



VISION: OUR EDUCATION, OUR FUTURE

PAYYANUR COLLEGE, PAYYANUR

Affiliated to Kannur University; Re-accredited by NAAC with B+ Grade
P.O. Edat, Kannur Dt., Kerala, India - 670327

Email: payyanurcollege@rediffmail.com; Tel: 0497 2805521

Website: <https://payyanurcollege.ac.in>

POs, PSOs & COs



**Programme Outcomes (POs),
Programme Specific Outcomes (PSOs) &
Course Outcomes (COs)**

PAYYANUR COLLEGE

BSc DEGREE PROGRAMME (FOR SCIENCE)

PROGRAMME OUTCOMES (PO)

PO1. Critical Thinking:

- 1.1. Acquire the ability to apply the basic tenets of logic and science to thoughts, actions and interventions.
- 1.2. Develop the ability to chart out a progressive direction for actions and interventions by learning to recognize the presence of hegemonic ideology within certain dominant notions.
- 1.3. Develop self-critical abilities and also the ability to view positions, problems and social issues from plural perspectives.

PO2. Effective Citizenship:

- 2.1. Learn to participate in nation building by adhering to the principles of sovereignty of the nation, socialism, secularism, democracy and the values that guide a republic.
- 2.2. Develop and practice gender sensitive attitudes, environmental awareness, empathetic social awareness about various kinds of marginalization and the ability to understand and resist various kinds of discriminations.
- 2.3. Internalize certain highlights of the nation and region history. Especially of the freedom movement, the renaissance within native societies and the project of modernization of the post-colonial society.

PO3. Effective Communication:

- 3.1. Acquire the ability to speak, write, read and listen clearly in person and through electronic media in both English and in one Modern Indian Language
- 3.2. Learn to articulate, analyze, synthesize, and evaluate ideas and situations in a well-informed manner.
- 3.3. Generate hypotheses and articulate assent or dissent by employing both reason and creative thinking.

PO4. Interdisciplinarity:

- 4.1. Perceive knowledge as an organic, comprehensive, interrelated and integrated faculty of the human mind.
- 4.2. Understand the issues of environmental contexts and sustainable development as a basic interdisciplinary concern of all disciplines.
- 4.3. Develop aesthetic, social, humanistic and artistic sensibilities for problem solving and evolving a comprehensive perspective.



Name of the Programme: **BSc CHEMISTRY**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand the fundamental concepts, principles and processes underlying the academic field of chemistry, its different subfields (analytical, inorganic, organic and physical), and its linkages with related disciplinary areas/subjects.

PSO2.

Demonstrate procedural knowledge that creates different types of professionals in the field of chemistry and related fields such as pharmaceuticals, chemical industry, teaching, research, environmental monitoring, product quality, consumer goods industry, food products, cosmetics industry, etc.

PSO3.

Employ critical thinking and the scientific method to design, carry out, record and analyze the results of chemical experiments and get an awareness of the impact of chemistry on the environment and the society.

PSO4.

Use chemical techniques relevant to academia and industry, generic skills and global competencies, including knowledge and skills that enable students to undertake further studies in the field of chemistry or a related field, and work in the chemical and non-chemical industry sectors.

PSO5.

Undertake hands on lab work and practical activities which develop problem solving abilities required for successful career in pharmaceuticals, chemical industry, teaching, research, environmental monitoring, product quality, consumer goods industry, food products, cosmetics industry, etc.

PSO6.

Understand safety of chemicals, transfer and measurement of chemical, preparation of solutions, and find out the green route for chemical reaction for sustainable development.

PSO7.

Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01CHE: THEORETICAL & INORGANIC CHEMISTRY	<p>CO1: Correlate the structure and behavior of atom.</p> <p>CO2: Differentiate the various chemical interactions in molecules through bonding concepts.</p> <p>CO3: Analyze and interpret the gradation in the properties of elements in the periodic table.</p> <p>CO4: Predict the nuclear transmutations.</p> <p>CO5: Identify the role of radioactive materials in different applications.</p>
2.	2B03CHE: ANALYTICAL & INORGANIC CHEMISTRY – I	<p>CO1: Determine the error, standard deviation and relative standard deviation of analytical data.</p> <p>CO2: Understand statistical treatment of analytical data and the principles underlying volumetric titrations.</p> <p>CO3: Understand basic principles behind selective precipitation of cation.</p> <p>CO4: Summarize the characteristics of s- and p- block elements.</p> <p>CO5: Compare the various concepts of acids and bases.</p>
3.	3B04CHE/PCH: ORGANIC CHEMISTRY – I	<p>CO1: Explain the types of electron displacement in organic molecules and predict the properties of molecules based on electron displacement effect.</p> <p>CO2: Distinguish aromatic, anti-aromatic and nonaromatic compounds and ions and analyze the mechanistic details of aromatic electrophilic substitution.</p> <p>CO3: Classify stereo isomers, understand the property of chirality, apply CIP rules to recognize the configuration and explain the stability of conformations drawing energy profile diagram.</p> <p>CO4: Explain the mechanism of polymerization, synthesis and application of industrially important Polymers.</p> <p>CO5: Explain the classification and the methods of preparation of important dyes.</p> <p>CO6: Illustrate the preparative methods and synthetic applications of important synthetic Reagents.</p>
4.	4B06CHE/PCH: ORGANIC CHEMISTRY – II	<p>CO1: Describe mechanisms for substitution and elimination reactions, and predict the effect of nucleophile, leaving group, and solvent on the relative rates of SN1 versus SN2 reactions, and E1 versus E2</p>

		<p>reactions, as well as on the relative rates of substitution versus elimination.</p> <p>CO2: Explain Chugaev and Cope eliminations and E1CB mechanism.</p> <p>CO3: Illustrate the preparative methods and important properties of Hydrocarbons, halogen compounds, Hydroxy compounds and Carbonyl Compounds.</p> <p>CO4: Explain the mechanism of important name reactions including rearrangements involving hydroxyl and Carbonyl functional groups.</p>
5.	5B07CHE/PCH: ANALYTICAL AND INORGANIC CHEMISTRY-II	<p>CO1: Understand the qualitative and quantitative aspects of analysis and separation techniques</p> <p>CO2: Explain instrumentation and working principle of different analytical techniques – TGA, DTA and radio chemical method of analysis.</p> <p>CO3: Familiarize with the preparation, properties and uses of some inorganic compounds like hydrides of boron, sulphur and silicon based inorganic polymers and understand their importance.</p> <p>CO4: Explain the classification of refractories.</p> <p>CO5: Know the position, electronic configuration and physical properties of noble gases and explain hybridization and geometry of different xenon compounds.</p> <p>CO6: Explain various steps involved in metallurgical operations and power metallurgy and understand Corrosion, theories of Corrosion and factors affecting Corrosion.</p>
6.	5B08 CHE/PCH: INORGANIC CHEMISTRY	<p>CO1: Understand the behavior of transition and inner transition elements and explain the separation of lanthanides by ion exchange method and lanthanide contraction.</p> <p>CO2: Understand key features of co-ordination compounds and illustrate the theories of coordination complexes, stability of complexes and explain factors affecting crystal field splitting.</p> <p>CO3: Explain biological functions of metal ions.</p> <p>CO4: Familiarize new elements in periodic table and understand recent developments in inorganic chemistry.</p>

7.	5B09 CHE/PCH: PHYSICAL CHEMISTRY I	<p>CO1: Recognize and relate the properties of ideal and real gases.</p> <p>CO2: Describe the properties of liquids.</p> <p>CO3: Identify and distinguish the types of solutions.</p> <p>CO4: Explain colligative properties of dilute solution and determine the molecular weight of a solute.</p> <p>CO5: Identify different crystallographic systems and various types of crystal defects.</p> <p>CO6: Describe X ray diffraction to explain internal structure of solids.</p>
8.	5B10 CHE/PCH: PHYSICAL CHEMISTRY II	<p>CO1: Identify the fundamental concepts of thermodynamics.</p> <p>CO2: Relate and interpret the various laws of thermodynamics.</p> <p>CO3: Understand the concept of entropy and how the whole universe is related to it.</p> <p>CO4: Construct phase diagrams and study the equilibrium exists between various states of matter, and apply principles phase diagram to separation processes and for property modification of different type of system.</p> <p>CO5: Understand basic principles of surface chemistry and its application in various fields.</p> <p>CO6: Correlate the types of colloids with its properties and to explore the applications in day today life.</p>
9.	6B14CHE/PCH: ORGANIC CHEMISTRY – III	<p>CO1: Acquaint with the classification, structures and properties of carbohydrates, explain the configuration of glucose and fructose, their inter conversion, illustrate Killiani-Fischer synthesis and Ruff degradation.</p> <p>CO2: Illustrate the preparative methods and the properties of different classes of organic acids, nitrogen containing compounds and heterocyclic compounds.</p> <p>CO3: Classify amino acids and peptides and explain the synthesis of simple peptides by N protection (t-butyloxy carbonyl and phthaloyl) & C-activating groups and Merrifield solid phase synthesis. Explain the methods of determination of primary structure of peptides.</p> <p>CO4: Distinguish the components of nucleic acids and lipids and their roles in biological system and the biological importance of various natural products. Familiarize with important drugs and their therapeutic applications.</p>

