: Meaning, Characteristics, Objectives, Principles, and Merits & Demerits: Difference between Rationalization & Nationalizations.
153AC303CO4:	Concept of Management, nature and importance & Functions of Management, Taylor's Scientific Management, Henri Fayol's Principles of Management, Planning: Concept, Importance, Process, Types of Plans Decision making: Process, Individual vs. Group Decision Making
153AC303CO5:	Organizations, Organization Structure: Factors affecting Organization structure, Features of Good Organization Structure, Span of Management, Delegation of Authority, Centralization and Decentralization; Line and staff Authority Staffing: Nature & Scope of Staffing, Man Power Planning- Concept and importance, Recruitment: Concept and Sources, e- recruitment, Selection: Concept, Important Tests and Types of Interview Directing: Concept and importance of Directing.

Course Code:	153LW304
Course Title:	Family Law – I (Hindu Law)
Course Outcomes:	
153LW304CO1:	Understand the nature of Hindu law, including its historical evolution, cultural significance, and the various schools and sources that shape this legal system.
153LW304CO2:	Demonstrate proficiency in the legal aspects of marriage and divorce under Hindu law. They will be able to analyze different types of marriages, understand the grounds for nullity, and interpret the provisions of the Hindu Marriage Act, 1955, and the Special Marriage Act, 1954.
153LW304CO3:	Acquire expertise in Hindu Undivided Family (HUF) laws. They will understand the principles of joint family, coparcenaries, property under Mitakshara and Dayabhag, as well as the legal intricacies related to partition, re-union, women's estate, and stridhan.



153LW304CO4 :	Possess comprehensive knowledge of laws related to gifts, wills, and adoption under Hindu law. They will be able to analyze legal provisions concerning Hindu adoption and maintenance (1956) and the Hindu Minority and Guardianship Act (1956).
153LW304CO5 :	Demonstrate expertise in the laws of inheritance and succession under Hindu law. They will understand the general rules of succession, disqualifications related to succession, and the provisions outlined in the Hindu Succession Act, 1956. Additionally, they will gain insight into the legal aspects of religious endowments.

Course Code:	153LW305
Course Title:	Constitutional Law – I
Course Outcomes:	
153LW305CO1 :	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
153LW305CO2 :	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
153LW305CO3 :	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognise the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
153LW305CO4 :	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
153LW305CO5 :	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.



Semester-IV

Course Code:	153AC401
Course Title:	Business Statistics
Course Outcomes:	
153AC401	Organize, manage and presentation of data. Analyze statistical data graphically using frequency distributions and cumulative frequency distributions.
153AC401	Analyze statistical data using measures of central tendency with different Averages.
153AC401	Analyze statistical data using measures of dispersion and location.
153AC401	Calculate and interpret the correlation between two variables.
153AC401	Calculate the simple linear regression equation for a set of data. Employee the principles of linear regression and correlation, including least square method, predicting a particular value of X for a given value of Y and vice versa and significance of the correlation coefficient

Course Code:	153AC402
Course Title:	Corporate Accounting
Course Outcomes:	
153AC402CO1:	Acquire the knowledge of the accounting treatment in issue of shares and issues of Debenture at par and premium
153AC402CO2:	Construct the financial statements of company calculate pre and post incorporation and liquidation with liquidator_s statement of affairs.
153AC402CO3:	Develop the skills of application of calculation of goodwill and shares
153AC402CO4:	Develop the procedure involved in Amalgamation & Absorption of companies.
153AC402CO5:	Familiarize the analytical skills in corporate accounting, regarding for preparation of consolidated balance and Cost of control of Holding.



Course Code:	153AC403
Course Title:	PRINCIPLES OF AUDITING
Course Outcomes:	
153AC403CO1:	Apply auditing principles and practices to effectively conduct different types of audits, including internal audits. Students will understand the objectives of auditing and the audit process, and be able to develop audit programs, utilize working papers and evidence, and prepare for audits in compliance with professional standards.
153AC403CO2:	Evaluate and implement internal check systems, routine checking, and test checking to assess the effectiveness of internal controls. Students will be able to identify weaknesses in internal control systems and recommend improvements to enhance the efficiency and reliability of business processes.
153AC403CO3:	Demonstrate proficiency in vouching cash transactions and verifying assets and liabilities. Students will understand the significance of vouching and verification procedures, and be able to apply appropriate techniques to ensure the accuracy and authenticity of financial transactions and balances.
153AC403CO4:	Understand the appointment, powers, duties, and liabilities of auditors in company audits. Students will be able to assess the legal and professional responsibilities of auditors, including the determination of divisible profits and dividend distribution. They will also gain the skills to prepare auditor's reports, distinguishing between a clean and qualified report based on audit findings.
153AC403CO5:	Comprehend the objectives and process of investigation and differentiate between audit and investigation. Students will be able to apply investigative techniques to identify irregularities, fraud, and non-compliance, and understand the specific requirements of special audits for banking companies, educational and non-profit institutions, and insurance companies.



Course Code:	153LW404
Course Title:	MUSLIM LAW
Course Outcomes:	
153LW404CO1 :	Analyze and interpret the principles and concepts of Muslim personal law, including the definition of a Muslim, conversion, apostasy, and the sources and schools of Muslim law. Students will be able to understand the legal framework and foundations of Muslim personal law.
153LW404CO2 :	Understand the legal aspects of marriage under Muslim law, including the nature, capacity, essentials, and classifications of marriage. Students will be able to analyze the legal effects of marriage and comprehend the rights and obligations of the parties involved.
153LW404CO3 :	Evaluate the concept and implications of divorce under Muslim law, including various forms of divorce such as Talaq, Talaq-tafweez, Mubarat, and Khula. Students will gain an understanding of the legal effects of divorce and its impact on the rights and responsibilities of the parties.
153LW404CO4 :	Examine and analyze the legal provisions related to maintenance of wives under Muslim law, with a specific focus on Section 125 of the Cr.P.C. and the Muslim Women (Protection of Rights on Divorce) Act, 1986. Students will understand the rights and entitlements of wives in terms of financial support.
153LW404CO5 :	Comprehensive understanding of the legal principles and societal implications surrounding parentage, with a focus on the acknowledgement process and grasp of the legal aspects related to succession and transactions made on the death bed.



Course Code:	153LW405
Course Title:	CONSTITUTIONAL LAW-II
Course Outcomes:	
153LW405CO1 :	Understand the constitutional provisions and mechanisms governing the administration of Union Territories, Panchayats, and Municipalities. Students will be able to analyze the roles, powers, and functioning of these entities and evaluate their significance in local governance.
153LW405CO2 :	Analyze the distribution of legislative power between the Union and the States, and comprehend the principles and mechanisms that govern legislative and administrative relations. Students will understand the division of powers and the impact on policymaking and governance in India.
153LW405CO3 :	Evaluate the financial provisions of the Constitution, including the regulation of property, contracts, rights, liabilities, and obligations. Students will gain an understanding of the legal framework governing financial matters and the implications for public finances and economic governance.
153LW405CO4 :	Examine the establishment and functioning of tribunals, the conduct of elections, and the special provisions relating to certain classes. Students will understand the role of tribunals in resolving disputes, the electoral process, and the constitutional safeguards for specific groups in society.
153LW405CO5 :	Analyze the emergency provisions in the Constitution, including the proclamation of emergency and its effects, as well as the concept of financial emergency. Students will understand the circumstances under which emergency powers can be invoked and the impact on democratic governance and examine the process and implications of constitutional amendments, including the procedures for amending the Constitution and the significance of amendments in shaping the legal and institutional framework of the country.

**Semester-V**

Course Code:	153AC501
Course Title:	Income Tax Law and Practice
Course Outcomes:	
C153AC501O1:	Apply the relevant provisions to determine the residential status of different persons examine the scope of income of a person based on his residential status ,apply the relevant provisions to determine the totalincome of a person based on his residential status.
153AC501CO2:	Apply the relevant provisions to when income is chargeable under the head —Income from house property and income under the head —Salaries
153AC501CO3:	Apply the relevant provisions to when income is chargeable under the head —Profits and gains of business or profession", income under the head —Capital Gains and —Income from Other Sources
153AC501CO4:	Apply the relevant provisions to Computation of total income of individuals and firms Set off and carry forward of Losses Deduction from Grass total Income Clubbing of Income.
153AC501CO5:	Basic concepts of Advance payment of tax Assessment Procedure, Tax deduction at Source, (TDS), e-Filing of return.

Course Code:	153AC502
Course Title:	FINANCIAL MANAGEMENT
Course Outcomes:	
153AC502CO1:	Student learn about basic concept of financial management and able to calculate capital budgeting.
153AC502CO2:	Student will able to calculate various leverage, cost of capitalstudent will able to calculate various leverage, cost of capital
153AC502CO3:	Student will be able to preparation of projected financial report.
153AC502CO4:	Student will learn about dividend policy.
153AC502CO5:	Student will learn about security analysis.



Course Code:	153LW503
Course Title:	Company law
Course Outcomes:	
153LW503CO1	153LW503
153LW503CO2	Recognise and separate the key components of each business.
153LW503CO3	Assess and recognise the relative merits and shortcomings of each business medium.
153LW503CO4	Give a general summary of the parties' rights, responsibilities, obligations, and liabilities with respect to the various commercial businesses.
153LW503CO5	Use the information you've learned in the course to tackle actual commercial enterprise difficulties and use the information to select career paths like those in the business sector and exams like the CA, CS, business Lawyering, etc.

Course Code:	153LW504
Course Title:	LABOUR AND INDUSTRIAL LAWS-I
Course Outcomes:	
153LW504CO1	Analyze and interpret the key concepts and principles of industrial jurisprudence and labor policy in India. Students will develop an understanding of the historical context of industrialization, the associated labor problems, and the evolution of labor legislation in the country.
153LW504CO2	Understand and apply the provisions of the Industrial Disputes Act, 1947. Students will be able to identify the authorities involved in resolving industrial disputes, comprehend the procedures and powers of these authorities, and analyze the implications of provisions related to strikes, lockouts, retrenchment, and penalties.
153LW504CO3	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
153LW504CO4	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.



153LW504CO5 :	Evaluate the interpretation and legal status of standing orders, including their modification and temporary application. Students will understand the importance of proper interpretation and compliance with standing orders in maintaining harmonious industrial relations and ensuring legal compliance.
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Course Code:	153LW505
Course Title:	LAW OF CRIMES(INDIAN PENAL CODE)
Course Outcomes:	
153LW505CO1 :	Analyze and interpret the provisions of the Indian Penal Code (IPC) and understand the elements of criminal liability. Students will be able to identify and apply the relevant provisions of the IPC to different situations, assess the mental state required for criminal liability, and analyze the factors that negate guilty intention.
153LW505CO2 :	Comprehend the various offenses against the human body and property as outlined in the IPC. Students will develop an understanding of offenses such as culpable homicide, murder, hurt, theft, robbery, cheating, and mischief. They will be able to distinguish between different types of offenses, evaluate the elements required for each offense, and analyze the corresponding punishments.
153LW505CO3 :	Evaluate the types of punishments available under the IPC and understand their social relevance. Students will be able to analyze the appropriateness and effectiveness of different types of punishments, including death penalty, imprisonment and forfeiture of property, fine, and the court's discretion in awarding punishment. They will also develop an understanding of the minimum punishment prescribed for certain offenses.
153LW505CO4 :	Distinctions between culpable homicide and murder, analysis of factors impacting right to private defense and comprehensive knowledge of assault and related offence.
153LW505CO5 :	Understanding the philosophical and ethical dimensions of death penalty, examine the social impact of capital punishment and comparative analysis of punitive measures.



Semester-VI

Course Code:	153AC601
Course Title:	Management Accounting
Course Outcomes:	
153AC601CO1:	Toprepare the managerial report of the company.
153AC601CO2:	Be well versed in a thorough analysis of any company's financial statements such as profit and loss account and position statement, and be able to make accurate estimates of the financial position, solvency and profitability of that company.
153AC601CO3:	By studying the cash flow statement, you will get the knowledge of proper use of cash in the organization and adequate availability of cash in the organization.
153AC601CO4:	After getting the knowledge of marginal cost, will be able to make very important decisions for the company such as whether to make or buy the item, fix the price, stop production etc.
153AC601CO5:	Learn to control costs by creating different types of budgets from budgetary control.

Course Code:	153AC602
Course Title:	MONEY AND BANKING
Course Outcomes:	
153AC602	Able to understand about the origin of Money and Banking.
153AC602	Able to understand about various concepts of Money, its functions, value, money market and monetary policy operations.
153AC602	Able to develop the procedure involved in various banking institutions along with their basic functions and their credit creation role
153AC602	Able to familiarize the skills about the Central bank of our country and assess the objectives and functions of Reserve Bank of India (RBI).



153AC602	153AC602
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Course Code:	153LW603
Course Title:	ENVIRONMENTAL LAW
Course Outcomes:	
153LW603CO1	To familiarize the students with the overall environmental legal regime of the country as well as its international obligations and would further equip the students with basic knowledge and skills to understand environmental issues.
153LW603CO2	To make the students aware about the provisions under the Indian Constitution for protection of environment and the various legislative measures.
153LW603CO3	It also provides an opportunity to the students
153LW603CO4	To understand the activist role played by Indian Judiciary in protection of environment and evolution of different principles.
153LW603CO5	A spirit of inquiry to explore the development of Indian environmental law and various legislations and its application in India for the protection of environment and Awareness regarding the problem of environmental pollution and Law as a means of prevention of environmental pollution and protection of environment.

Course Code:	153LW604
Course Title:	LABOUR & INDUSTRIAL LAW- II
Course Outcomes:	
153LW604CO1	This unit makes the students able to understand of the role of insurance in worker welfare. State Employees Insurance Act 1948 is the academic topic of this unit.
153LW604CO2	Under this unit Students become able to understand of the minimum requirements of the living of the workers and the ways to ensure their attainment through this.
153LW604CO3	This unit makes the students able to understand the rules and regulations related to the payment of wages to the workers. The Payment of Wages Act 1936 is the academic subject of the Unit.



153LW604CO4 :	Through this unit the students got precious knowledge about the provisions related to health, safety and welfare of the workers working in a factory.
153LW604CO5 :	The central theme of this unit is the bonus provided to the workers. These unit able students to study the methods related to the bonus provided to the workers working in various business and industrial establishments.

Course Code:	153LW605
Course Title:	CRIMINAL PROCEDURE CODE
Course Outcomes:	
153LW605CO1 :	Differentiate between substantive and procedural criminal law.
153LW605CO2 :	Assess the Organisation, hierarchy, and operation of India's criminal courts.
153LW605CO3 :	Understand the function of officials such as the police, magistrates, courts, etc.
C153LW605O4 :	Examine key terms such as "offence," "charge," "bail," "examination of witnesses," "appeals," etc.
C153LW605O5 :	Outline the fundamental processes for FIRs, complaints, police reports, inquiries, searches, and seizures, among other things and Describe several trial types, including summary, warrant, and summons cases, as well as the various stages of each and also Examine the Cr.P.C.'s regulations on a wife's, children, and parent's maintenance.

Semester-VII

Course Code:	153LW701
Course Title:	CIVIL PROCEDURE CODE & LIMITATION ACT
Course Outcomes:	
153LW701CO1 :	Recognise the core ideas of the Civil Procedure Code and to describe civil jurisdiction.
153LW701CO2 :	Explore rule of pleadings.
153LW701CO3 :	Describe the Appearance, Examination, Trial and Suit in particular cases and Suits in Particular Cases.
153LW701CO4 :	Know about Appeals, Review, Reference and Revision.
153LW701CO5 :	Describe limitation period of civil cases.



Course Code:	153LW702
Course Title:	ADMINISTRATIVE LAW
Course Outcomes:	
153LW702CO1	The students will be able to describe the concept of Administrative law and recognise, articulate, and apply the administrative law principles presented in the course.
153LW702CO2	Deep understanding of Delegated Legislation.
153LW702CO3	Through a consideration of court case law and the judicial process, the students will be able to examine and forecast how unresolved or confusing administrative law matters could be handled by the courts.
153LW702CO4	The student will be able to describe the words Estoppel and Waiver, Official secrets, Right to information, Lokpal, Lokayukt, Central Vigilance Commissions and Commission of inquiry.
153LW702CO5	Describe the Administrative Tribunals in depth.

Course Code:	153LW703
Course Title:	Legal Language & Legal Writing
Course Outcomes:	
153LW703CO1:	Deep knowledge of communication skills like listening, reading, writing and also able to explain sentences.
153LW703CO2:	Understand Strong and Weak verbs, Article Writing, Précis Writing and Translation.
153LW703	153LW703
153LW703CO4:	Describe the meanings of Legal Terminology and Latin expressions, employ them in arguments, and use them to clarify key legal ideas and notions. When communicating on legal matters, use legal phrases, understand how they are used in different situations, and apply them.
153LW703CO5:	Describe and explore of the legal maxims and analytically read and analyse court rulings, separating out their facts and guiding principles to determine what legal principles they (the judgments) uphold.



Course Code:	153LW704-A
Course Title:	BANKING LAW
Course Outcomes:	
153LW704-A CO1:	Describe the concepts of Bank, types of bank and E-commerce and e-banking are new, emergent aspects of financial systems.
153LW704-A CO2:	To understand the bankers and customers relation.
153LW704-A CO3:	Deep understanding of Negotiable Instruments like cheque and bill of exchange.
153LW704-A CO4:	Describe the working of RBI.
153LW704-A CO5:	Describe the Merchant banking in India in depth.

Course Code:	153LW704-B
Course Title:	HUMAN RIGHTS LAW & PRACTICES
Course Outcomes:	
153LW704-B CO1:	Describe and explore the Historical Development and concept of Human Right, Human Right in India ancient, medieval and modern concept of rights, Human Right in Western tradition, Human Right in legal tradition: International Law and National Law, UN and Human Rights, Universal Declaration of Human Rights (1980) and Covenant on political and Civil Rights (1966).
153LW704-B CO2:	Know about conventions related to various rights.
153LW704-B CO3:	Understand the Impact and Implementation of International Human Rights Norms in India.
C153LW704-B O4:	Explain human rights of women, prisoners, child, Dalits, victims, and Minorities.
153LW704-B CO5:	Describe and examine the remedies available for violation of human rights.



Course Code:	153LW704-C
Course Title:	PROBATION AND PAROLE
Course Outcomes:	
153LW704-C CO1:	Describe the concept of crime, nature and scope of criminology and causation of crime.
153LW704-C CO2:	Describe the theory of punishment.
153LW704-C CO3:	Describe the organized crime.
153LW704-C CO4:	Deep understanding of probation
153LW704-C CO5:	Deep understanding of parole.

Course Code:	153LW705
Course Title:	PROFESSIONAL ETHICS & PROFESSIONAL ACCOUNTING SYSTEM (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
153LW705CO1 :	About their rights as advocates, as well as the corresponding obligations and restrictions and to inform them of the Bar Council of India's stances on ethical violations.
153LW705CO2 :	About Ethics of Legal Profession.
153LW705CO3 :	Aware of Punishment for Professional or Other Misconduct
153LW705CO4 :	Familiarise with the legal requirements, ethical rules, and court rulings pertaining to the practise of law.
153LW705CO5 :	Deep understanding of Meaning and Categories of Contempt of Court.



Semester-VIII

Course Code:	153LW801
Course Title:	PROPERTY LAW
Course Outcomes:	
153LW801CO1 :	Understand the most basic concepts in property law, like meaning of property and Kinds of property.
153LW801	153LW801
153LW801CO3 :	Understand the Transfers of Immovable Properties and Movable Properties like Sale, Mortgage, Gift, Leases, Exchanges and Actionable claims.
153LW801CO4 :	Understand the M.P. Accommodation Control Act 1961 and Rent Controlling Authority.
153LW801CO5 :	Understand the Indian Easements Act, 1882.

Course Code:	153LW802
Course Title:	LAW OF EVIDENCE
Course Outcomes:	
153LW802CO1 :	Describe the main features of the Indian Evidence Act 1861, Applicability of Evidence Act, Administrative Tribunals, Industrial Tribunals, and Commissions of enquiry and Court- Martial.
153LW802CO2 :	Define the level of proof required in both civil and criminal proceedings.
153LW802CO3 :	Able to the justification for relevance of dying declarations and Relevance of judgments.
153LW802CO4 :	Define the processes to be followed in the conduct of a civil or criminal trial and analyse and assess the rules regulating examination in chief, cross examination, and re-examination.
153LW802CO5 :	Identify the different types of presumptions and determine the burden of proof and standard of proof in civil and criminal trials and also able to justification for Estoppel.



Course Code:	153LW803
Course Title:	INTELLECTUAL PROPERTY LAW
Course Outcomes:	
153LW803CO1	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
153LW803CO2	Evaluate the general principles of law of insurance.
153LW803CO3	Deep understanding of life insurance.
153LW803CO4	Describe the Marine Insurance.
153LW803CO5	Describe the Social Insurance in India.

Course Code:	153LW804-A
Course Title:	INSURANCE LAW
Course Outcomes:	
153LW804-A CO1:	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
C153LW804-A O2:	Evaluate the general principles of law of insurance.
C153LW804-A O3:	Deep understanding of life insurance.
153LW804-A CO4:	Describe the Marine Insurance.
153LW804-A CO5:	Describe the Social Insurance in India.

Course Code:	153LW804-B
Course Title:	GENDER JUSTICE AND FEMINIST JURISPRUDENCE
Course Outcomes:	
153LW804-B CO1:	To examine feminist and patriarchal legal systems Pre-Independence India.
153LW804-B CO2:	To examine feminist and patriarchal legal systems in Post-Independence India.



153LW804-B CO3:	To evaluate critically how men's rights and women's rights are being misused.
153LW804-B CO4:	To evaluate critically matrimonial relations and its consequences.
153LW804-B CO5:	Describe the various social welfare laws for women and nonimplementation of protective labour legislation.
Course Code:	153LW804-C
Course Title:	IPR MANAGEMENT
Course Outcomes:	
153LW804-C CO1:	Identify the many categories of intellectual properties (IPs), the ownership rights, the range of protection, and the methods for producing and monetizing IP.
153LW804-C CO2:	Acknowledge the Typology of IPR.
153LW804-C CO3:	Describe the Inventor ship, Ownership, Service works.
153LW804-C CO4:	IP agreements, Invention disclosure systems assessment.
153LW804-C CO5:	Describe the precautionary measures to be taken to prevent infringement of proprietary rights in the creation of products and technologies, as well as the actions that constitute IP infringements and the remedies available to the IP owner.

Course Code:	153W805
Course Title:	Drafting pleading & Conveyance (clinical course) and viva-voce
Course Outcomes:	
153W805CO1:	Be able to manage the client over the course of the engagement and analyse and describe the notion of pleading and various norms of pleading.
153W805CO2:	Explain the reasoning process and use legal writing skills while speaking before courts and tribunals.
153W805CO3:	Recognize how to use various complaints to enter the criminal justice system.
153W805CO4:	Describe the many types of convincing deeds, such as sale deeds, gifts, mortgages, etc.
153W805CO5:	Use your legal writing abilities and knowledge of the practical aspects of document registration.

**Semester-IX**

Course Code:	153LW901
Course Title:	PRINCIPLES OF TAXATION LAW
Course Outcomes:	
153LW901CO1 :	Explore the history of tax law in India and fundamental principles relating to tax laws.
153LW901CO2 :	Describe concept of tax and scope of taxing powers of Parliament, state Legislature and local bodies.
153LW901CO3 :	Students would assess a person's level of total income and residential status.
153LW901CO4 :	Understanding the sources of income and tax authority.
153LW901CO5 :	Understanding the various tax legislation.

Course Code:	153LW902
Course Title:	INTERPRETATION OF STATUTES & PRINCIPLE OF LEGISLATION
Course Outcomes:	
153LW902CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
153LW902CO2 :	Students will be able to explore and examine the negotiation system.
153LW902CO3 :	Students will be able to explore and examine the negotiation system.
153LW902CO4 :	Students will be able to understand application of arbitration system.
153LW902CO5 :	CO5: Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.