		<p>CO5: Recognize the types and characteristics of pericyclic reaction and analyze the pericyclic reactions by FMO methods. Understand the photochemistry of carbonyl compounds.</p> <p>CO6: Understand the principles of Green Chemistry and the importance of green synthesis and recognize the impact of green chemistry on human health and the environment.</p>
10.	6B15CHE/PCH: PHYSICAL CHEMISTRY – III	<p>CO1: Understand the mechanism of electrical conductance, theories of electrical conductance, and conductometric titrations.</p> <p>CO2: Understand the basic principle of ionic equilibrium and its application in laboratories.</p> <p>CO3: Design different types of electro chemical cell and able to calculate its potential.</p> <p>CO4: Familiarize with electro analytical methods.</p> <p>CO5: Acquaint with kinetics of simple, complex, enzymatic and surface reactions.</p> <p>CO6: Understand basic principles of photochemistry and its application in spectrophotometry.</p>
11.	6B16CHE/PCH: PHYSICAL METHODS IN CHEMISTRY	<p>CO1: i) Explain the important principles of spectroscopy. ii) Apply spectroscopic techniques in analyzing the structure of simple organic molecules.</p> <p>CO2: Acquainting the working principles of various instruments and their functions.</p> <p>CO3: Understand the basic principles of symmetry and group theory and its applications in Chemistry.</p> <p>CO4: Study the basic principles of nanochemistry and understand the various nanofabrication methods.</p> <p>CO5: Explain the important principles for quantum chemical and molecular mechanic methods of computing the geometry and energy of molecules.</p>
DISCIPLINE SPECIFIC ELECTIVE COURSE		
12.	6B17CHE/PCH- A: ENVIRONMENTAL CHEMISTRY	<p>CO1: Know the importance of environmental studies and methods of conservation of natural resources.</p> <p>CO2: Describe the structure and function of an ecosystem and explain the values and Conservation of bio-diversity.</p> <p>CO3: Explain the sources, environmental effects and control measures of various types of pollutions.</p>

		<p>CO4: Identify the toxic chemicals in environment and understand the sources, effects and treatment of heavy metal poisoning.</p> <p>CO5: Understand the methods of domestic water treatment, Sewage analysis and Sewage Treatment.</p>
13.	6B17CHE/PCH- B: APPLIED CHEMISTRY	<p>CO1: Explain the origin of coal, coal products, petroleum products and their applications.</p> <p>CO2: Explain the manufacture of fertilizers, pesticides and their applications.</p> <p>CO3: Understand the manufacture of glasses, cement, ceramics and the formulations of paints and varnishes.</p> <p>CO4: Familiarize with the chemistry of fats and oils and explain the production of soaps and detergents.</p> <p>CO5: Understand the chemistry of food additives and explain the manufacture and refining of pulp.</p> <p>CO6: Understand importance of industrial safety and industrial pollution control.</p>
14.	6B17CHE/PCH- C: POLYMER CHEMISTRY	<p>CO1: Classify polymers and explain the configuration of polymers and properties like glass transition temperature and melting point of polymers.</p> <p>CO2: Illustrate the preparation, properties and applications of polymers.</p> <p>CO3: Interpret the mechanism of polymerization.</p> <p>CO4: Acquaint various polymer processing technologies and explain thermal methods of analysis of polymers.</p> <p>CO5: Know the recent advances in polymer chemistry.</p>
15.	6B17CHE/PCH – D: NANOCHEMISTRY	<p>CO1: Understand the basic concepts and classification of nanomaterials.</p> <p>CO2: Analyze different nano systems and their properties.</p> <p>CO3: Understand the various techniques adopted for the synthesis and characterization of nanomaterials.</p> <p>CO4: Characterize the nanomaterials using various microscopic techniques.</p> <p>CO5: Understand the application of nanomaterials in various fields including catalysis, photonics, and medicine.</p>

16.	1B02CHE/PCH & 2B02CHE/PCH: CORE COURSE PRACTICAL I	<p>CO1: Apply the theoretical concepts while performing experiments.</p> <p>CO2: Acquire practical skill to estimate acid, base, oxidizing agents etc by volumetric titration method.</p> <p>CO3: Estimate the metallic ions by complexometric titration method.</p> <p>CO4: Acknowledge experimental errors and their possible sources.</p> <p>CO5: Able to prepare inorganic complexes.</p> <p>CO6: Design, carry out, record and analyze the results of chemical experiments.</p>
17.	3B05CHE/PCH & 4B05CHE/PCH: INORGANIC QUALITATIVE ANALYSIS	<p>CO1: Apply the theoretical concepts while performing experiments.</p> <p>CO2: Acquire practical skill to analyze the anions and cations qualitatively present in a mixture of inorganic salts.</p> <p>CO3: Able to design, carry out, record and analyze the results of chemical experiments.</p> <p>CO4: Learns the effective usage of chemicals.</p>
18.	5B11 CHE /PCH & 6B11 CHE/PCH: GRAVIMETRIC ANALYSIS	<p>CO1: Make use of standardized procedures for the Gravimetric analysis.</p> <p>CO2: learn the skills of Precipitation process, digestion, filtration, incineration etc.</p> <p>CO3: Acquire practical Knowledge of co-precipitation.</p> <p>CO4: Handle sintered glass vessels.</p> <p>CO5: Acknowledge experimental errors and their possible sources.</p> <p>CO6: Able to design, carry out, record and analyze the results of chemical experiments.</p>
19.	5B12 CHE/PCH& 6B12 CHE/PCH: ORGANIC CHEMISTRY	<p>CO1: Apply the theoretical concepts while performing experiments.</p> <p>CO2: Acquire practical skill in qualitative analysis of organic compounds.</p> <p>CO3: Acquire practical skill in preparing organic compounds and in their purification by crystallization.</p> <p>CO4: Separate organic compounds in a mixture –by steam distillation, TLC and Column Chromatography.</p> <p>CO5: Acquire the habit of working safely with the chemicals and handling of equipment.</p>

20.	6B18CHE/PCH: PHYSICAL CHEMISTRY	<p>CO1: Acquire practical skill in physical chemistry experiments such as Cryoscopy, Transition Experiments, Phase Rule Experiments, Conductometric titrations, Potentiometric titrations, colorimetry and Chemical Kinetics.</p> <p>CO2: Learn statistical approach for evaluating data.</p> <p>CO3: Able to carry out and record these experiments in a skillful manner.</p> <p>CO4: Acquire the habit of working safely with the chemicals and handling of equipment.</p>
21.	PROJECT	<p>CO1: Able to enhance the skills of managing the resources, time and team work.</p> <p>CO2: Students will be able to function as a member of an interdisciplinary problem-solving team.</p>
22.	5D01CHE/PCH: CHEMISTRY IN SERVICE TO MAN	<p>CO1: i) Understand the classification, structure, function and applications of polymers. ii) Understand the importance of biodegradable polymers.</p> <p>CO2: Acquaint with different types of fertilizers and pesticides and understand the effect of fertilizers and pesticides on the environment.</p> <p>CO3: Explain the classification of fuels and composition of petroleum and familiarize the fuel cells and batteries and understand their applications in modern life.</p> <p>CO4: Explain different types of glasses, their applications and the composition of Portland Cement.</p> <p>CO5: Identify the harmful chemicals present in cosmetics and understand their effects in human Body.</p>
23.	5D02CHE/PCH: DRUGS - USE & ABUSE	<p>CO1: Familiarize the classes of drugs and their examples.</p> <p>CO2: Distinguish prescription drugs and over the counter drugs.</p> <p>CO3: Understand the roots of administration of drugs and their importance.</p> <p>CO4: Familiarize various synthetic drugs and their uses.</p> <p>CO5: Understand the consequences of misuse of antibiotic.</p> <p>CO6: Recognize the drugs of abuse and understand the consequences of drug abuse.</p>

24.	5D03CHE/PCH: ENVIRONMENTAL STUDIES	<p>CO1: Differentiate the environmental segments and understand the importance of environmental segments.</p> <p>CO2: Identify the types of environmental pollution and the various sources of the pollution.</p> <p>CO3: Understand the consequences of environmental pollutions.</p> <p>CO4: Explain the measures of control of environmental pollution.</p> <p>CO5: Recognize various sustainable energy sources.</p>
25.	5D04CHE/PCH: NANOMATERIALS	<p>CO1: Understand the basic concepts of nanoscale science and technology.</p> <p>CO2: Inculcate the enquiry-based learning and increase the level of interest in nanoscience.</p> <p>CO3: Understand the societal implications and the scope of nanotechnology.</p>
26.	5D05CHE/PCH: CHEMISTRY IN EVERYDAY LIFE	<p>CO1: Identify the harmful ingredients and their effects of cleansing agent and cosmetics.</p> <p>CO2: Familiarize adulterants in food, food additives and food preservatives.</p> <p>CO3: Explain the harmful effects of modern food habits.</p> <p>CO4: Classify the drugs and familiarize the applications of various drugs.</p> <p>CO5: Understand the consequences of misuse of antibiotics.</p> <p>CO6: Prepare toilet soap using vegetable oil.</p>
COMPLEMENTARY ELECTIVE COURSE		
27.	1C01CHE/PCH: CHEMISTRY FOR PHYSICAL & BIOLOGICAL SCIENCES	<p>CO1: Understand the atomic structure, basics of quantum chemistry and its applications.</p> <p>CO2: Explain theories of chemical bonding and molecular structure.</p> <p>CO3: Classify environmental pollution and recognize the causes of pollution.</p> <p>CO4: Understand the basic concept of Chemical equilibrium and theories of acids and bases.</p> <p>CO5: Calculate pH values.</p> <p>CO6: Explain common ion effect and solubility product.</p>
28.	2C02CHE/PCH: CHEMISTRY FOR PHYSICAL &	<p>CO1: Understand the basic concept of classification, IUPAC nomenclature, bonding and structure of Organic compounds.</p>