Course Code:	153LW903-A
Course Title:	WOMEN AND CRIMINAL LAW
Course Outcomes:	
153LW903-A CO1:	Know about crimes against women.
153LW903-A CO2:	Compare the effects of several legislation passed to protect women from harassments, molestation, sexual abuse, and rape.
153LW903-A CO3:	Aware of particular and general offences.
153LW903-A CO4:	Aware of special offending act like immoral trafficking, female foeticide, kidnapping and abduction.
153LW903-A CO5:	Examine the concerns raised by the Protection of Women from Domestic Violence Act of 2005 in relation to violence against women.

Course Code:	153LW903-B
Course Title:	LOCAL SELF GOVERNMENT INCLUDING PANCHAYET ADMINISTRATION
Course Outcomes:	
153LW903-B CO1:	Describe the concept and meaning of local self government and also explore the doctrine of distribution of power.
153LW903-B CO2:	Know about the Constitutional provisions of panchayat system.
153LW903-B CO3:	Know about all provisions of Municipalities.
153LW903-B CO4:	Examine the M.P. Panchayati Raj Act, 1993.
153LW903-B CO5:	Examine the Nagar Palika Adhiniyam.

Course Code:	153LW903-C
Course Title:	EQUITY AND TRUST
Course Outcomes:	
153LW903-C	Describe the origin and development of equity and trust.
153LW903-C	Explore the definition, nature and kinds of trust.
153LW903-C	Aware about right and duties of trustee.



153LW903-C	Aware about powers and liabilities of trustee.
153LW903-C	Know about Rights and Liabilities of Beneficiaries.

Course Code:	153LW904-A
Course Title:	INFORMATION TECHNOLOGY
Course Outcomes:	
153LW904-A CO1:	Describe the concept and definition of computer, digital signature and Appreciate and grasp the overall influence that information technology (IT) has had on the practise of law, as well as how this technology has given rise to new national and international legal concerns and difficulties.
153LW904-A CO2:	Know about adjudication and penalties.
153LW904-A CO3:	Explore how the customer and victim protected.
153LW904-A CO4:	Globally aware of IT law.
153LW904-A CO5:	Know about right of privacy regarding internet and media.

Course Code:	153LW904-B
Course Title:	RIGHT TO INFORMATION
Course Outcomes:	
153LW904-A CO1:	Describe and examine the theories and legal framework behind India's right to information.
153LW904-A CO2:	Identify several pieces of law that either support or restrict freedom of information and Compare India's information law provisions to those found in the USA and UK.
153LW904-A CO3:	Know about various Indian Legislations.
153LW904-A CO4:	Explore and examine the Right to Information Act, 2005.
153LW904-A CO5:	Know all about RTI and Judiciary.



Course Code:	153LW904-C
Course Title:	COMPETITION LAW
Course Outcomes:	
153LW904-C CO1:	To be able to elaborate the development of competition law and its importance.
153LW904-C CO2:	In-depth knowledge of MRTP Act.
153LW904-C CO3:	Examine the Merger and Competition Law.
153LW904-C CO4:	Critically evaluate and examine some of the important concerns, such as how IPR laws, regulatory laws, environmental laws, and public procurement laws interact with one another.
153LW904-C CO5:	Know about Competition Authorities (Regulatory Mechanism).

Course Code:	153LW905
Course Title:	ALTERNATIVE DISPUTE RESOLUTION (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
153LW905CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
153LW905CO2 :	Students will be able to explore and examine the negotiation system.
153LW905CO3 :	Students will be able to describe in-depth mediation and conciliation.
153LW905CO4 :	Students will be able to understand application of arbitration system.
153LW905CO5 :	Students will explain the Verbal communication, Non verbal communication and Role of the Paralegal.

Semester-X

Course Code:	153LW1001
Course Title:	PUBLIC INTERNATIONAL LAW
Course Outcomes:	



153LW1001CO 1:	Students gain a thorough understanding of the sources of international law (treaties and customary international law), the subjects of international law (identifying rights and obligations of States, IOs, NGOs, and individuals), the institutional context (UN, WTO, regional agencies, etc.), and the dispute resolution framework (courts, arbitration tribunals, conciliation, as well as use of sanctions and force).
153LW1001CO 2:	Students will be able to describe and define states as a subject matter in the context of International Law.
153LW1001CO 3:	Ability to analyze all the necessary provisions related to state jurisdiction will develop.
153LW1001CO 4:	Students will be describe to provisions related to state and individuals.
153LW1001CO 5:	Students Know about The United Nations Organization.

Course Code:	153LW1002
Course Title:	LAND LAWS INCLUDING TENURE AND TENANCY SYSTEM
Course Outcomes:	
153LW1002CO 1:	Describe what is meant by the idea of agricultural land and apply principles from land law related to tenure holders, ownership, possession, succession, surrender, abandonment, mortgage, lease, and tenancies.
153LW1002CO 2:	Know about Revenue Board and Revenue Officer also become familiar with the upkeep and updating of local records and the effects of consolidation and mutation proceedings.
153LW1002CO 3:	Become familiar with the idea of Tenure Holders.
153LW1002CO 4:	Gain a thorough understanding of how local governments manage land and other types of property.
153LW1002CO 5:	Know about Gram Sabha, Wajib-ul-arz, Nistar Patrak, Rights in forest Easement, Exclusive Jurisdiction of Revenue Courts and Miscellaneous Provisions.



Course Code:	153LW1003-A
Course Title:	DIRECT TAXATION
Course Outcomes:	
153LW1003-A CO1:	Understand the historical development of Income Tax Law in India also able to explore the specific word used in taxation like Assessee, Assessment year, previous year, Agricultural income, income and person.
153LW1003-A CO2:	Recognizing the position of people and industry.
153LW1003-A CO3:	Calculation of capital gains and income from other sources.
153LW1003-A CO4:	Calculate the Income of other persons included in assessee_s total income.
153LW1003-A CO5:	Able to understand Search and Seizure, Procedure for assessment, Appeals and Revision.

Course Code:	153LW1003-B
Course Title:	CIVIL SOCIETY & PUBLIC GRIEVANCE
Course Outcomes:	
153LW1003-B CO1:	Learn about the idea of civil society that is prevalent in India.
153LW1003-B CO2:	Learn about Public Grievances.
153LW1003-B CO3:	Well informed about civil society, its grievances, and its remedy systems.
C153LW1003- B O4:	Know about role of NGO_s.
153LW1003-B CO5:	Examine the recent issues related to civil society in India.

Course Code:	153LW100-C
Course Title:	BIO DIVERSITY PROTECTION
Course Outcomes:	
153LW100-C CO1:	To comprehend the significance of biodiversity and its conservation for socially sustainable development
153LW100-C CO2:	To comprehend the fundamental ideas and ideologies guiding biodiversity and to examine how national biodiversity authority and policy have evolved.



153LW100-C CO3:	To examine the constitutional stances on protecting biodiversity.
153LW100-C CO4:	To examine National Bio Diversity Fund.
153LW100-C CO5:	To know about the develop National strategies plans for conservation of Bio Diversity, Bio Diversity Management Committees, NBDA to be bound by the instruction of Central Government, Power of State to give direction, Settlement of Dispute between State Bio Diversity Board and nature of office of members of NBDA, Appeals, Cognizance of offence and non bailable offences.

Course Code:	153LW1004-A
Course Title:	INDIRECT TAXATION
Course Outcomes:	
153LW1004-A CO1:	To describe and define the concept of VAT and its importance.
153LW1004-A CO2:	To define words associated with the Goods and Services Tax (GST) and know about application of GST.
153LW1004-A CO3:	To talk about the Important Definitions- Business, Capital Goods, Export and Import of Goods, Goods and Services. Classes of Officers under the Central goods and Services Tax Act (CGTST Act) and States Goods and Services Tax Act, their appointments and powers.
153LW1004-A CO4:	Students would comprehend the distinction between composite and mixed supply as well as the distinction between forward charge and reverse charge mechanisms and also talk about the importance, timing, and location of supplies and know about the content and structure of numerous papers, such as tax invoices, bills of supply, debit notes, and credit notes, among others, will be discussed by the students
153LW1004-A CO5:	To describe Custom Duty, types of custom Duties, Powers of Customs Officers, Power to Inspect, Power to X-ray bodies, Power of Search, Power of Seizure, Power to call for documents and examine a person, Power to summons, Power to arrest Penalty.

Course Code:	153LW1004-B
Course Title:	LAW ON EDUCATION
Course Outcomes:	
153LW1004-B CO1:	To describe the Constitutional provisions related to education.



153LW1004-B CO2:	To know about Right to Education, Fundamental Right to education for children below 14 years and Preamble and Right to Education.
C153LW1004-B O3:	To explore Articles 14, 15, 16, 21, 29(2) 41 and 45 of the Constitution of India.
153LW1004-B CO4:	To understand the minority and law.
153LW1004-B CO5:	To know all about Dispute Settlement Mechanism for Educational Institution.

Course Code:	153LW1004-C
Course Title:	OFFENCES AGAINST CHILD AND JUVENILE
Course Outcomes:	
153LW1004-C CO1:	Define concepts of term child, Juvenile and Causes of offence against child.
153LW1004-C CO2:	Describe Offences against Child.
153LW1004-C CO3:	Deep understanding of relationship between child and society.
153LW1004-C CO4:	Understand to Protection of Child and Juveniles under various legislations.
153LW1004-C CO5:	Understand to nature and causes of Juvenile Delinquency.

Course Code:	153LW1005
Course Title:	Moot Court Practices & Viva-Voce
Course Outcomes:	
C153LW1005O 1:	Students will be able to define, discuss the historical context, and explain the significance of moot court in legal education.
153LW1005CO 2:	Students will develop the ability to structure and organize a moot court brief effectively, adhering to competition-specific guidelines and requirements.
153LW1005CO 3:	Students will master techniques for effective communication in oral arguments, including delivery, tone, and maintaining a strong courtroom presence.



153LW1005CO 4:	Students will employ advanced advocacy techniques, including persuasive tactics, rhetorical devices, and storytelling, while responding adeptly to challenging questions and adapting their style to various moot court scenarios.
153LW1005CO 5:	Students will engage in individual and team reflection on their performance, identifying strengths and areas for improvement. They will develop strategies for ongoing skill development and preparation for future moot court competitions.



Programme: LL.B.

Semester-I

Course Code	151LW101
Course Title	Constitutional Law - I
Course Outcomes:	
151LW101CO1.	Demonstrate a comprehensive understanding of the nature and characteristics of the Indian Constitution, including its historical background, key principles, evaluate the concepts of federalism and unitary form of government in the Indian context, assessing their advantages, disadvantages, and implications for governance and power distribution.
151LW101CO2.	Examine the provisions and significance of citizenship and fundamental rights in the Indian Constitution, and critically analyze their role in safeguarding individual liberties, promoting equality, and ensuring social justice.
151LW101CO3	Recognize the role that the Directive Principles of State Policy play in providing a framework for government action; examine the complex interactions that shape the constitutional ethos between fundamental rights and directive principles; and recognise the role that fundamental duties play in promoting civic engagement and fortifying the basis of a just and inclusive society.
151LW101	Understand the structure and functioning of the Union Executive, Legislature, and Judiciary, including the roles and powers of the President, Vice President, Council of Ministers, and the Supreme Court, and assess their significance in the Indian system of governance.
151LW101CO5.	Analyze the structure and functioning of the State Executive, Legislature, and Judiciary, including the roles and functions of the Governor, State Legislature (Vidhan Sabha and Vidhan Parishad), and High Court, and assess their significance in the state-level governance and legal system.

Course Code:	151LW102
Course Title:	Family Law – I (Hindu Law)
Course Outcomes:	
151LW102.1	Understand the nature of Hindu law, including its historical evolution, cultural significance, and the various schools and sources that shape this legal system.
151LW102.2	Demonstrate proficiency in the legal aspects of marriage and divorce under Hindu law. They will be able to analyze different types of marriages, understand the grounds for nullity, and interpret the provisions of the Hindu Marriage Act, 1955, and the Special Marriage Act, 1954.



151LW102.3	Acquire expertise in Hindu Undivided Family (HUF) laws. They will understand the principles of joint family, coparcenaries, property under Mitakshara and Dayabhag, as well as the legal intricacies related to partition, re-union, women's estate, and stridhan.
151LW102.4	Possess comprehensive knowledge of laws related to gifts, wills, and adoption under Hindu law. They will be able to analyze legal provisions concerning Hindu adoption and maintenance (1956) and the Hindu Minority and Guardianship Act (1956).
151LW102.5	Demonstrate expertise in the laws of inheritance and succession under Hindu law. They will understand the general rules of succession, disqualifications related to succession, and the provisions outlined in the Hindu Succession Act, 1956. Additionally, they will gain insight into the legal aspects of religious endowments.

Course Code	151LW103
Course Title	Labour & Industrial Law - I
Course Outcomes:	
151LW103.1	Analyze and interpret the key concepts and principles of industrial jurisprudence and labor policy in India. Students will develop an understanding of the historical context of industrialization, the associated labor problems, and the evolution of labor legislation in the country.
151LW103.2	Understand and apply the provisions of the Industrial Disputes Act, 1947. Students will be able to identify the authorities involved in resolving industrial disputes, comprehend the procedures and powers of these authorities, and analyze the implications of provisions related to strikes, lockouts, retrenchment, and penalties.
151LW103.3	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
151LW103.4	Comprehend the provisions of the Trade Union Act, 1926, and its implications for the registration, recognition, rights, liabilities, and regulation of trade unions. Students will understand the procedures for registration, the legal rights and obligations of registered trade unions, and the penalties for non-compliance.
151LW103.5	Evaluate the interpretation and legal status of standing orders, including their modification and temporary application. Students will understand the importance of proper interpretation and compliance with standing orders in maintaining harmonious industrial relations and ensuring legal compliance.



Course Code	151LW104
Course Title:	Law of Contract (General Principles of Law of Contracts)
Course Outcomes	
151LW104.1	Acquaint with the conceptual and operational parameters of various general principles relating to contract law.
151LW104.2	Equip with the basics of contract law so as to enable them to apply it effectively on the various disputes related to contracts.
151LW104.3	Examine the essential elements of a contract and how a contract can come to an end.
151LW104.4	Examine the contractual obligations.
151LW104.5	Deep understanding of specific performance of contracts.

Course Code	151LW105
Course Title	Law of Torts Including Motor Vehicle Accident & Consumer Protection Law's
Course Outcomes:	
151LW105CO1	Gain knowledge of the historical development of the Law of Torts, including its origins in England and its adoption and modifications in India. They will understand the advantages and disadvantages of adopting the principles of justice, equity, and good conscience.
151LW105	Understand the concept of a wrongful act, the violation of a duty imposed by law, and the distinction between <i>damnum sine injuria</i> and <i>injuria sine damnum</i> . They will also differentiate between torts, crimes, breach of contract, and trusts. Additionally, they will understand the scope and changing character of duties owed in modern society.
151LW105CO3	Gain insights into the justifications for tortious liability; including <i>volenti non fit injuria</i> , necessity (private and public), plaintiff's default, act of God, inevitable accident, private defense, statutory authority, and more. They will also learn about situations where liability is extinguished.
151LW105	Comprehend the Doctrine of Sovereign Immunity and its relevance in India. They will also explore concepts such as vicarious liability, torts against persons and personal relations (including defamation), parental and master-servant relations, malicious prosecution, wrongful confinement, and wrongs affecting property.
151LW105CO5	Understand the concept of nuisance, its types, acts of obstructions, absolute and strict liability, legal remedies, and extra-legal remedies and explore Consumer Protection Act and Motor Vehicle Act.



Course Code	VAC-101
Course Title	Sustainable Development Goals (SDGs)
Course Outcomes:	
VAC-101.1	Examine critically the 17 newly minted UN Sustainable Development Goals and understand the historical evolution, key theories, and concepts of sustainable development.
VAC-101.2	Identify and apply methods for assessing the achievement of sustainable development and discover the science, technology, economics, and politics underlying the concepts of sustainability.
VAC-101.3	Understand the implications of overuse of resources, population growth and economic growth and sustainability and explore the challenges the society faces in making transition to renewable resource use.
VAC-101.4	Develop skills to understand attitudes on individuals, society and their role regarding causes and solutions in the field of sustainable development and apply critical thinking skills to evaluate the quality, credibility and limitations of an argument for solution.
VAC-101.5	Describe the steps of the design thinking methodology and how design thinking can accelerate effective SDG implementation. Deepen knowledge and pedagogical tools to incorporate values-based education for sustainable development in educational Programmes and processes.

Semester-II

Course Code:	151LW201
Course Title:	Constitutional Law - II
Course Outcomes:	
151LW201.1	Understand the constitutional provisions and mechanisms governing the administration of Union Territories, Panchayats, and Municipalities. Students will be able to analyze the roles, powers, and functioning of these entities and evaluate their significance in local governance.
151LW201.2	Analyze the distribution of legislative power between the Union and the States, and comprehend the principles and mechanisms that govern legislative and administrative relations. Students will understand the division of powers and the impact on policymaking and governance in India.
151LW201.3	Evaluate the financial provisions of the Constitution, including the regulation of property, contracts, rights, liabilities, and obligations. Students will gain an understanding of the legal framework governing financial matters and the implications for public finances and economic governance.
151LW201.4	Examine the establishment and functioning of tribunals, the conduct of



	elections, and the special provisions relating to certain classes. Students will understand the role of tribunals in resolving disputes, the electoral process, and the constitutional safeguards for specific groups in society.
151LW201.5	Analyze the emergency provisions in the Constitution, including the proclamation of emergency and its effects, as well as the concept of financial emergency. Students will understand the circumstances under which emergency powers can be invoked and the impact on democratic governance and examine the process and implications of constitutional amendments, including the procedures for amending the Constitution and the significance of amendments in shaping the legal and institutional framework of the country.

Course Code	151LW202
Course Title	Family Law – II (Muslim Law)
Course Outcomes	
151LW202.1	Demonstrate a nuanced understanding of the historical origins and developmental evolution of Muslim Law, tracing its progression from early Islamic periods to contemporary contexts, recognizing the factors that shaped its formation.
151LW202.2	Comprehend the legal intricacies of Muslim marriages, including Nikah (permanent marriage) and Muta Marriage (temporary marriage), critically evaluating their implications within the framework of Muslim personal law.
151LW202.3	Gain a comprehensive understanding of guardianship in Muslim Law, identifying the essential elements and types, and appreciating the legal responsibilities associated with guardians, especially in matters of maintenance.
151LW202.4	Distinguish between wills and gifts in Muslim Law, understanding their legal frameworks, and grasp the practical applications of legal doctrines such as musha (co-ownership), pre-emption (shuf'a), and wakf (endowment).
151LW202.5	Critically analyze the legal principles related to parentage and acknowledgment in Muslim Law, recognizing their impact on legal rights and responsibilities, and gain an understanding of succession principles and death bed transactions.



Course Code	151LW203
Course Title	Labour & Industrial Law- II
Course Outcomes:	
151LW203.1	This unit makes the students able to understand of the role of insurance in worker welfare. State Employees Insurance Act 1948 is the academic topic of this unit.
151LW203.2	Under this unit Students become able to understand of the minimum requirements of the living of the workers and the ways to ensure their attainment through this.
151LW203.3	This unit makes the students able to understand the rules and regulations related to the payment of wages to the workers. The Payment of Wages Act 1936 is the academic subject of the Unit.
151LW203.4	Through this unit the students got precious knowledge about the provisions related to health, safety and welfare of the workers working in a factory.
151LW203.5	The central theme of this unit is the bonus provided to the workers. These unit able students to study the methods related to the bonus provided to the workers working in various business and industrial establishments.

Course Code	151LW203
Course Title	SPECIFIC CONTRACT
Course Outcomes:	
151LW203.1	Shall develop an understanding of the concepts of Indemnity and Guarantee.
151LW203.2	Acquire conceptual clarity about Special Contracts of Bailment and Pledge.
151LW203.3	Acquire conceptual clarity about the contract of Agency.
151LW203.4	Evaluate and Comprehend Indian Partnership Act and Limited Liability Partnerships.
151LW203.5	Understand the Sale of Goods Act with reference to a contract of Sale, its essentials, rights and duties of buyers and sellers, conditions and warranties etc.

Course Code:	151LW205
Course Title:	Jurisprudence (Legal Method, Indian Legal System & Basic Theory)
Course Outcomes:	
151LW205.1	Clear understanding of the term "Jurisprudence" and its significance in the study of law. They will also comprehend the definition of law and



	its various types, including the concepts of justice and different kinds of justice.
151LW205.2	Analyze and evaluate various schools of Jurisprudence, including Natural law school, Analytical school, Historical school, Sociological school, Realistic school, and Feminist schools. They will understand the foundational theories and perspectives of each school and their influence on legal thinking.
151LW205.3	Explore the different sources of law, including legislation, precedents (concept of stare decisis), and customs. They will understand the significance and application of each source in the Indian legal system.
151LW205.4	Gain knowledge of the concept of legal rights, including their kinds and meanings. They will also understand the concept of duty and the relationship between rights and duties. Additionally, students will explore the nature of personality, the status of different individuals (unborn, minor, lunatic, etc.),
151LW205.5	Gain an understanding of the corporate personality, possession, ownership, theories of possession and ownership, and the difference between possession and ownership and Conditions for imposing liability, including wrongful acts, strict liability, and vicarious liability. They will explore the nature and kinds of obligations, as well as the difference between being obliged and having an obligation.

Course Code	IKS
Course Title	Indian Knowledge System
Course Outcomes	
CO- IKS. 1	To understand the ancient civilization, Indian Knowledge Systems, Concept of PanchMahabhuta, Origin of name Bharat Varsha, Ancient Rivers, Ancient Universities and ancient agriculture.
CO- IKS.II	Students will have the ability to learn about ancient books, religious places, basic concept of Indian dance, music and arts, and fundamental aspects of Sangeeta and Natyashashtra etc.
CO- IKS.III	Student will be able to gain knowledge on Vedic Science, Astronomy, Astrovasu, Vedic Mathematics, Aeronautics, Metallurgy, Nakhatras, Panchang, Concept of Zero, Pi and point etc.
CO- IKS. IV	Understanding on ancient Engineering, Science and Technology, Town Planning, Temple architecture, Chemistry and Metallurgy, Metal manufacturing etc.
CO- IKS. V	Student will be able to understand about the Life, Nature and Health through basic concept of Ayurveda and Yoga, Traditional Medicinal Systems, Ethnomedicine, Nature conservation, World Heritage Sites etc.

**Semester-III**

Course Code:	151LW301
Course Title:	COMPANY LAW
Course Outcomes:	
151LW301CO1 :	Describe the basics and guiding principles of Indian corporate law.
C151LW301O2 :	Recognise and separate the key components of each business.
151LW301CO3 :	Assess and recognise the relative merits and shortcomings of each business medium.
151LW301CO4 :	Give a general summary of the parties' rights, responsibilities, obligations, and liabilities with respect to the various commercial businesses.
151LW301CO5 :	Use the information you've learned in the course to tackle actual commercial enterprise difficulties and use the information to select career paths like those in the business sector and exams like the CA, CS, business Lawyering, etc.

Course Code:	151LW302
Course Title:	LAW OF CRIMES(INDIAN PENAL CODE)
Course Outcomes:	
151LW302CO1 :	Analyze and interpret the provisions of the Indian Penal Code (IPC) and
	understand the elements of criminal liability. Students will be able to identify and apply the relevant provisions of the IPC to different situations, assess the mental state required for criminal liability, and analyze the factors that negate guilty intention.
151LW302CO2 :	Comprehend the various offenses against the human body and property as outlined in the IPC. Students will develop an understanding of offenses such as culpable homicide, murder, hurt, theft, robbery, cheating, and mischief. They will be able to distinguish between different types of offenses, evaluate the elements required for each offense, and analyze the corresponding punishments.
151LW302CO3 :	Evaluate the types of punishments available under the IPC and understand their social relevance. Students will be able to analyze the appropriateness and effectiveness of different types of punishments, including death penalty, imprisonment and forfeiture of property, fine, and the court's discretion in awarding punishment. They will also develop an understanding of the minimum punishment prescribed for certain offenses.