	BIOLOGICAL SCIENCES	<p>CO2: Explain the concept of aromaticity and non-benzenoid aromatics.</p> <p>CO3: Understand the basic concepts of chemical equilibrium. Explain colloids, their properties and applications.</p> <p>CO4: Illustrate the laws of photochemistry and explain the photochemical phenomena such as Photosensitization, quenching, Fluorescence, Phosphorescence, Chemiluminescence and bioluminescence.</p> <p>CO5: Familiarize different types of analytical methods in chemistry and explain the principle of colorimetry.</p> <p>CO6: Explain the principles underlying the qualitative and quantitative analysis.</p>
29.	3C03CHE/PCH(PS): CHEMISTRY FOR PHYSICAL SCIENCE	<p>CO1: Understand the basic principle underlying various spectroscopy.</p> <p>CO2: Understand the basic concepts of thermodynamics and laws of thermodynamics.</p> <p>CO3: Explain the formation, nomenclature and applications of coordination complexes, Illustrate the valence bond theory of coordination complexes and explain the factors affecting the stability of complexes.</p> <p>CO4: Understand the basic concepts of chemical kinetics and calculate the value of E_a from the values of k at two temperatures. Illustrate the types of Catalysis and understand the Characteristics of catalytic reactions.</p> <p>CO5: Understand the basic concept of nuclear chemistry, and explain the detection of isotopes using Aston's mass spectrograph and separation of isotopes by diffusion methods.</p> <p>CO6: Explain the principle and applications of different types of Chromatography.</p>
30.	4C04CHE/PCH(PS): CHEMISTRY FOR PHYSICAL SCIENCE	<p>CO1: Understand the basic concept in gaseous state Explain the deviation of real gases from ideal behavior and Maxwell distribution of velocities and its use in calculating molecular velocities. Distinguish average velocity, RMS velocity and most probable velocity.</p> <p>CO2: Understand the basic concepts of internal structure of Crystals (crystallography) and explain X-ray analysis of crystals.</p> <p>CO3: Understand the basic concepts in liquid state and solutions. Illustrate Henry's law and explain its</p>

		<p>applications. Identify colligative properties and apply colligative properties to determine molecular mass.</p> <p>CO4: Distinguish Specific conductance – molar conductance and equivalent conductance and explain laws of electrolysis, conductometric titrations and its applications.</p> <p>CO5: Explain electrochemical cell, electrode potential, types of electrodes, EMF Nernst equation and potentiometric titration.</p> <p>CO6: Acquaint with various instrumental methods in chemistry and understand basic concepts of Nanochemistry.</p>
31.	3C03CHE/PCH: CHEMISTRY FOR BIOLOGICAL SCIENCES	<p>CO1: i) Understand the basic concept of Coordination Chemistry, nomenclature, Werner's coordination theory and Valence bond theory of coordination complexes. ii) Write the name of Coordination compounds. iii) Explain Werner's coordination theory and Valence bond theory of coordination complexes. iv) Explain the application of coordination complexes.</p> <p>CO2: i) Understand the electron displacement effects in organic molecules. ii) Explain the mechanism of nucleophilic substitutions and eliminations in alkyl halides. iii) Explain the mechanism of aromatic electrophilic substitution reactions.</p> <p>CO3: i) Classify the isomerism in organic molecules. ii) Distinguish the geometrical isomers and explain their stability. iii) Explain the characteristics of chiral compound. iv) Explain the conformational isomers in alkanes and cycloalkanes</p> <p>CO4: i) Explain the important types of polymerizations, thermoplastics and thermosetting plastics. ii) Understand the characteristics of biodegradable plastics.</p> <p>CO5: Understand the basic concept of thermodynamics and laws of thermodynamics</p> <p>CO6: i) Understand the basic concept of chemical kinetics. ii) Calculate E_a from the values of k at two temperatures. iii) Explain homogeneous catalysis, heterogeneous catalysis and Characteristics of catalysis reactions.</p>

32.	4C04CHE /PCH: CHEMISTRY FOR BIOLOGICAL SCIENCES	<p>CO1: Illustrate the preparatory methods of glucose and fructose and explain their configurations. Familiarize the structure and properties of sucrose and polysachrides.</p> <p>CO2: Know the structure of important five membered and six membered heterocyclic compounds and explain their reactivity and important reactions. Explain the preparation and properties of Quinoline and iso quinoline.</p> <p>CO3: Understand the structure and functions of neuclic acids, classify amino acids and explain the structure of protein and its importance.</p> <p>CO4: Understand the mechanism of enzyme action, enzyme catalysis.</p> <p>CO5: Know the structure of Vitamin A, B and C. and hormones progesterone, Testosterone, cortisone, adrenaline and Thyroxin.</p> <p>CO6: Understand the importance of metal ions in biological systems and Mechanism of O₂ and CO₂ transportation – Nitrogen Fixation Na-K pump.</p>
33.	4C05 CHE/PCH- COMPLEMENTARY ELECTIVE - CHEMISTRY PRACTICAL	<p>CO1: Apply the theoretical concepts while performing experiments.</p> <p>CO2: Acquire practical skill to estimate acid, base, oxidizing agents etc by volumetric titration method.</p> <p>CO3: Acknowledge experimental errors and their possible sources.</p> <p>CO4: Design, carry out, record and analyze the results of chemical experiments.</p> <p>CO5: Acquire practical skill to analyze the anions and cations qualitatively present in a mixture of inorganic salts.</p> <p>CO6: Learns the effective usage of chemicals.</p>

Name of the Programme: **BSc PHYSICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand and apply the principles of Classical mechanics, Quantum mechanics, Thermodynamics, Nuclear physics and Electrodynamics

PSO2.

Understand and apply the principles of Solid-state physics, Optics, Photonics and Spectroscopy

PSO3.

Understand the principles of Electronics, Design and test electronic circuits

PSO4.

Understand and apply the principles of Mathematical Physics and Computational Physics and do Error analysis in measurements.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01PHY MECHANICS I	CO1: Understand Newton's laws of motion, the concepts of linear and angular momentum and torque. CO2: Determine the Centre mass of a given configuration. CO3: Understand the principle of work, energy and power. CO4: Determine angular momentum of a body about any given axis.
2.	2B02PHY MATHEMATICALPH YSICS AND ERROR ANALYSIS	CO1: Understand vector operations and vector algebra . CO2: Determine derivative and integral of various functions. CO3: State fundamental theorems of calculus. CO4: Compare differential operators in various coordinate systems. CO5: Understand the basic concepts of modeling. CO6: Solve first order and second order ODEs. CO7: Estimate uncertainties in measured values.
3.	3B03PHY MECHANICS II	CO1: Understand the concept of Galilean transformations and uniformly accelerating systems. CO2: Determine the trajectory of a body in central force problem using Newton's laws.

		<p>CO3: Understand Kepler's laws of planetary motion.</p> <p>CO4: Formulate the mathematical equation of waves.</p> <p>CO5: Understand the concept and consequences of special theory of relativity.</p>
4.	4B04PHY ELECTRONICS I	<p>CO1: Understand the basics of PN junction diode, Zener diode and their applications.</p> <p>CO2: Understand the structure, operations and characteristics of BJT and FET.</p> <p>CO3: Understand the biasing methods and design of BJT and FET circuits.</p> <p>CO4: Understand the different number systems, conversions and binary arithmetic operations.</p> <p>CO5: Understand the basic combinational logic gates.</p> <p>CO6: Understand the Boolean algebra & logic simplification using Boolean Algebra.</p>
5.	4B05PHY GENERAL PHYSICS PRACTICAL I	<p>CO1: Familiarize with apparatus for mechanical, electrical, magnetic and optical experiments.</p> <p>CO2: Develop skill in setting up of apparatus for accurate measurement of physical quantities.</p> <p>CO3: Understand multiple experimental techniques for determining physical quantities.</p> <p>CO4: Develop skill in systematic way of measurements by minimizing possible errors.</p> <p>CO5: Develop skill to analyze by plotting graphs using software.</p> <p>CO6: Develop skill for systematic trouble shooting.</p>
6.	5B06PHY QUANTUM MECHANICS	<p>CO1: Understand the limitations of classical mechanics.</p> <p>CO2: Explain Blackbody radiation problem, Photoelectric effect and Compton Effect using quantum theory of radiation.</p> <p>CO3: Understand Rutherford, Bohr atom models and concept of energy and angular momentum quantization.</p> <p>CO4: Understand de-Broglie hypothesis, concept of wave nature of matter and Heisenberg uncertainty principle.</p> <p>CO5: Determine probability of finding a particle and expectation values of variable using its wave function</p> <p>CO6: Write and solve Schrodinger equation for simple quantum mechanical systems.</p>