151LW302CO4 :	Distinctions between culpable homicide and murder, analysis of factors impacting right to private defence and comprehensive knowledge of assault and related offence.
151LW302CO5 :	Understanding the philosophical and ethical dimensions of death penalty, examining the social impact of capital punishment and comparative analysis of punitive measures.

Course Code:	151LW303
Course Title:	ENVIRONMENTAL LAW
Course Outcomes:	
151LW303CO1 :	Develop a heightened awareness of environmental issues, understanding the concept and significance of the environment and the detrimental effects of pollution on water, air, and noise. They will be equipped to recognize the importance of safeguarding the environment for sustainable development.
151LW303CO2 :	Gain a comprehensive understanding of the legal framework related to the environment, including constitutional provisions, fundamental rights, and fundamental duties concerning environmental protection. They will be
	aware of the interplay between development, property rights, and environmental conservation.
151LW303CO3 :	Familiar with key international environmental conferences, agreements, and declarations, such as the Stockholm and Rio conferences and the United Nations' declaration on the right to development. They will grasp global environmental challenges, such as the greenhouse effect and ozone depletion.
151LW303CO4 :	Learn about various measures for environmental protection, including the roles and functions of protection agencies and the significance of delegated legislation. They will understand the management of hazardous waste and biomedical waste, contributing to sustainable waste management practices.
151LW303CO5 :	Gain insights into forest and wildlife protection laws, the establishment of wildlife sanctuaries and national parks, and the symbiotic relationship with tribal communities.

Course Code:	151LW304-A
Course Title:	BANKING LAW
Course Outcomes:	
151LW304-A CO1:	Describe the concepts of Bank, types of bank and E-commerce and e-banking are new, emergent aspects of financial systems.



151LW304-A CO2:	Understand the bankers and customers relation.
151LW304-A CO3:	Deep understanding of Negotiable Instruments like cheque and bill of exchange.
151LW304-A CO4:	Describe the working of RBI.
151LW304-A CO5:	Describe the Merchant banking in India in depth.

Course Code:	151LW304-B
Course Title:	HUMAN RIGHTS LAW & PRACTICES
Course Outcomes:	
151LW304-B O1:	Describe and explore the Historical Development and concept of Human Right, Human Right in India ancient, medieval and modern concept of rights, Human Right in Western tradition, Human Right in legal tradition: International Law and National Law, UN and Human Rights, Universal Declaration of Human Rights (1980) and Covenant on political and Civil Rights (1966).
151LW304-B CO2:	Know about conventions related to various rights.
C151LW304-B O3:	Understand the Impact and Implementation of International Human Rights Norms in India.
151LW304-B CO4:	Explain human rights of women, prisoners, child, Dalits, victims, and Minorities.
151LW304-B CO5:	Describe and examine the remedies available for violation of human rights.

Course Code:	151LW304-C
Course Title:	Probation & Parole
Course Outcomes:	
151LW304-C CO1:	Describe the concept of crime, nature and scope of criminology and causation of crime.
151LW304-C CO2:	Describe the theory of punishment.
C151LW304-C	Describe the organized crime.



O3:	
151LW304-C CO4:	Deep understanding of probation
151LW304-C CO5:	Deep understanding of parole.

Course Code:	151LW305
Course Title:	PROFESSIONAL ETHICS & PROFESSIONAL ACCOUNTING SYSTEM
Course Outcomes:	
151LW305CO1 :	About their rights as advocates, as well as the corresponding obligations and restrictions and to inform them of the Bar Council of India's stances on ethical violations.
151LW305CO2 :	About Ethics of Legal Profession.
151LW305CO3 :	Aware of Punishment for Professional or Other Misconduct
151LW305CO4 :	Familiarise with the legal requirements, ethical rules, and court rulings pertaining to the practise of law.
151LW305CO5 :	Deep understanding of Meaning and Categories of Contempt of Court.

Course Code:	151LW202
Course Title:	English Language Including Legal Language & Legal Writing
Course Outcomes:	
151LW202CO1 :	Deep knowledge of communication skills like listening, reading, writing and also able to explain sentences.
151LW202CO2 :	Understand Strong and Weak verbs, Article Writing, Précis Writing and Translation.
151LW202CO3 :	Describe need and importance of legal language and use appropriate legal jargon to communicate clearly and effectively.
151LW202CO4 :	Describe the meanings of Legal Terminology and Latin expressions employ them in arguments, and use them to clarify key legal ideas and notions. When communicating on legal matters, use legal phrases, understand how they are used in different situations, and apply them.



151LW202CO5 :	Describe and explore of the legal maxims and analytically read and analyse court rulings, separating out their facts and guiding principles to determine what legal principles they (the judgments) uphold.
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Semester-IV

Course Code:	151LW401
Course Title:	ADMINISTRATIVE LAW
Course Outcomes:	
151LW401CO1 :	The students will be able to describe the concept of Administrative law and recognise, articulate, and apply the administrative law principles presented in the course.
151LW401CO2 :	Deep understanding of Delegated Legislation.
C151LW401O3 :	Through a consideration of court case law and the judicial process, the students will be able to examine and forecast how unresolved or confusing administrative law matters could be handled by the courts.
151LW401CO4 :	The student will be able to describe the words Estoppel and Waiver, Official secrets, Right to information, Lokpal, Lokayukt, Central Vigilance Commissions and Commission of inquiry.
151LW401CO5 :	Describe the Administrative Tribunals in depth.

Course Code:	151LW402
Course Title:	LAW OF CRIMES – II (CRIMINAL PROCEDURE CODE)
Course Outcomes:	
151LW402CO1 :	Differentiate between substantive and procedural criminal law.
151LW402CO2 :	Assess the Organisation, hierarchy, and operation of India's criminal courts.
151LW402O3 :	Understand the function of officials such as the police, magistrates, courts, etc.
151LW402CO4 :	Examine key terms such as "offence," "charge," "bail," "examination of witnesses," "appeals," etc.



151LW402CO5:	Outline the fundamental processes for FIRs, complaints, police reports, inquiries, searches, and seizures, among other things and Describe several trial types, including summary, warrant, and summons cases, as well as the various stages of each and also Examine the Cr.P.C.'s regulations on a wife's, children, and parent's maintenance.
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Course Code:	151LW403
Course Title:	PROPERTY LAW
Course Outcomes:	
151LW403CO1:	Understand the most basic concepts in property law, like meaning of property and Kinds of property.
151LW403CO2:	Understand the Law relating to Transfer of Property under Transfer of Property Act, 1882.
151LW403CO3:	Understand the Transfers of Immovable Properties and Movable Properties like Sale, Mortgage, Gift, Leases, Exchanges and Actionable claims.
151LW403CO4:	Understand the M.P. Accommodation Control Act 1961 and Rent Controlling Authority.
151LW403CO5:	Understand the Indian Easements Act, 1882.

Course Code:	151LW404-A
Course Title:	INSURANCE LAW
Course Outcomes:	
151LW404-A CO1:	Evaluate the growth and development of the insurance business and understand how the insurance sector operates.
151LW404-A CO2:	Evaluate the general principles of law of insurance.
151LW404-A CO3:	Deep understanding of life insurance.
151LW404-A CO4:	Describe the Marine Insurance.
C151LW404-A O5:	Describe the Social Insurance in India.



Course Code:	151LW404-B
Course Title:	GENDER JUSTICE AND FEMINIST JURISPRUDENCE
Course Outcomes:	
151LW404-B CO1:	To examine feminist and patriarchal legal systems Pre-Independence India.
151LW404-B CO2:	To examine feminist and patriarchal legal systems in Post-Independence India.
151LW404-B CO3:	To evaluate critically how men's rights and women's rights are being misused.
151LW404-B CO4:	To evaluate critically matrimonial relations and its consequences.
151LW404-B CO5:	Describe the various social welfare laws for women and non-implementation of protective labor legislation.

Course Code:	151LW404-C
Course Title:	IPR MANAGEMENT
Course Outcomes:	
151LW404-C CO1:	Identify the many categories of intellectual properties (IPs), the ownership rights, the range of protection, and the methods for producing and monetizing IP.
151LW404-C CO2:	Acknowledge the Typology of IPR.
151LW404-C CO3:	Describe the Inventor ship, Ownership, Service works.
151LW404-C CO4:	IP agreements, Invention disclosure systems assessment.
151LW404-C CO5:	Describe the precautionary measures to be taken to prevent infringement of proprietary rights in the creation of products and technologies, as well as the actions that constitute IP infringements and the remedies available to the IP owner.

Course Code:	151LW451
Course Title:	Drafting pleading & Conveyance (clinical course) and viva-voce
Course Outcomes:	



151LW451CO1 :	Be able to manage the client over the course of the engagement and analyse and describe the notion of pleading and various norms of pleading.
151LW451CO2 :	Explain the reasoning process and use legal writing skills while speaking before courts and tribunals.
151LW451CO3 :	Recognise how to use various complaints to enter the criminal justice system.
151LW451CO4 :	Describe the many types of conveyancing deeds, such as sale deeds, gifts, mortgages, etc.
151LW451CO5 :	Use your legal writing abilities and knowledge of the practical aspects of document registration.

Course Code:	151LW405
Course Title:	LAND LAWS INCLUDING TENURE AND TENANCY SYSTEM
Course Outcomes:	
151LW405CO1 :	Describe what is meant by the idea of agricultural land and apply principles from land law related to tenure holders, ownership, possession, succession, surrender, abandonment, mortgage, lease, and tenancies.
151LW405CO2 :	Know about Revenue Board and Revenue Officer also become familiar with the upkeep and updating of local records and the effects of consolidation and mutation proceedings.
151LW405CO3 :	Become familiar with the idea of Tenure Holders.
151LW405CO4 :	Gain a thorough understanding of how local governments manage land and other types of property.
151LW405CO5 :	Know about Gram Sabha , Wajib-ul-arz, Nistar Patrak, Rights in forest Easement, Exclusive Jurisdiction of Revenue Courts and Miscellaneous Provisions.

Semester-V

Course Code:	151LW501
Course Title:	Principles of Taxation Law
Course Outcomes:	
C151LW501O1:	Explore the history of tax law in India and fundamental principles relating to tax laws.



151LW501CO2:	Describe concept of tax and scope of taxing powers of Parliament, state Legislature and local bodies.
151LW501CO3:	Students would assess a person's level of total income and residential status.
151LW501CO4:	Understanding the sources of income and tax authority.
151LW501CO5:	Understanding the various tax legislation.

Course Code:	151LW502
Course Title:	CIVIL PROCEDURE CODE & LIMITATION ACT
Course Outcomes:	
151LW502CO1:	Recognise the core ideas of the Civil Procedure Code and to describe civiljurisdiction.
151LW502CO2:	Explore rule of pleadings.
151LW502CO3:	Describe the Appearance, Examination, Trial and Suit in particular cases andSuits in Particular Cases.
151LW502CO4:	Know about Appeals, Review, Reference and Revision.
151LW502CO5:	Describe limitation period of civil cases.

Course Code:	151LW503-A
Course Title:	WOMEN AND CRIMINAL LAW
Course Outcomes:	
151LW503-A CO1:	Know about crimes against women.
151LW503-A CO2:	Compare the effects of several legislation passed to protect women from harassments, molestation, sexual abuse, and rape.
C151LW503-A O3:	Aware of particular and general offences.
151LW503-A CO4:	Aware of special offending act like immoral trafficking, female foeticide, kidnapping and abduction.
151LW503-A CO5:	Examine the concerns raised by the Protection of Women from Domestic Violence Act of 2005 in relation to violence against women.



Course Code:	151LW503-B
Course Title:	LOCAL SELF GOVERNMENT INCLUDING PANCHAYET ADMINISTRATION
Course Outcomes:	
151LW503-B CO1:	Describe the concept and meaning of local self government and also explore the doctrine of distribution of power.
151LW503-B CO2:	Know about the Constitutional provisions of panchayat system.
151LW503-B CO3:	Know about all provisions of Municipalities.
C151LW503-B O4:	Examine the M.P. Panchayati Raj Act, 1993.
C151LW503-B O5:	Examine the Nagar Palika Adhiniyam.

Course Code:	151LW503-C
Course Title:	EQUITY AND TRUST
Course Outcomes:	
151LW503-C CO1:	Describe the origin and development of equity and trust.
151LW503-C CO2:	Explore the definition, nature and kinds of trust.
CO151LW503-C C 3:	Aware about right and duties of trustee.
151LW503-C CO4:	Aware about powers and liabilities of trustee.
C151LW503-C O5:	Know about Rights and Liabilities of Beneficiaries.



Course Code:	151LW504-A
Course Title:	INFORMATION TECHNOLOGY
Course Outcomes:	
151LW504-A CO1:	Describe the concept and definition of computer, digital signature and Appreciate and grasp the overall influence that information technology (IT) has had on the practise of law, as well as how this technology has given rise to new national and international legal concerns and difficulties.
151LW504-A CO2:	Know about adjudication and penalties.
151LW504-A CO3:	Explore how the customer and victim protected.
151LW504-A CO4:	Globally aware of IT law.
151LW504-A CO5:	Know about right of privacy regarding internet and media.

Course Code:	151LW504-B
Course Title:	RIGHT TO INFORMATION
Course Outcomes:	
151LW504-B CO1:	Describe and examine the theories and legal framework behind India's right to information.
151LW504-B CO2:	Identify several pieces of law that either support or restrict freedom of information and Compare India's information law provisions to those found in the USA and UK.
151LW504-B CO3:	Know about various Indian Legislations.
C151LW504-B O4:	Explore and examine the Right to Information Act, 2005.
151LW504-B CO5:	Know all about RTI and Judiciary.



Course Code:	151LW504-C
Course Title:	COMPETITION LAW
Course Outcomes:	
151LW504-C CO1:	To be able to elaborate the development of competition law and its In-depth knowledge of MRTP Act. Importance.
C151LW504-C O2:	In-depth knowledge of MRTP Act.
151LW504-C CO3:	Examine the Merger and Competition Law.
151LW504-C CO4:	Critically evaluate and examine some of the important concerns, such as how IPR laws, regulatory laws, environmental laws, and public procurement laws interact with one another.
C151LW504-C O5:	Know about Competition Authorities (Regulatory Mechanism).

Course Code:	151LW551
Course Title:	ALTERNATIVE DISPUTE RESOLUTION (CLINICAL COURSE) & VIVA-VOCE
Course Outcomes:	
151LW551CO1 :	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
151LW551CO2 :	Students will be able to explore and examine the negotiation system.
151LW551CO3 :	Students will be able to describe in-depth mediation and conciliation.
151LW551CO4 :	Students will be able to understand application of arbitration system.
151LW551CO5 :	Students will explain the Verbal communication, Nonverbal communication and Role of the Paralegal.



Course Code:	151LW505
Course Title:	INTERPRETATION OF STATUTES & PRINCIPLE OF LEGISLATION
Course Outcomes:	
151LW505CO1:	Students will be able to describe the concept and importance ADR and to improve their legal knowledge so they can assist their clients and society in choosing and using the most efficient, fair, and ethical modes of dispute resolution.
151LW505CO2:	Students will be able to explore and examine the negotiation system.
151LW505CO3:	Students will be able to understand application of arbitration system.
151LW505CO4:	Students will explain the Verbal communication Nonverbal communication and Role of the Paralegal.
151LW505CO5:	Students will explain the Verbal communication, Nonverbal communication and Role of the Paralegal.

Semester-VI

Course Code:	151LW601
Course Title:	LAW OF EVIDENCE
Course Outcomes:	
151LW601CO1:	Describe the main features of the Indian Evidence Act 1861, Applicability of Evidence Act, Administrative Tribunals, Industrial Tribunals, and Commissions of enquiry and Court- Martial.
151LW601CO2:	Define the level of proof required in both civil and criminal proceedings.
151LW601CO3:	Able to the justification for relevance of dying declarations and Relevance of judgments.
151LW601CO4:	Define the processes to be followed in the conduct of a civil or criminal trial and analyse and assess the rules regulating examination in chief, cross examination, and re-examination.
151LW601CO5:	Identify the different types of presumptions and determine the burden of proof and standard of proof in civil and criminal trials and also able to justification for Estoppel.



Course Code:	151LW602
Course Title:	PUBLIC INTERNATIONAL LAW
Course Outcomes:	
151LW602CO1 :	Students gain a thorough understanding of the sources of international law (treaties and customary international law), the subjects of international law (identifying rights and obligations of States, IOs, NGOs, and individuals), the institutional context (UN, WTO, regional agencies, etc.), and the dispute resolution framework (courts, arbitration tribunals, conciliation, as well as use of sanctions and force).
151LW602CO2 :	Students will be able to describe and define states as a subject matter in the context of International Law.
151LW602CO3 :	Ability to analyze all the necessary provisions related to state jurisdiction will develop.
151LW602CO4 :	Students will be describe to provisions related to state and individuals.
151LW602CO5 :	Students Know about The United Nations Organization.

Course Code:	151LW603-A
Course Title:	DIRECT TAXATION
Course Outcomes:	
151LW603-A CO1:	Understand the historical development of Income Tax Law in India also able to explore the specific word used in taxation like Assessee, Assessment year, previous year, Agricultural income, income and person.
151LW603-A CO2:	Recognizing the position of people and industry.
151LW603-A CO3:	Calculation of capital gains and income from other sources.
151LW603-A CO4:	Calculate the Income of other persons included in assessee_s total income.
151LW603-A CO5:	Able to understand Search and Seizure, Procedure for assessment, Appeals and Revision.



Course Code:	151LW603-B
Course Title:	CIVIL SOCIETY & PUBLIC GRIEVANCE
Course Outcomes:	
151LW603-B CO1:	Learn about the idea of civil society that is prevalent in India.
151LW603-B CO2:	Learn about Public Grievances.
151LW603-B CO3:	Well informed about civil society, its grievances, and its remedy systems.
151LW603-B CO4:	Know about role of NGO_s.
151LW603-B CO5:	Examine the recent issues related to civil society in India.

Course Code:	151LW603-C
Course Title:	BIO DIVERSITY PROTECTION
Course Outcomes:	
151LW603-C	To comprehend the significance of biodiversity and its conservation for socially sustainable development
151LW603-C CO2:	To comprehend the fundamental ideas and ideologies guiding biodiversity and to examine how national biodiversity authority and policy have evolved.
151LW603-C CO3:	To examine the constitutional stances on protecting biodiversity.
151LW603-C CO4:	To examine National Bio Diversity Fund.
151LW603-C CO5:	To know about the develop National strategies plans for conservation of Bio Diversity, Bio Diversity Management Committees, NBDA to be bound by the instruction of Central Government, Power of State to give direction, Settlement of Dispute between State Bio Diversity Board and nature of office of members of NBDA, Appeals, Cognizance of offence and non-boilable offences.



Course Code:	151LW604-A
Course Title:	INDIRECT TAXATION
Course Outcomes:	
151LW604-A CO1:	To describe and define the concept of VAT and its importance.
151LW604-A CO2:	To define words associated with the Goods and Services Tax (GST) and know about application of GST.
151LW604-A CO3:	To talk about the Important Definitions- Business, Capital Goods, Export and Import of Goods, Goods and Services. Classes of Officers under the Central goods and Services Tax Act (CGTST Act) and States Goods and Services Tax Act, their appointments and powers.
151LW604-A CO4:	Students would comprehend the distinction between composite and mixed supply as well as the distinction between forward charge and reverse charge mechanisms and also talk about the importance, timing, and location of supplies and know about the content and structure of numerous papers, such as tax invoices, bills of supply, debit notes, and credit notes, among others, will be discussed by the students
151LW604-A CO5:	To describe Custom Duty, types of custom Duties, Powers of Customs Officers, Power to Inspect, Power to X-ray bodies, Power of Search, Power of Seizure, Power to call for documents and examine a person, Power to summons, Power to arrest Penalty.

Course Code:	151LW604-B
Course Title:	LAW ON EDUCATION
Course Outcomes:	
151LW604-B	To describe the Constitutional provisions related to education.
151LW604-B	To know about Right to Education, Fundamental Right to education for children below 14 years and Preamble and Right to Education.
151LW604-B	To explore Articles 14, 15, 16, 21, 29(2) 41 and 45 of the Constitution of India.
151LW604-B	To understand the minority and law.
151LW604-B	To know all about Dispute Settlement Mechanism for Educational Institution.



Course Code:	151LW604-C
Course Title:	Offences Against Child and Juvenile
Course Outcomes:	
151LW604-C CO1:	Define concepts of term child, Juvenile and Causes of offence against child.
151LW604-C CO2:	Describe Offences against Child.
151LW604-C CO3:	Deep understanding of relationship between child and society.
151LW604-C CO4:	Understand to Protection of Child and Juveniles under various legislations.
151LW604-C CO5:	Understand to nature and causes of Juvenile Delinquency.

Course Code:	151LW605
Course Title:	Moot Court Practices & Viva-Voce
Course Outcomes:	
151LW605CO1	Students will be able to define, discuss the historical context, and explain the significance of moot court in legal education.
151LW605CO2	Students will develop the ability to structure and organize a moot court brief effectively, adhering to competition-specific guidelines and requirements.
151LW605CO3	Students will master techniques for effective communication in oral arguments, including delivery, tone, and maintaining a strong courtroom presence.
151LW605CO4	Students will employ advanced advocacy techniques, including persuasive tactics, rhetorical devices, and storytelling, while responding adeptly to challenging questions and adapting their style to various moot court scenarios.
151LW605CO5	Students will engage in individual and team reflection on their performance, identifying strengths and areas for improvement. They will develop strategies for ongoing skill development and preparation for future moot court competitions.



Faculty of Medical Science



Department of Paramedical Science



Programme:

Bachelor of medical laboratory Technology BMLT

Year-I

Course Code:	124BML01/ 124BML01.1
Course Title:	Basic histology (Human Anatomy & Physiology)
Course Outcomes:	
124BML01.1	Find how to extend the basic concepts of Basic Histology (Anatomy & Physiology)
124BML01.2	Apply concepts in Respiratory system, Cardiovascular system viii) Alimentary system, mechanism and physiology of digestion and absorption, Liver structure.
124BML01.3	Learn the concepts of Urinary system, Male genital system, Female genitalsystem.
124BML01.4	Recall the concepts of Nervous system, Spleen, lymph node and R.E. system, Endocrine glands and their functions.
124BML01.5	Relate the basic idea of Fundamentals of applied histology.

Course Code:	124BML02/ 124BML02.1
Course Title:	Microbiology - I
Course Outcomes:	
124BML02.1	Find how to extend the introduction and history of microbiology, bacterial nutritionand growth, care ad handling of instrument and about sterilization.
124BML02.2	Apply concepts in antiseptic disinfectant, handling of glassware preparation ofculture media, antigen antibody reaction.
124BML02.3	Learn the concepts of sample processing and transportation, laboratory organization management result and quality control of Microbiology.
124BML02.4	Recall the concepts of virus and its classification collection transportationprocessing and diagnosis of viral sample.
124BML02.1	Relate the basic idea of Parasite E. Histolytic, G. Labial. M.parasite, A. Lumb., T. Vaganilis, E. Vericularis, Ancylostoma, Stronglyoides, diagnosis.