		CO7: State and explain Pauli's exclusion principle.
7.	5B07PHY ELECTROSTATICS AND MAGNETOSTATICS	<p>CO1: Understand the concept of Electric field, electric potential, magnetic field and magnetic potentials.</p> <p>CO2: Use the principle of superposition and law of Gauss to calculate electric field Intensity.</p> <p>CO3: Determine Electric potential of charge distributions and hence specify electric field intensity.</p> <p>CO4: Understand the basic properties of conductors and capacitors.</p> <p>CO5: Calculate the magnetic fields due to currents using Biot-Savart and Ampere laws.</p> <p>CO6: Compare Magnetostatics and Electrostatics.</p> <p>CO7: Understand Diamagnets, Paramagnets and Ferro magnets.</p>
8.	5B08PHY THERMODYNAMICS AND STATISTICAL MECHANICS	<p>CO1: Understand the concept of temperature, the thermodynamic state and equilibrium.</p> <p>CO2: Explain the first law of thermodynamics through work and heat and its Mathematical Formulation.</p> <p>CO3: Understand the ideal gas equation and kinetic theory of gases.</p> <p>CO4: Understand the second law of thermodynamics and thermodynamic temperature scale.</p> <p>CO5: Define entropy and thermodynamic potentials.</p> <p>CO6: Understand the basic concepts of Statistical mechanics.</p>
9.	5B09PHY ELECTRONICS II	<p>CO1: Understand the AC analysis of BJT circuits and CE amplifiers.</p> <p>CO2: Understand the feedback circuits, oscillators and power amplifiers.</p> <p>CO3: Understand OPAMP basics and different OPAMP circuits.</p> <p>CO4: Understand the standard forms Boolean Expressions, Functions of Combinational Logic and K map simplifications.</p>
10.	6B10PHY SOLID STATE PHYSICS & SPECTROSCOPY	<p>CO1: Understand basic crystal structure and compare various crystal systems.</p> <p>CO2: State and prove Bragg's law.</p> <p>CO3: Explain X-ray diffraction and various methods to obtain diffraction pattern.</p> <p>CO4: Understand basic properties of semiconductors and band structure of solids.</p>

		<p>CO5: Discuss Hall Effect and list its applications.</p> <p>CO6: Describe various regions of EM spectrum.</p> <p>CO7: Distinguish between microwave and infrared spectroscopy.</p> <p>CO8: Define Raman Effect and explain its quantum theory.</p>
11.	6B11PHY OPTICS &PHOTONICS	<p>CO1: Understand the concept of interference and diffraction.</p> <p>CO2: Distinguish between Fresnel and Fraunhofer diffraction.</p> <p>CO3: Analyze mathematically diffraction pattern due to slits and apertures.</p> <p>CO4: Understand the concept of polarization and double refraction.</p> <p>CO5: Understand the basic principle and working of lasers.</p> <p>CO6: Explain different types of lasers.</p> <p>CO7: Understand the principle of holography and its applications.</p> <p>CO8: Understand the principle of total internal reflection and propagation of light through optical fibres.</p> <p>CO9: Compare different types of optical fibres and their applications Optics and Photonics.</p>
12.	6B12 PHY NUCLEAR, PARTICLE & ASTROPHYSICS	<p>CO1: Understand the structure nucleus and nuclear constituents.</p> <p>CO2: Define nuclear forces and nuclear reactions.</p> <p>CO3: Familiarize elementary particles and their properties.</p> <p>CO4: Understand stellar classifications.</p> <p>CO5: Understand basic concepts of birth of the star.</p> <p>CO6: Identify different stars in HR diagram.</p> <p>CO7: Understand the theory of death of the star.</p> <p>CO8: Define white dwarf, neutron star and black hole.</p>
13.	6B13PHY ELECTRODYNAMIC S AND CIRCUIT THEORY	<p>CO1: Understand the basic concepts of Electrodynamics.</p> <p>CO2: Explain the mathematical theory of Electromagnetic waves.</p> <p>CO3: Understand different Network theorems.</p> <p>CO4: Understand the basic concepts of Transient currents.</p>

DISCIPLINE SPECIFIC ELECTIVE		
14.	6B14PHY(1) PYTHON PROGRAMMING	<p>CO1: Develop skills in creating program sketches of scientific problems</p> <p>CO2: Develop basic skills in logical thinking and programming.</p> <p>CO3: To make real-life scientific problems easier on a computer with user interaction and graphics</p>
15.	6B14PHY(2) NANOSCIENCE	<p>CO1: Understand the basic concepts of Nanoscience.</p> <p>CO2: Understand the properties of materials in the nano range.</p> <p>CO3: Identify different techniques for the production of nanomaterials.</p> <p>CO4: Understand characterization techniques & applications of nanomaterial.</p>
16.	6B14PHY(3) MATERIAL SCIENCE	<p>CO1: Understand the basic concepts of material science.</p> <p>CO2: Understand the properties of materials.</p> <p>CO3: Identify different engineering materials & their properties.</p> <p>CO4: Understand the properties & characteristics of semiconducting, insulating & magnetic materials.</p>
17.	6B14PHY(4): COSMOLOGY	<p>CO1: Understand history of cosmology at different era.</p> <p>CO2: Explain general theory of relativity and curvature of space.</p> <p>CO3: Understand cosmological principle and Friedmann model.</p> <p>CO4: Explain expansion of universe based on Hubble's law and to state big bang theory.</p>
18.	6B14PHYS(5) PLASMA PHYSICS	<p>CO1: Define plasma and plasma parameters.</p> <p>CO2: Understand applications of plasma.</p> <p>CO3: Determine the behavior of plasma in various E and B Fields.</p> <p>CO4: Determine the nature of plasma as a fluid.</p>
19.	6B15PHY PRACTICAL II GENERAL PHYSICS II	<p>CO1: Familiarize with apparatus for mechanical, electrical, magnetic and optical experiments.</p> <p>CO2: Develop skill in setting up of apparatus for accurate measurement of physical quantities.</p> <p>CO3: Understand multiple experimental techniques for determining physical quantities.</p>

		<p>CO4: Develop skill in systematic way of measurements by minimizing possible errors.</p> <p>CO5: Develop skill to analyze by plotting graphs using software.</p> <p>CO6: Develop skill for systematic trouble shooting.</p> <p>CO7: Perform error analysis for experiments.</p>
20.	6B16PHY PRACTICAL III ELECTRONICS	<p>CO1: Familiarize active and passive electronic components.</p> <p>CO2: Familiarize multimeter, power supply, signal generator and cathode ray oscilloscope.</p> <p>CO3: Develop skill in soldering and use of breadboard.</p> <p>CO4: Develop skill in construction of rectifiers, voltage regulators, amplifiers and oscillators.</p> <p>CO5: Observe, measure and analyze electrical signals.</p> <p>CO6: Develop skill for trouble shooting circuits and components.</p> <p>CO7: Develop skill to analyze by plotting graphs using software.</p>
GENERIC ELECTIVE COURSES		
21.	5D04PHY JOY OF STAR WATCHING	<p>CO1: Understand Our Universe and its origin.</p> <p>CO2: Understand simple constellations.</p> <p>CO3: Explain the stars in Kerala culture.</p> <p>CO4: Understand the techniques of star watching.</p>
22.	5D05PHY ELECTRICITY IN DAILY LIFE	<p>CO1: Understand the sources of electricity.</p> <p>CO2: Explain the production of electricity.</p> <p>CO3: Understand the basic concepts of electricity auditing.</p>
COMPLEMENTARY ELECTIVE COURSES		
23.	1C01PHY MECHANICS	<p>CO1: Understand the basic concepts of Properties of matter.</p> <p>CO2: Explain the dynamics of rigid bodies.</p> <p>CO3: Understand the basic concepts of wave motion and oscillations.</p>
24.	2C02PHY ELECTRICITY, MAGNETISM AND THERMODYNAMICS	<p>CO1: Understand the basic concepts of Magnetism & electricity.</p> <p>CO2: Explain the magnetic effects of electric currents.</p> <p>CO3: Understand the basic principles of Thermodynamics.</p>

25.	3C03PHY OPTICS AND PHOTONICS	<p>CO1: Understand the basic concepts of Interference.</p> <p>CO2: Understand the basic concepts of Diffraction.</p> <p>CO3: Understand the basic concepts of Polarization.</p> <p>CO4: Understand the basic concepts of Photonics and Fibre Optics.</p>
26.	4CO4PHY ELECTRONICS AND MODERN PHYSICS	<p>CO1: Understand the basic concepts of Basic electronics.</p> <p>CO2: Understand the basic concepts of Digital electronics.</p> <p>CO3: Understand the basic concepts of Nuclear Physics.</p> <p>CO4: Understand the basic concepts of Particle physics and Astrophysics.</p>
27.	4C05PHY PHYSICS PRACTICAL	<p>CO1: Familiarize with apparatus for experiments in mechanics, optics, electricity and magnetism and electronics and electronics experiments.</p> <p>CO2: Develop skill in setting up of apparatus for accurate measurement of physical quantities.</p> <p>CO3: Understand multiple experimental techniques for determining physical quantities.</p> <p>CO4: Develop skill in systematic way of measurements by minimizing possible errors.</p>

Name of the Programme: **BSc MATHEMATICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand the basic concepts and tools of Mathematical logic, Set theory, Number theory, Geometry, Calculus, Algebra, Abstract structures, Linear Algebra, Analysis, Laplace transforms, Fourier series, Graph theory, and Optimization and methods of proofs.

PSO2.