Course Code:	124BML03/ 124BML03.1
Course Title:	Biochemistry - I
Course Outcomes:	
124BML03.1	Find how to extend the Instructions of Medical Laboratories. About Ethics andEthical Process in the Laboratories and Ethics Regarding Lab



	Technologist.
124BML03.2	Apply concepts in Cleaning and care of general laboratory glassware and equipment, preparation and storage of distilled water analytical balance, preparation of reagents and standard solutions, storage of chemicals.
124BML03.3	Learn the concepts of Collection and recording of biological specimens separation of serum plasma, preservation and disposal of biological samples material. Basic statistics (mean, SD, CV, normal distribution, probability).
124BML03.4	Recall the concepts of Urine analysis (qualitative) for sugar, proteins bile pigments, ketone bodies, porpholinogen, faecal of blood.
124BML03.5	Relate the basic idea of Radioisotopes and their use in Biochemistry, mole, molar and normal solutions, pH, buffer solutions, pH and pH measurement, Osmosis, dialysis, surface tension.

Course Code:	124BML04/ 124BML04.1
Course Title:	Hematology- I
Course Outcomes:	
124BML04.1	Find how to extend the Instructions about hematology and their instrument, composition and formation of blood and anticoagulant.
124BML04.2	Apply concepts in Collection & preservation of blood for various hematological investigations. Physiological variations in Hb, PCV, TLC and platelet. Normal and absolute values in hematology. Quality assurance in hematology
124BML04.3	Learn the concepts of Haemoglobinometry, various methods of estimation of Hb, errors involved and standardization of instrument for adaptation for Hb estimation. Hemocytometry, procedures for cell counts visual as well as electronic, red cell, leucocytes and platelet counts.
124BML04.4	Recall the concepts of an error involved and means to minimize such errors. Romanowsky dyes, preparation and staining procedure of the blood smears. Morphology of normal blood cells and their identification. Erythrocyte sedimentation rate, factors influencing and various procedures for its estimation with their significance.
124BML04.5	Relate the basic idea of Haemocrit value by macro and micro methods their merit and demerits. Routine examination of urine. Examination of biological fluids such as CSF, etc. Examination of semen.



Year-II

Course Code:	124BML21/ 124BML21.1
Course Title:	Histology
Course Outcomes:	
124BML21.1	Find how to extend the various body tissue epithelial tissue connective tissue nervous tissue muscular tissue gland and endocrine glands.
124BML21.2	Apply concepts in histological study of various system circulatory system reproductive system urinary, alimentary,
124BML21.3	Learn the concepts of microscopy, working principle, maintenance and application of various types of microscope Dark ground, Polarizing, Phase contrast, Interference, UV Micrometry.
124BML21.4	Recall the concepts of Acquire Knowledge about dyes Haematoxylene its importance in histology–special stains procedures Principle of metal impregnation techniques. Demonstration and identification of mineral pigments
124BML21.5	Relate the basic idea of about Stain cytologic preparation with special emphasis of MGG, PAP, PAS, mucicarmine , alcian blue ,schmorl and acid phosphates Cytologic screening and quality control in cytology laboratory

Course Code:	124BML22/ 124BML22.1
Course Title:	Microbiology- II
Course Outcomes:	
124BML22.1	Find how to extend the various Instrument and culture media in microbiology Laboratory.
124BML22.2	Apply concepts in virology study. Laboratory diagnosis of virus.
124BML22.3	Learn the concepts of Identification of bacteria, pathogenesis and lab diagnosis
124BML22.4	Recall the concepts of Pathogenic and non pathogenic Fungi Study morphology, species, pathogenesis and lab diagnosis.
124BML22.5	Relate the basic idea of Morphology, Life cycle and Lab diagnosis of custodies ,Nematodes etc.



Course Code:	124BML23/ 124BML23.1
Course Title:	Biochemistry-II
Course Outcomes:	
124BML23.1	Find how to extend the basic concepts of properties and simple metabolism of carbohydrates, protein, fats, nucleic Acid and enzymes, Study Of Colorimeter, Study of spectrophotometer, Study of flame photometer, Study of Gel Electrophoresis, Study of pH meter Determine the pKa value of acetic acid.
124BML23.2	Apply concepts in Digestion and absorption Of Nutrition (vitamin and calories), Electrometric determination of Na ⁺ and K ⁺ + Chromatography and electrophoresis, Atomic absorption spectroscopy, Radioimmunoassay (RIA) and ELISA
124BML23.3	Learn the concepts of Estimation of sugar by DNS method. . To extract invertase enzyme from solanum tuberosum (patato). Estimation of protein by lawry's method. Protein by DNS method for determining the invertase activity.
124BML23.4	Recall the concepts of Preparation of benedict's qualitative reagent. Estimation of (SGPT & ALT). SGOT. Plot a standard graph of SGOT, SGPT. Determination of ACP To plot a standard graph of ACP, Determination of serum amylase.
124BML23.5	Relate the basic idea of Radioisotopes and their use in Biochemistry, mole, molar and normal solutions, pH, buffer solutions, pH and pH measurement, Osmosis, dialysis, surface tension.

Course Code:	124BML24/ 124BML24.1
Course Title:	Hematology-II
Course Outcomes:	
124BML24.1	Find how to extend the basic concepts of introduction and history of Fundamental of Hematology
124BML24.2	Apply concepts in regarding Laboratory investigation of transfusion reaction and mismatched transfusion.
124BML24.3	Learn the concepts of Abnormal haemoglobin and their mean of identification and estimation.
124BML24.4	Recall the concepts of Acquire Knowledge of Lupus Erythematosus (LE cell) phenomenon and Various method of its demonstration.

**Year-III**

Course Code:	124BML31/ 124BML31.1
Course Title:	Applied Histopathology
Course Outcomes:	
124BML31.1	Find how to extend the Handling of fresh histological specimen, cryo/frozen section of fresh and fixed tissue, freeze drying Lipid identification and demonstration Micro-organism in the tissue-various staining techniques for their demonstration and identification Nucleic acid, DNA and RNA special stains and procedures.
124BML31.2	Apply concepts in the Cytoplasm constituent and their demonstration Tissue requiring special treatment i.e. eye ball, biopsy, under calcified bones. Neuropathology techniques Enzyme histochemistry demonstration of phosphatase, dehydrogenase, oxidase and peroxidase etc, Electron microscope , their working component and allied techniques for electron microscopy.
124BML31.3	Learn the concepts of Ultra microtomy Museum technique. Cervical cytology basis of detection of malignant and pre malignant lesions. Hormonal assessment with cytological techniques and sex chromatin and pregnancy test.
124BML31.4	Recall the concepts of Aspiration cytology principles, indications and utility of technician in FNAC clinics. Cells and organs of immune systems Immunoglobulin's antibodies and humoral immune response. Allergy.
124BML31.5	Relate the basic idea of rheumatological diseases and investigations. Infection and the immune system. Cancer immunology. Tissue typing for kidney transplant.

Course Code:	124BML32/ 124BML32.1
Course Title:	Microbiology-III
Course Outcomes:	
124BML32.1	Find how to extend the introduction preservation of microbes and lyophilisation method, Bacteriological Examination of water, milk, food and air, Testing of disinfectant Riedel walker and chick martin.
124BML32.2	Apply concepts Introduction of Toxin-Antitoxin, Preparation of antitoxin. Laboratory diagnosis of common.
124BML32.3	Learn the concepts of Pathogenesis and Laboratory diagnosis of fungal infection.
124BML32.4	Recall the concepts of principle of serology technique use in virology and its classification collection transportation processing and diagnosis of viral sample.
124BML32.5	Relate the basic idea Laboratory diagnosis of Parasite E. Histolytica, G.Lambila. Malaria parasite, T. Vaganilis, diagnosis.



Course Code:	124BML33/ 124BML33.1
Course Title:	Biochemistry- III
Course Outcomes:	
124BML33.1	Find how to extend the Principle for assay procedure for biological material.Total protein, Totalalbumin, Glucose, Urea, Uricacid, Creatinine, Cholesterol, Bilirubin, Sodium. Potas sium, Chloride, Calcium, Inorganic Phosphates ,PBD 17 Ketosterious, Barbiturates
124BML33.2	Apply concepts in the Glucose tolerance test, Insulin tolerance test gastric analysis, Xylems absorption test , Clearance test for renal function.
124BML33.3	Learn the concepts of Enzyme-acid and alkaline phosphatase, AST , ALT , Amylase lactate dehydrogenase ,CP
124BML33.4	Recall the concepts of Analysis of calculi and CSF ,Quality control of clinicalinvestigations , Automation in clinical biochemistry laboratory
124BML33.5	Relate the basic idea of Laboratory organizations ,Management and maintenance of records.

Course Code:	124BML34/ 124BML34.1
Course Title:	Hematology- III
Course Outcomes:	
124BML34.1	Find how to extend classification of Anemia's. Laboratory investigations of megaloblasticanemia Laboratory investigations of iron deficiency anemia.
124BML34.2	Apply concepts in the Laboratory investigations of haemolytic anaemia including classification and causes. Leukaemia :-definition and classification Cytochemical staining procedures in various haemopioetic disorder. Laboratory test for assessing bleedingdisorder.
124BML34.3	Learn the concepts of Laboratory investigation for disseminated intravascular coagulationMechanism of fibrinolysis.
124BML34.4	Recall the concepts of Platelets function test and their interpretation. Techniques availablefor cytogenetic studies Test for fibrinolysis.
124BML34.5	Relate the basic idea of radio-isotopes in hematology. Safety measures for handling radio-isotopes.



Course Code:	124BML35/ 124BML35.1
Course Title:	Instrumentation
Course Outcomes:	
124BML35.1	Find how to extend introduction and history of There will be institutional examination/practical demonstrations of following instruments and procedures.
124BML35.2	Apply concepts in the Understands introduction and history of There will be institutionalexamination practical demonstrations procedures.
124BML35.3	Learn the concepts of sample processing and transportation, laboratory organizationmanagement result and quality control of Microbiology.
124BML35.4	Recall the concepts of There will be institutional examination/practical demonstrations of following instruments and procedures.
124BML35.5	Relate the basic idea of examination/practical demonstrations of following instrumentsand procedures.



Programme: Bachelor of physiotherapy BPTH

**Year -I**

Course Code:	122BPT01
Course Title:	Human anatomy
Course Outcomes:	
122BPT01.1	Find how to extend the basic concepts of gross anatomy of various body.
122BPT01.2	Apply concepts regarding the types of upper extremity and thorax.
122BPT01.3	Learn the basic concepts of lower extremity pelvis urinary system genital system ,endocrine system
122BPT01.4	Recall the basic concepts of the renal system, digestive system, nerve muscle and synaptic & junction transmission
122BPT01.5	Relate the basic idea of nervous system

Course Code:	122BPT02
Course Title:	Human physiology
Course Outcomes:	
122BPT02.1	Find how to extend the basic concepts of general physiology, blood, skin and bodytemperature regulation
122BPT02.2	Apply concepts regarding the types of cardio vascular system, cardio-respiratory adjustments in health & disease, exercise physiology
122BPT02.3	Learn the basic concepts of the types of respiratory system, endocrine, reproductive system
122BPT02.4	Recall the basic concepts of the renal system, digestive system, nerve – muscle and synaptic & junction transmission
122BPT02.5	Relate the basic idea of the types of respiratory system, endocrine, reproductive system



Course Code:	122BPT03
Course Title:	Fundamental of physics, Biomechanics Biomechanical Modalities
Course Outcomes:	
122BPT03.1	Find how to extend the basic concepts of fundamentals of physics, biomechanics & exercise therapy
122BPT03.2	Apply concepts regarding the gravity , equilibrium , function classification of lever, pulley system and elasticity
122BPT03.3	Learn the basic concepts of Elasticity - ,Springs, biomechanical modalities,. Normal Posture
122BPT03.4	Recall the basic concepts of the movements and exercise as therapeutic modality and their effects, physiological reaction of exercise
122BPT03.5	Relate the basic idea of Starting positions , muscle work, Importance of fundamental and derived types, Effects and uses of individual positions , Soft tissue manipulation