Model real world problems into Mathematical problems and find solutions and understand the application of Mathematics in other Sciences and Engineering.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01MAT: SET THEORY, DIFFERENTIAL CALCULUS AND NUMERICAL METHODS	<p>CO1: Understand Relations and Functions.</p> <p>CO2: Understand limit of a function, limit laws, continuity, Inverse functions and their derivatives.</p> <p>CO3: Understand successive differentiation and Leibnitz theorem.</p> <p>CO4: Understand functions of several variables, limit and continuity, partial derivatives, chain rule, homogenous functions and Euler's theorem on homogenous functions.</p> <p>CO5: Understand bisection method, Regula-Falsi method and Newton-Raphson method to solve algebraic and transcendental equations.</p>
2.	2B02MAT: INTEGRAL CALCULUS AND LOGIC	<p>CO1: Understand Hyperbolic functions.</p> <p>CO2: Understand Reduction formulae for trigonometric functions and evaluation of definite integrals.</p> <p>CO3: Understand Polar coordinates.</p> <p>CO4: Understand Double integrals in Cartesian and polar form.</p> <p>CO5: Understand triple integrals in rectangular, cylindrical and spherical co-ordinates.</p> <p>CO6: Understand Substitution in multiple integrals.</p> <p>CO7: Understand Numerical integration: Trapezoidal rule, Simpson's 1/3rd rule.</p> <p>CO8: Understand Logic and methods of proofs.</p>

		CO9: Understand Propositional functions, truth set and Negation of quantified statements.
3.	3B03MAT: ANALYTIC GEOMETRY AND APPLICATIONS OF DERIVATIVES	<p>CO1: Understand cartesian equation of conics, eccentricity, polar equations for a conic, lines, circles.</p> <p>CO2: Understand Tangents, Normals and Asymptotes.</p> <p>CO3: Understand Curvature, Radius of curvature, Centre of Curvature, Circle of curvature and Evolutes of Cartesian and polar curves.</p> <p>CO4: Understand Rolle's Theorem, Lagrange's Mean Value Theorem, Cauchy's Mean Value Theorem and Taylors Theorem.</p> <p>CO5: Understand extreme values of functions, monotonic functions, first derivative test, concavity and curve sketching.</p> <p>CO6: Understand Indeterminate forms.</p>
4.	4B04MAT: NUMBER THEORY AND APPLICATIONS OF INTEGRALS	<p>CO1: Understand Division algorithm, Greatest common Divisor, Euclidean Algorithm, Diophantine equation $ax + by = c$.</p> <p>CO2: Understand Primes and their distribution, fundamental theorem of arithmetic, the sieve of Eratosthenes.</p> <p>CO3: Understand Basic properties of congruence.</p> <p>CO4: Understand Picard's little theorem, Wilson's theorem and Euler's theorem.</p> <p>CO5: Understand Substitution and the area between curves, Arc length, Areas and length in polar co-ordinates.</p> <p>CO6: Understand Volumes using cross sections, volumes using cylindrical shells and areas of surfaces of revolution.</p>
5.	5B05MAT: SET THEORY, THEORY OF EQUATIONS AND COMPLEX NUMBERS	<p>CO1: Understand finite and infinite sets, Countable and Uncountable sets, Cantor's theorem.</p> <p>CO2: Understand Roots of equations, Relations connecting the roots and coefficients of an equation, Transformation of equations, The cubic equation, Character and position of roots of an equation.</p> <p>CO3: Understand Descarte's rule of signs, De Gua's Rule, Limits to the roots of an equation, Rational roots of equations, Newton's method of divisors, Symmetric functions of roots of an equation, Symmetric functions involving only the difference of the roots of $f(x) = 0$, Equations whose roots are symmetric functions of α,</p>

		β, γ . CO4: Understand Reciprocal equations. CO5: Understand Cubic equation, Equation whose roots are the squares of the difference of the roots, Character of the Roots, Cardan's Solution. CO6: Understand Roots of complex numbers, General form of De Moivre's theorem, the n th roots of unity, the n th roots of -1 , Factors of $x^n - 1$ and $x^n + 1$, the imaginary cube roots of unity. CO7: Understand polar form of complex numbers, powers and roots.
6.	5B06MAT: REAL ANALYSIS I	CO1: Understand Algebraic Properties, Order Properties and Absolute values of \mathbb{R} . Understand the Completeness Property of \mathbb{R} and its applications to derive Archimedean Property and Density theorem. CO2: Understand intervals in the real line. CO3: Understand Sequences and their Limits, Limit Theorems, Monotone Sequences. CO4: Understand Subsequences and the Bolzano-Weierstrass Theorem, The Cauchy Criterion. CO5: Understand Infinite Series, Absolute Convergence. CO6: Understand Comparison test, Root test, Ratio test, Integral test and Raabe's test for Absolute convergence. CO7: Understand Alternating series test, Dirichlet's test and Abel's test for non-absolute convergence. CO8: Understand Continuous Functions, composition of continuous functions and continuous functions on intervals.
7.	5B07MAT: ABSTRACT ALGEBRA	CO1: Understand definition and elementary properties of Groups, Subgroups and Cyclic groups. CO2: Understand Groups of Permutations, orbits, Alternating groups and theorem of Lagrange. CO3: Understand group homomorphisms, factor Groups. CO4: Understand Fundamental Homomorphism Theorems. CO5: Understand definition and properties of rings and fields. CO6: Understand Ring homomorphisms and isomorphisms.

		CO7: Understand zero divisors, integral domains, characteristic of a ring and their properties.
8.	5B08MAT: DIFFERENTIAL EQUATIONS AND LAPLACE TRANSFORMS	<p>CO1: Understand Separable ODEs, Exact ODEs, Linear ODEs, Bernoulli equation and methods to solve these ODEs.</p> <p>CO2: Understand the theorem of Existence and Uniqueness of solutions of first and second order ODEs.</p> <p>CO3: Understand Homogeneous Linear ODEs of Second Order and solve homogeneous linear ODEs of second order with constant coefficients and Euler-Cauchy equation.</p> <p>CO4: Understand Laplace Transform and inverse Laplace Transformation.</p> <p>CO5: Understand the first and the second shifting theorems and their applications.</p> <p>CO6: Understand the methods to find Laplace transforms of derivatives and integrals of functions.</p> <p>CO7: Understand the method of differentiating and integrating Laplace transform.</p> <p>CO8: Solve ordinary differential equations and integral equations using Laplace transform.</p>
9.	5B09MAT: VECTOR CALCULUS	<p>CO1: Understand lines and planes in space.</p> <p>CO2: Understand curves in space, their tangents, normal, curvature, tangential and normal curvature of acceleration.</p> <p>CO3: Understand Directional derivatives and gradient vectors, tangent planes and differentials. Solve extreme value problems using Lagrange multipliers.</p> <p>CO4: Understand Partial derivatives with constrained variables and Taylor's formula for two variables.</p> <p>CO5: Understand Line integrals. Solve for work, circulation and flux using line integrals.</p> <p>CO6: Understand path independence conservative fields and potential functions.</p> <p>CO7: Understand Green's theorem and solve problems using Green's theorem.</p> <p>CO8: Understand Surface area and surface integrals.</p> <p>CO9: Understand Stoke's theorem and solve problems using Stoke's theorem.</p> <p>CO10: Understand Divergence theorem and solve problems using Divergence theorem.</p>

10.	6B10MAT: REAL ANALYSIS II	<p>CO1: Understand Uniform Continuity, Monotone and Inverse Functions.</p> <p>CO2: Understand Riemann Integral and Riemann-integrable Functions.</p> <p>CO3: Understand Fundamental Theorem of Calculus</p> <p>CO4: Understand Improper Integrals.</p> <p>CO5: Understand Beta and Gamma Functions and their properties.</p> <p>CO6: Understand Transformations of Gamma Function and Duplication formula.</p> <p>CO7: Understand Pointwise and Uniform Convergence of sequence of functions and Interchange of Limits.</p> <p>CO8: Understand Series of Functions.</p> <p>CO9: Understand the concept of Metric Spaces.</p>
11.	6B11MAT: COMPLEX ANALYSIS	<p>CO1: Understand Analytic Function, Cauchy–Riemann Equations. Laplace’s Equation.</p> <p>CO2: Understand Exponential Function, Trigonometric Functions, Hyperbolic Functions, Logarithmic functions and General Power of complex numbers.</p> <p>CO3: Understand line integral in the complex plane, Cauchy’s integral theorem, Cauchy’s integral formula and derivatives of analytic functions.</p> <p>CO4: Understand convergence of Sequences and Series of complex functions.</p> <p>CO5: Understand power series, functions given by power series, Taylor series, Maclaurin’s Series and Laurent Series.</p> <p>CO6: Understand singularities and zeros of complex functions.</p> <p>CO7: Understand residue integration method and integrate real integrals.</p>
12.	6B12MAT: NUMERICAL METHODS, FOURIER SERIES AND PARTIAL DIFFERENTIAL EQUATIONS	<p>CO1: Understand Interpolation techniques: Interpolation with unevenly spaced points, Langrange interpolation, Newton's divided differences interpolation, Finite difference operators and finite differences, Newton's interpolation formulae and Central difference interpolation.</p> <p>CO2: Understand Numerical differentiation using difference formulae.</p>

		<p>CO3: Understand Picard's method, Solution by Taylor series method, Euler method and Runge- Kutta methods.</p> <p>CO4: Understand Fourier Series: Arbitrary period, Even and Odd Functions, Half-Range Expansions and Fourier Integrals.</p> <p>CO5: Understand Partial Differential equations, Solution by Separating Variables.</p> <p>CO6: Understand the use of Fourier Series in solving PDE: D'Alembert's Solution of the Wave Equation. Characteristics and solving Heat Equation by Fourier Series.</p> <p>CO7: Understand Laplacian in Polar Coordinates.</p>
13.	6B13 MAT: LINEAR ALGEBRA	<p>CO1: Understand the concept of Vector spaces, subspaces, linear combinations and system of equations.</p> <p>CO2: Understand the concept of Linear Dependence and Linear Independence, Bases and Dimension, Maximal Linearly Independent Subsets and solves problems.</p> <p>CO3: Understand the concept of Linear Transformations, Null Spaces, and Ranges, The Matrix Representation of a Linear Transformation.</p> <p>CO4: Understand Rank of a matrix, Elementary transformations of a matrix, Invariance of rank through elementary transformations, Normal form, Elementary matrices.</p> <p>CO5: Understand the concept System of linear homogeneous equations Null space and nullity of matrix, Range of a matrix, Systems of linear non homogeneous equations.</p>
14.	6B14AMAT: GRAPH THEORY	<p>CO1: Understand a graph, subgraph, different types of graphs and their properties.</p> <p>CO2: Understand and represent graph as matrix.</p> <p>CO3: Understand a path, cycle, trees, bridges and their properties.</p> <p>CO4: Understand cut vertices and connectivity of graphs.</p> <p>CO5: Understand Eulerian graphs, Hamiltonian graphs, The Chinese Postman Problem and the Travelling Salesman Problem.</p> <p>CO6: Understand planar graphs, Euler's formula, The Platonic bodies and Kuratowski's Theorem</p>

		<p>CO7: Model real world problems using the concept of graphs.</p> <p>CO8: Solve real world problems using the concept of graphs.</p>
15.	6B14BMAT: OPERATIONS RESEARCH	<p>CO1: Understand convex sets, convex functions, their properties, local and global extrema and quadratic forms.</p> <p>CO2: Understand LPP, formulate and solve using graphical method.</p> <p>CO3: Understand General LPP, canonical and standard forms of LPP.</p> <p>CO4: Understand simplex method and solve LPP.</p> <p>CO5: Understand basic solution, degenerate solution, basic feasible solution, optimum basic feasible solution, fundamental properties of solution and simplex method.</p> <p>CO6: Understand primal-dual pair, formulation of dual and duality theorems.</p> <p>CO7: Understand LP formulation of transportation problem and its solution.</p> <p>CO8: Understand Mathematical formulation of Assignment problem and Hungarian Assignment method.</p> <p>CO9: Understand problem of sequencing, Processing 'n' jobs through '2' machines, Processing 'n' jobs through 'k' machines.</p> <p>CO10: Understand basic terms in Game theory, The Maximin-Minimax Principle, Solution of game with saddle point, Solution of 2x2 game without saddle point, Graphic solution of 2xn and mx2 games and Arithmetic method for nxn Games.</p>
16.	6B14CMAT: CRYPTOGRAPHY	<p>CO1: Understand Simple Cryptosystems namely, The Shift Cipher, The Substitution Cipher, The Affine Cipher, The Vigenere Cipher, The Hill Cipher, The Permutation Cipher and Stream Ciphers.</p> <p>CO2: Understand basics of Shannon's Theory, Elementary Probability Theory, Perfect Secrecy, Entropy, Huffman Encodings and Entropy, Properties of Entropy, Spurious Keys and unicity Distance, Product Cryptosystems.</p> <p>CO3: Understand the Euclidean Algorithm, The Chinese Remainder Theorem.</p>

		<p>CO4: Understand Legendre and Jacobi Symbols and quadratic residues.</p> <p>CO5: Understand the RSA System and Factoring (25 Hours): Introduction to Public-key Cryptography, The RSA Cryptosystem, Implementing RSA, Primality Testing, The Solovay-Strassen Algorithm, The Miller Rabin Algorithm, Square roots modulo n.</p>
17.	6B14D MAT: FUZZY MATHEMATICS	<p>CO1: Understand Fuzzy Subsets, L-fuzzy Sets, Visual representation of a Fuzzy Subset, Operations on Fuzzy Subsets, Empty Fuzzy Subset \emptyset.</p> <p>CO2: Understand Universal Fuzzy Subset, Disjoint Fuzzy Subsets, Disjunctive Sum.</p> <p>CO3: Understand α Level Set, Properties of Fuzzy Subsets of a Set, Algebraic Product and Sum of Two Fuzzy Subsets, Properties Satisfied by Addition and Product.</p> <p>CO4: Understand Cartesian Product of Fuzzy Subsets.</p> <p>CO5: Understand Fuzzy Relations, Binary Fuzzy Relations, Binary Relations on a Single Set, Fuzzy Equivalence Relations.</p> <p>CO6: Understand Fuzzy Subgroup, Fuzzy Sub groupoids.</p> <p>CO7: Understand the Lattice of Fuzzy Subgroups, Fuzzy Subgroup, Fuzzy Subrings.</p>
DISCIPLINE SPECIFIC ELECTIVE COURSE		
18.	6B14EMAT PROGRAMMING IN PYTHON	<p>CO1: Understand the basics of Python Variables, Indentation in Python, Input, Output and Import Functions Operators.</p> <p>CO2: Understand Python programming for numbers, Dictionaries and Mathematical functions.</p> <p>CO3: Understand Flow Control, if, if..else, if ..else, Loops – for loop, Range Function, while, Section 3.3 Nested Loop, Break and Continue Statements in Python.</p> <p>CO4: Understand Data visualization – The Matplot lib Module, plotting mathematical functions, Famous Curves, 2D plot using colors, Mesh grids, 3D Plots using Python.</p> <p>CO5: Understand Python programming for Solving equations using Newton-Raphson's Method, Bisection Method, Method of false position, Trapezoidal rule of numerical integration, Simpson's three eighth rule of</p>

		solve first order differential equation, Runge-Kutta Method of order 4, Lagrange's method of interpolation.
COMPLEMENTARY ELECTIVE COURSES		
19.	1C01MAT-PH MATHEMATICS FOR PHYSICS I	<p>CO1: Understand the concept of Differentiation and successive differentiation.</p> <p>CO2: Understand Fundamental theorem – Rolle's theorem, Lagrange's mean-value theorem, Cauchy's mean-value theorem.</p> <p>CO3: Understand the Taylor's theorem, expansions of functions – Maclaurin's series, expansion by use of known series.</p> <p>CO4: Understand the Matrices and System of Equations, Linear Transformations.</p> <p>CO5: Understand Rank of a matrix, elementary transformations, normal form of a matrix, inverse of a matrix, solution of linear system of equations.</p> <p>CO6: Understand Linear transformations, orthogonal transformation, vectors – linear dependence.</p> <p>CO7: Understand Derivative of arc, curvature, Polar coordinates, Cylindrical and Spherical co-ordinates.</p>
20.	2C02MAT-PH MATHEMATICS FOR PHYSICS II	<p>CO1: Understand partial derivatives, homogeneous functions, Euler's theorem, total derivative, differentiation of implicit functions, change of variables.</p> <p>CO2: Understand Integration and Integration by Successive Reduction, Integration of Trigonometric Functions.</p> <p>CO3: Comprehend Applications of Integration.</p> <p>CO4: Comprehend Eigen values, Eigen vectors, properties of Eigen values.</p> <p>CO5: Understand Cayley-Hamilton theorem, Diagonal form, similarity of matrices, powers of a matrix, canonical form, nature of a quadratic form.</p>
21.	3C03MAT-PH MATHEMATICS FOR PHYSICS III	<p>CO1: Understand the concept of Multiple Integrals and solves problems.</p> <p>CO2: Understand Vector Differentiation.</p> <p>CO3: Understand Laplace Transforms and its Applications.</p> <p>CO4: Understand Fourier Series and Half range expansions.</p>

22.	4C04MAT-PH MATHEMATICS FOR PHYSICS IV	<p>CO1: Understand Wave Equation, Solution by Separating Variables, D'Alembert's solution of the wave equation.</p> <p>CO2: Understand Heat Equation and Solution by Fourier Series.</p> <p>CO3: Understand Line integrals, path independence, conservative fields and potential functions, Green's theorem in the plane.</p> <p>CO4: Understand Surface area, surface integrals, Stoke's theorem, Divergence theorem.</p> <p>CO5: Understand Numerical Integration, Trapezoidal Rule, Simpson's 1/3-Rule.</p> <p>CO6: Understand Numerical Solutions of Ordinary Differential Equations by Taylor's series, Euler's method, Modified Euler's method, Runge-Kutta methods.</p>
23.	1C01MAT-CH MATHEMATICS FOR CHEMISTRY I	<p>CO1: Understand Successive differentiation and Leibnitz's theorem for the nth derivative of the product of two functions.</p> <p>CO2: Understand Fundamental theorem – Rolle's theorem, Lagrange's mean-value theorem and Cauchy's mean value theorem.</p> <p>CO3: Understand Taylor's theorem, expansions of functions – Maclaurin's series, expansion by use of known series and Taylor's series.</p> <p>CO4: Understand the method of finding limits of Indeterminate forms.</p> <p>CO5: Understand Polar, Cylindrical and Spherical co-ordinates.</p> <p>CO6: Understand Rank of a matrix, elementary transformation of a matrix, equivalent matrices, elementary matrices, Gauss-Jordan method of finding the inverse, normal form of a matrix and partition method of finding the inverse.</p> <p>CO7: Understand solution of linear system of equations –method of determinants – Cramer's rule, matrix inversion method, consistency of linear system of equations, Rouche's theorem, procedure to test the consistency of a system of equations in n unknowns, system of linear homogeneous equations.</p> <p>CO8: Understand Linear transformations, orthogonal transformation and linear dependence of vectors.</p> <p>CO9: Understand methods of curve fitting, graphical method, laws reducible to the linear law, principles of</p>