Course Code:	122BPT04
Course Title:	Fundamental of medical electronics and Principle of Bioelectrical modalities
Course Outcomes:	
122BPT04.1	Find how to extend the basic concepts fundamentals of physics, biomechanics & exercise therapy
122BPT04.2	Relate the basic idea of starting positions , muscle work, importance of fundamental and derived types, effects and uses of individual positions , soft tissue manipulation
122BPT04.3	Learn the basic concepts of elasticity - springs, biomechanical modalities,. Normal posture
122BPT04.4	Recall the basic concepts of movements and exercise as therapeutic modality and their effects, physiological reaction of exercise exercise
122BPT04.5	Relate the basic idea of starting positions , muscle work, importance of fundamental and derived types, effects and uses of individual positions , soft tissue manipulation



Course Code:	122BPT05
Course Title:	Psychology and sociology
Course Outcomes:	
122BPT05.1	Find how to introduce and scope of psychology, field of application and influence of heredity, and about in psychology
122BPT05.2	Apply concepts of regarding emotion, attitudes and behavior factors in attitude changes, personality theories and factor influencing personality
122BPT05.3	Learn the basic concepts of communication, emotional and behavior disorders of childhood, mental deficiency, anxiety disorders
122BPT05.4	Recall the basic concepts of sociology and social factors in health and disease, socialization, social groups and family
122BPT05.5	Relate the basic idea of culture and health, social change, social problems of disabled and social security

Year -II

Course Code:	122BPT21
Course Title:	Pathology and Microbiology
Course Outcomes:	
122BPT21.1	Find how to introduce and scope of psychology, field of application and influence of heredity, and about in psychology
122BPT21.2	Apply concepts regarding the brief description of vascular disturbance, blood disorder, neoplastic, respiratory disease and cardiovascular system
122BPT21.3	Learn the basic concepts of brief description alimentary system, CNS and PNS musculoskeletal system, muscle, urinary system, prostate, endocrine, salivary gland
122BPT21.4	Recall the basic concepts of the general microbiology
122BPT21.5	Relate the basic idea of systemic microbiology

Course Code:	122BPT22
Course Title:	Biochemistry and pharmacology
Course Outcomes:	
122BPT21.1	Find how to extend the basic concepts of the basic biophysics and general biochemistry
122BPT21.2	Apply concepts the biomedical functions, bioenergetics
122BPT21.3	Learn the basic concepts of general metabolism, water and electrolyte balance



122BPT21.4	Recall the basic concepts of the general pharmacology alcohols, analgesics , antipyretics, sedatives, stimulants, drugs acting on muscles , anti-parkinsonism agent, drugs modifying b.p , hyperlipidemia, anticoagulant, thyroxin , anti thyroid drugs
122BPT21.5	Relate the basic idea of the types of general pharmacology of anti-diabetics, glucocorticoids, calcium, phosphorus, calcitonin and parathormone, antibiotics,.anti-cancer drugs, drugs acting on respiratory systems, vitamins, ovarian hormones, locally acting drugs

Course Code:	122BPT23
Course Title:	Medicine including pediatrics and geriatrics
Course Outcomes:	
122BPT23.1	Find how to extend the introduction o f infections, diseases of blood diseases of liver GIT diseases
122BPT23.2	Apply concepts the renal disease, nutritional and metabolic disease, disease of bones and joints.
122BPT23.3	Learn the basic concepts of the common dermatological , geriatrics disease and radiological examination
122BPT23.4	Recall the basic concepts of bone and joints
122BPT23.5	Relate the basic idea of regarding pediatrics condition

Course Code:	122BPT24
Course Title:	General surgery obstetrics and gynecology
Course Outcomes:	
122BPT23.1	Find how to extend acquire knowledge regarding the introduction of general surgery
122BPT23.2	Apply concepts the regarding the abdominal surgery ,burns, plastic Surgery
122BPT23.3	Learn the basic concepts of the common ophthalmology and e.n.t. condition and its management
122BPT23.4	Recall the basic concepts of obstetrics conditions and management
122BPT23.5	Relate the basic idea of gynecology condition and management

Course Code:	122BPT25
Course Title:	Exercise therapy
Course Outcomes:	
122BPT25.1	Find how to extend introduction to exercise therapy, classification of movements



122BPT25.2	Apply concepts the the the relaxed passive movement- . Muscle strength strengthening technique, endurance training, therapeutic gymnasium. Joint movement-. Accessory movements- glides, traction and approximation, mobilization of peripheral, spinal joints,
122BPT25.3	Learn the basic concepts of the the goniometry:-. Passive stretching-. Relaxation: neuromuscular coordination and p.n.f : co-ordination: lmn & umnl, pnf and frenkel's exercise
122BPT25.4	Recall the basic concepts of the suspension therapy:.. Hydrostatics and hydrodynamics: hydrotherapy : soft tissue manipulations. Gait analysis, pathological gaits, gait training.
22BPT25.5	Relate the basic idea of the starting positions - soft tissue manipulation

Course Code:	122BPT26
Course Title:	Electrotherapy
Course Outcomes:	
122BPT26.1	Find how to extend introduction of nerve muscle physiology faradic current galvanic current and tens
122BPT26.2	Apply concepts the medium --frequency currents bio feedback , advanced electrotherapy
122BPT26.3	Learn the basic concepts of high frequency current, short wave diathermy, microwave therapy, ultrasonic therapy.
122BPT26.4	Recall the basic concepts of action therapy infra-red ultraviolet radiation laser
122BPT26.5	Relate the basic idea of the thermal therapy modalities

Year -III

Course Code:	122BPT31
Course Title:	Neurology including Psychiatry and Neurosurgery
Course Outcomes:	
122BPT31.1	Find how to extend the nervous system & brief description of headache, migraine, raised ICP
122BPT31.2	Apply concepts the type of convulsive disorder, development and degenerative syndrome
122BPT31.3	Learn the basic concepts of the Psychiatry
122BPT31.4	Recall the basic concepts of the neurosurgery
122BPT31.5	Relate the basic idea of the introduction of spinal cord, peripheral nerve and infection of brain and spinal cord



Course Code:	122BPT32
Course Title:	Orthopedics
Course Outcomes:	
122BPT32.1	Find how to extend the introduction of orthopedics .
122BPT32.2	Apply concepts regarding the congenital developmental neuromuscular and spinal disorder
122BPT32.3	Learn the basic concepts of the neuro vascular disease and nerve injuries
122BPT32.4	Recall the basic concepts of the lower limb, clinical evaluation and conservative management
122BPT32.5	Relate the basic idea of the inflammatory and degenerative condition , amputation.

Course Code:	122BPT33
Course Title:	Applied Biomechanics and Kinesiology
Course Outcomes:	
122BPT33.1	Find how to introduce and scope of psychology, field of application and influence of heredity, and about in psychology
122BPT33.2	Apply concepts regarding the brief description of vascular disturbance, blood disorder, neoplastic, respiratory disease and cardiovascular system
122BPT33.3	Learn the basic concepts of brief description alimentary system, CNS and PNS musculoskeletal system, muscle, urinary system, prostate, endocrine, salivary gland
122BPT33.4	Recall the basic concepts of the general microbiology
122BPT33.5	Relate the basic idea of systemic microbiology

Course Code:	122BPT34
Course Title:	Physiotherapeutic in Neurology and Neurosurgery
Course Outcomes:	
122BPT34.1	Find how to introduce and scope of psychology, field of application and influence of heredity, and about in psychology
122BPT34.2	Apply concepts regarding the brief description of vascular disturbance, blood disorder, neoplastic, respiratory disease and cardiovascular system
122BPT34.3	Learn the basic concepts of brief description alimentary system, CNS and PNS musculoskeletal system, muscle, urinary system, prostate, endocrine, salivary gland
122BPT34.4	Recall the basic concepts of the general microbiology
122BPT34.5	Relate the basic idea of systemic microbiology



Course Code:	122BPT35
Course Title:	Physiotherapeutic in Orthopedic Condition
Course Outcomes:	
122BPT35.1	Find how to introduce and scope of psychology, field of application and influence of heredity, and about in psychology
122BPT35.2	Apply concepts regarding the brief description of vascular disturbance, blood disorder, neoplastic, respiratory disease and cardiovascular system
122BPT35.3	Learn the basic concepts of brief description alimentary system, CNS and PNS musculoskeletal system, muscle, urinary system, prostate, endocrine, salivary gland
122BPT35.4	Recall the basic concepts of the general microbiology
122BPT35.5	Relate the basic idea of systemic microbiology

Course Code:	122BPT36
Course Title:	Physical evaluation diagnosis and prescription
Course Outcomes:	
122BPT36.1	Find how to introduce general principles of human development & maturation
122BPT36.2	Apply concepts regarding the electro diagnosis therapeutic current as a tool for electro diagnosis.
122BPT36.3	Learn the basic concepts of the assessment of neurological dysfunction and interpretation of electro diagnostic findings.
122BPT36.4	Recall the basic concepts the assessment of musculoskeletal dysfunction
122BPT36.5	Relate the basic idea of cardiopulmonary, posture, pelvic floor muscle strength, obesity.



Year –IV

Course Code:	122BPT41
Course Title:	Community PT Rehabilitation and Disability Prevention
Course Outcomes:	
122BPT41.1	Find how to introduce general introduction of community PT
122BPT41.2	Apply concepts regarding the general introduction of community medicine
122BPT41.3	Learn the basic concepts of the community PT rehabilitation and disability prevention theory.
122BPT41.4	Recall the basic concepts the general introduction of occupational therapy , CBR, health care delivery system
122BPT41.5	Relate the basic idea of the orthotic and prosthetic

Course Code:	122BPT42
Course Title:	Research methodology & Biostatistics
Course Outcomes:	
122BPT42.1	Find how to introduce of research methodology and research problem
122BPT42.2	Apply concepts regarding the research design , measurement and scaling technique
122BPT42.3	Learn the basic concepts of the data collection and computer technology
122BPT42.4	Recall the basic concepts the introduction of biostatistics
122BPT42.5	Relate the basic idea of correlation , regression ,hypothesis, annova and sampling

Course Code:	122BPT43
Course Title:	Cardiothoracic disease and surgeries
Course Outcomes:	
122BPT43.1	Find how to introduce of cardiothoracic disease
122BPT43.2	Apply concepts regarding the respiratory disease including disease of chest wall
122BPT43.3	Learn the basic concepts of the cardiothoracic surgery
122BPT43.4	Recall the basic concepts the of thoracic surgery.
122BPT43.5	Relate the basic idea of thoracic surgery and medical management



Course Code:	122BPT44
Course Title:	Physiotherapeutic in general & cardiothoracic condition
Course Outcomes:	
122BPT44.1	Find how to introduce the anatomical, physiological, assessment, investigations, tests, physiotherapy techniques of pulmonary system
122BPT44.2	Apply concepts regarding the physiotherapy techniques, drug therapy, management of wound ulcers, management of wound ulcers, neonatal and pediatric physiotherapy
122BPT44.3	Learn the basic concepts of the physiotherapy management of obstructive lung conditions, restrictive lung conditions, breathlessness, pulmonary rehabilitation, lung surgeries
122BPT44.4	Recall the basic concepts the management of respiratory failure, burns, cardiac surgeries, peripheral vascular disease, abdominal surgeries.
122BPT44.5	Relate the basic idea of physiotherapy management of amputations, medical, surgical and radiation oncology, obstetrics, hypertension, diabetes, renal failure and obesity, geriatrics

Course Code:	122BPT45
Course Title:	Sports Physiotherapy
Course Outcomes:	
122BPT45.1	Find how to introduce of sports physiotherapy.
122BPT45.2	Apply concepts regarding the physiological effect of exercise, principle of training and injury prevention
122BPT45.3	Learn the basic concepts of the physiotherapy management of sports injuries
122BPT45.4	Recall the basic concepts the renal system, digestive system, nerve muscle and synaptic & junction transmission
122BPT45.5	Relate the basic idea of physiotherapy management of special age group sports injuries



Course Code:	122BPT46
Course Title:	PT Ethics management and Administration
Course Outcomes:	
122BPT46.1	Find how to introduce the introduction pt ethics
122BPT46.2	Apply concepts regarding the rules of professional conduct and ethical principles,
122BPT46.3	Learn the basic concepts of the health care management and administration
122BPT46.4	Recall the basic concepts the health care planning and administration
122BPT46.5	Relate the basic idea of care organization ,information technology


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