		least squares, method of least squares and apply the principle of least squares to fit the straight-line $y = a + bx$, to fit the parabola $y = a + bx + cx^2$, to fit $y = ax^b$, $y = ae^{bx}$ and $xy^n = b$.
24.	2C02MAT-CH MATHEMATICS FOR CHEMISTRY I	<p>CO1: Understand Functions of two or more variables, limits and continuity.</p> <p>CO2: Understand partial derivatives, homogeneous functions, Euler's theorem on homogeneous functions, total derivative, differentiation of implicit functions and change of variables.</p> <p>CO3: Understand Reduction formulae for trigonometric functions and evaluation of definite integrals.</p> <p>CO4: Understand Substitutions and the area between curves, arc length, areas and length in polar coordinates.</p> <p>CO5: Understand Double and Iterated Integrals over rectangles, double integrals over general regions, area by double integration, double integrals in polar form and triple integrals in rectangular co-ordinates.</p> <p>CO6: Understand Eigen values, Eigen vectors, properties of Eigen values, Cayley-Hamilton theorem, reduction to diagonal form, similarity of matrices, powers of a matrix, reduction of quadratic form to canonical form and nature of a quadratic form.</p>
25.	3C03MAT-CH MATHEMATICS FOR CHEMISTRY III	<p>CO1: Understand Ordinary differential equations, Geometrical meaning of $y' = f(x, y)$ and Direction Fields.</p> <p>CO2: Understand Methods of solving Differential Equations: Separable ODEs, Exact ODEs, Integrating Factors, Linear ODEs and Bernoulli Equation.</p> <p>CO3: Understand Orthogonal Trajectories, Existence and Uniqueness of Solutions.</p> <p>CO4: Understand Second order ODEs, Homogeneous Linear ODEs of second order, Homogeneous Linear ODEs with constant coefficients, Differential Operators, Euler-Cauchy Equation, Existence and Uniqueness of Solutions – Wronskian, Nonhomogeneous ODEs and Solution by variation of Parameters.</p> <p>CO5: Understand Laplace Transform, Linearity, first shifting theorem, Transforms of Derivatives and Integrals, ODEs, Unit step Function, second shifting</p>

		theorem, Convolution, Integral Equations, Differentiation and integration of Transforms and to solve special linear ODE's with variable coefficients and Systems of ODEs. CO6: Understand Fourier series, arbitrary period, Even and Odd functions, Half-range Expansions.
26.	4C04MAT-CH MATHEMATICS FOR CHEMISTRY IV	CO1: Understand Partial Differential Equations, Modeling, Vibrating String, Wave Equation. CO2: Solve PDE by Separating Variables, by use of Fourier Series, D-Alembert's solution of the wave equation and Heat Equation. CO3: Understand Numerical Integration, Trapezoidal Rule, Simpson's 1/3-Rule. CO4: Understand Numerical methods to find Solutions of Ordinary Differential Equations: Solution by Taylor's series, Euler's method, Modified Euler's method, Runge-Kutta methods. CO5: Understand volumes of solid using cross sections and areas of surfaces of revolution.
GENERIC ELECTIVE COURSE		
27.	5D02MAT QUANTITATIVE ARITHMETIC AND REASONING	CO1: Understand average, Problems on ages, Profit and loss and solves problems. CO2: Understand Profit and loss, Ratio and proportion, Chain rule. CO3: Comprehend Time and work, Time and distance and solves problems. CO4: Comprehend Problems on trains, Boats and streams, Calendar, Clocks.
28.	5D05MAT BUSINESS MATHEMATICS	CO1: Understand the concept of Limit and continuity, methods of finding limits definition, Differentiation-rules of differentiation, Parametric function logarithmic differentiation. CO2: Understand the Successive differentiation, Local maximum and local minimum and solves problems. CO3: Understand the Rules of integration, Some standard results, Consumer's surplus, Producer's surplus, Consumer's surplus. CO4: Understand rate of interest, Continuous compounding, Compound interest, Present value, interest and discount, Rate of discount, Equation of value, Depreciation and solves problems.

STATISTICS		
29.	OPEN COURSE 5D01STA SAMPLING TECHNIQUES	CO1: Understand different types of data. CO2: Understand the concept the census and sampling. CO3: Apply different sampling methods. CO4: Familiarize with the various statistical organizations.
COMPLEMENTARY COURSES FOR BSc MATHEMATICS		
30.	1C01STA BASIC STATISTICS	CO1: Understand the different types of data. CO2: Compute various measures of central tendency, measures of variation. CO3: Analyze the relationship between two variables. CO4: Acquire knowledge in time series data and compute various index numbers.
31.	2C02STA PROBABILITY THEORY AND RANDOM VARIABLES	CO1: Evaluate the probability of events. CO2: Understand the concept of random variables with examples in real life. CO3: Calculate the probability distribution of discrete and continuous random variables. CO4: Understand the change of variable technique.
32.	3C03STA PROBABILITY DISTRIBUTIONS	CO1: Compute mathematical expectation of a random variable. CO2: Familiarize with different discrete probability distribution associated with real life situations. CO3: Understand the characteristics of different continuous distributions. CO4: Identify the appropriate probability model that can be used.
33.	4C04STA STATISTICAL INFERENCE	CO1: Understand the uses of Chebychev's Inequality and Central Limit Theorem. CO2: Apply various method of estimation. CO3: Understand the concept of testing statistical hypotheses and its importance in real life situation. CO4: Apply ANOVA.

Name of the Programme: **BSc BOTANY**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Skill development for the proper description using botanical terms, identification, naming and classification of life forms especially plants and microbes.

PSO2.

Acquisition of knowledge on structure, life cycle and life processes that exist among plant and microbial diversity through certain model organism studies.

PSO3.

Understanding of various interactions that exist among plants, animal and microbes; to develop the curiosity on the dynamicity of nature.

PSO4.

Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5.

Ability to explain the diversity and evolution based on the empirical evidences in morphology, anatomy, embryology, physiology, biochemistry, molecular biology and life history.

PSO6.

Skill development for the collection, preservation and recording of information after observation and analysis- from simple illustration to molecular database development.

PSO7.

Making aware of the scientific and technological advancements- Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8.

Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	IB01BOT/PLS CYTOLOGY AND ANGIOSPERM ANATOMY	CO1: Knowledge on general terms with updated information used in cell biology. CO2: Observation of variations that exist in internal structure of various parts of a plant and as well as among different plant groups in support for the evolutionary concept. CO3: Skill development for the proper description of internal structure using botanical terms, their identification and further classification.

		<p>CO4: Induction of the enthusiasm on internal structure of locally available plants.</p> <p>CO5: Understanding various levels of organization in a plant body with an outlook in the relationship between the structure and function through comparative studies.</p>
2.	2B02BOT/PLS REPRODUCTIVE BOTANY	<p>CO1: Observation and classification of the floral variations from the premises of college and house.</p> <p>CO2: Understanding the various reproductive methods sub-stages in the life cycle of plants.</p> <p>CO3: Observation and classification of the morphological variations in fruits and seeds of angiosperms.</p> <p>CO4: Enthusiasm to understand evolution based on the variations in reproduction among plants.</p>
3.	3B03BOT/PLS PLANT DIVERSITY I- ALGAE AND BRYOPHYTES	<p>CO1: Understanding diversity in morphology, anatomy, reproduction and life cycle in lower groups of plants, algae and bryophytes.</p> <p>CO2: Skill Development in collection and preservation of algae and bryophytes.</p> <p>CO3: Realizing the economic/ecological importance of Algae and Bryophytes.</p> <p>CO4: Understanding the evolutionary lineages in algae and bryophytes</p>
4.	4B04BOT/PLS PLANT DIVERSITY II – PTERIDOPHYTES AND GYMNOSPERMS	<p>CO1: A comparative knowledge of lower vascular plants and lower group of flowering plants.</p> <p>CO2: Skill development for the proper description, identification and classification through morphological, anatomical and life cycle studies.</p> <p>CO3: Awareness on the morphological, anatomical and reproductive features of primitive and advanced plants with an evolutionary link between them.</p> <p>CO4: Skill development in collection preservation and studies in diversity studies of pteridophytes and gymnosperms.</p>
5.	4B05BOT/PLS CORE PRACTICAL 1	<p>CO1: Learning the fundamental techniques used in a botany lab.</p> <p>CO2: Understands the working of science by first-hand experience.</p>

		<p>CO3: By comparing different plants and their vegetative and reproductive structures a generalization in evolutionary concept is attained.</p> <p>CO4: Internalization of practical skills for further application in free, independent, individual needs and helps in designing scientific experimentation.</p>
6.	5B06BOT/PLS ANGIOSPERM SYSTEMATICS AND ETHNOBOTANY	<p>CO1: Understanding the main features in Angiosperm evolution.</p> <p>CO2: Skill development in identification and classification of flowering plants.</p> <p>CO3: Ability to identify, classify and describe a plant in scientific terms, thereby.</p> <p>CO4: Identification of plants using dichotomous keys.</p> <p>CO5: Recognition of locally available angiosperm families and plants.</p> <p>CO6: Recognition of economically important plants.</p> <p>CO7: Appreciation of human activities in conservation of useful plants from the past to the present.</p>
7.	5B07BOT/PLS PLANT PHYSIOLOGY AND METABOLISM	<p>CO1: Preliminary understanding of the basic functions in a plant body.</p> <p>CO2: Awareness on the interdisciplinary nature of botany, chemistry and physics by studying the principles of plant life, growth and reproduction.</p> <p>CO3: Recognizing the wonderful mechanism of transport and the Interrelationships existing between metabolic pathways thereby gaining an idea about the importance of plants in the dynamicity of nature.</p> <p>CO4: Enhance research interest among students by introducing the historical aspects of physiological research</p>
8.	5B08BOT/PLS MICROBIOLOGY, MYCOLOGY, LICHENOLOGY AND PHYTOPATHOLOGY	<p>CO1: Understanding and appreciating the unity and diversity of microbes and fungi,</p> <p>CO2: Understanding the significance of microbes in nature's dynamicity.</p> <p>CO3: Develop skill in studying the fungal diversity through the study of representative taxon and methodology.</p> <p>CO4: Understanding the inter-relationship between plants and microbes both beneficial and harmful.</p> <p>CO5: Skill development to diagnose plant disease and to apply general control measures.</p>

9.	5B09BOT/PLS RESEARCH METHODOLOGY, INSTRUMENTATION AND BIOSTATISTICS	<p>CO1: Learning of the fundamental characteristics of science as a human enterprise, product and intellectual process</p> <p>CO2: Understanding the working of science for further application in free, independent, individual needs and in designing scientific experimentation.</p> <p>CO3: Appreciation of several scientific works and assessment of its influence on society.</p> <p>CO4: Acquire knowledge on the principles, components and applications of various scientific equipment in biology.</p> <p>CO5: Foundation knowledge in the basic concepts, components and functions of informatics.</p> <p>CO6: Appreciate the importance of statistical principles in biological research.</p>
10.	6B10BOT/PLS ENVIRONMENTAL SCIENCE AND PHYTOGEOGRAPHY	<p>CO1: Understanding the fundamental concepts in ecology, environmental science and phytogeography.</p> <p>CO2: Concept development in conservation, global ecological crisis, Sustainable development and pros and cons of human intervention.</p> <p>CO3: Enable the student to appreciate bio diversity and the importance of various conservation strategies, laws and regulatory authorities.</p> <p>CO4: Recognition of the need for more research to create a baseline data for sustainable exploitation-Think globally and Act locally</p> <p>CO5: Analyze the interrelationship between the geography and pattern of distribution of plants.</p> <p>CO6: Appreciate key concepts from economic, political, and social analysis as pertained to the design and evaluation of environmental policies and institutions.</p> <p>CO7: Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.</p> <p>CO8: Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.</p>
11.	6B11BOT/PLS GENETICS, MOLECULAR BIOLOGY AND PLANT BREEDING	<p>CO1: Identify the basic principles and current trends in classical genetics.</p> <p>CO2: Recognize the historical process of the evolution of molecular genetics from classical genetics.</p>

		<p>CO3: Review the relevance of the application of genetic principles in agriculture, medicine, research and industry.</p> <p>CO4: Outlining the use of genetic principles for conservation, defining and better understanding of nature.</p> <p>CO5: Develop theoretical background on molecular genetics to provide a strong support for the student for future research and employability.</p> <p>CO6: Appreciate the way scientists work in understanding biological processes and the organization of cell.</p> <p>CO7: Cite examples for scientific interventions to human and plant life through brief exposure to plant breeding principles.</p> <p>CO8: Modify the concept on gender, human diseases and their management based on the study of genetic principles of human beings.</p>
12.	6B12BOT/PLS BIOTECHNOLOGY AND BIOINFORMATICS	<p>CO1: Develop knowledge of the fundamental techniques of biotechnology and the history of its development.</p> <p>CO2: Recognize theoretical knowledge on the equipment used in biotechnology which will give a support during future prospects.</p> <p>CO3: Connect the genetic engineering principles in agriculture, medicine, research and industry for a better world.</p> <p>CO4: Identify the significance of nanobiotechnology results for updated knowledge in that field.</p> <p>CO5: Appreciate and criticize the information technology aided advancements in biology.</p> <p>CO6: Develop awareness on the economic, social and environmental problems of gene manipulation.</p>
13.	6B13BOT/PLS EVOLUTION AND PALAEOBOTANY	<p>CO1: Understand the basic principles and current trends in classical evolution.</p> <p>CO2: Develop awareness on the historical process of plants and animals with an emphasis on human beings.</p> <p>CO3: Relate the evolutionary principles with agriculture, medicine, research and industry.</p> <p>CO4: Apply the principles of genetics and evolution in conservation, defining and better understanding of nature.</p>

14.	6B14BOT/PLS CORE PRACTICAL II	<p>CO1: Learning the fundamental techniques used in a botany lab related to Mycology, Microbiology, Angiosperms systematics</p> <p>CO2: Understands the working of science by first-hand experience.</p> <p>CO3: Comparison skill is attained by comparing different plants and their vegetative and reproductive structures.</p> <p>CO4: Inculcation of practical skills for further application in free, independent, individual needs and helps in designing scientific experimentation.</p>
15.	6B16BOT/PLS CORE PRACTICAL III	<p>CO1: Learning the fundamental techniques used in a botany lab related to Modern biology, biology, Genetics, Bioinformatics and Instrumentation.</p> <p>CO2: Understands the working of science by first-hand experience.</p> <p>CO3: Internalization of practical skills for further application in free, independent, individual needs and helps in designing scientific experimentation.</p>
16.	6B16BOT/PLS PROJECT/FIELD STUDY/VIVA VOCE	<p>CO1: Learning the fundamental techniques used in research</p> <p>CO2: First-hand experience in doing science.</p> <p>CO3: Development of the skill to communicate science.</p> <p>CO4: Internalization of skills for further application in designing scientific experimentation.</p>
COMPLEMENTARY ELECTIVE COURSES		
17.	IC01BOT MICROBIOLOGY, PHYCOLOGY, MYCOLOGY AND LICHENOLOGY	<p>CO1: Understanding of the fundamental concepts in classification of plants.</p> <p>CO2: Concept development in structure and reproduction of lower plants.</p> <p>CO3: Enable the student to appreciate bio diversity, sustainable development with the help of their core subject and subsidiary subject botany.</p> <p>CO4: Induce to experiment on the subject in an intensive way to facilitate an interdisciplinary profession/enterprise/entrepreneurship.</p>
18.	2C02BOT PHYTOPATHOLOGY AND ANGIOSPERM EMBRYOLOGY	<p>CO1: Understanding of the fundamental concepts in classification of Bryophytes, Pteridophytes, Gymnosperms.</p>

		<p>CO2: Concept development in structure and reproduction of lower plants.</p> <p>CO3: Enable the student to appreciate bio diversity, evolution and sustainable development with the help of their core subject and subsidiary subject botany.</p> <p>CO4: Induce to experiment on the subject in an intensive way to facilitate an interdisciplinary profession/enterprise/entrepreneurship.</p>
19.	3C03BOT ANGIOSPERM MORPHOLOGY, ANATOMY AND SYSTEMATICS	<p>CO1: Understanding of the fundamental concepts in classification of Angiosperms.</p> <p>CO2: Concept development in diversity that exist in angiosperms through studies in morphology, anatomy and systematic.</p> <p>CO3: Enable the student to appreciate economic importance of plants belonging to the specified families.</p> <p>CO4: Induce to experiment on the subject in an intensive way to facilitate an interdisciplinary profession/enterprise/entrepreneurship.</p>
20.	4C04BOT PLANT PHYSIOLOGY, ECOLOGY AND APPLIED BOTANY	<p>CO1: Understanding of the fundamental concepts in Physiology</p> <p>CO2: Concept development in plant ecology.</p> <p>CO3: Enable the student to appreciate bio diversity, sustainable development with the help of their core subject and subsidiary subject botany in hts biotechnology era.</p> <p>CO4: Induce to experiment on the subject in an intensive way to facilitate an interdisciplinary profession/enterprise/entrepreneurship.</p>
21.	4C05BOT COMPLEMENTARY BOTANY PRACTICAL	<p>CO1: Learning the fundamental techniques used in a botany lab.</p> <p>CO2: First-hand experience in doing science.</p> <p>CO3: Internalization of practical skills for further application in free, independent, individual needs and helps in designing scientific experimentation.</p>

GENERIC ELECTIVE COURSES

22.	5D01BOT - MUSHROOM CULTIVATION	<p>CO1: Knowledge on fundamentals of selected courses- Mushroom cultivation, Botany for beginners, Plant Propagation, Medicinal plants and Plant diversity and human welfare.</p> <p>CO2: Familiarity with basic concepts in botany/biology applicable to the respective interest of the student.</p> <p>CO3: Ability to appreciate the advancements in the subject.</p> <p>CO4: Ability to specialize in commercial plant cultivation and/or commercial utilization of the imparted knowledge.</p>
23.	5D03BOT- PLANT PROPAGATION	<p>CO1: Knowledge on fundamentals of selected courses- Mushroom cultivation, Botany for beginners, Plant Propagation, Medicinal plants and Plant diversity and human welfare.</p> <p>CO2: Familiarity with basic concepts in botany/biology applicable to the respective interest of the student.</p> <p>CO3: Ability to appreciate the advancements in the subject.</p> <p>CO4: Ability to specialize in commercial plant cultivation and/or commercial utilization of the imparted knowledge.</p>

Name of the Programme: **BSc ZOOLOGY**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Skill development for the proper identification, naming and classification of life forms especially animals.

PSO2.

Acquisition of knowledge on structure, life cycle and life processes that exist among animal diversity through certain model organism studies.

PSO3.

Understanding of various interactions that exist among plants animals and microbes; to develop the curiosity and love on the dynamicity of nature.

PSO4.

Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5.

Ability to explain the diversity and evolution based on the empirical evidences in Morphology, Anatomy, Embryology, Physiology, Biochemistry, Molecular Biology and Life history.

PSO6.

Skill development in the observation and study of nature, biological techniques and scientific investigation

PSO7.

Making aware of the scientific and technological advancements in the fields of Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8.

Internalization of the concept of conservation and evolution through the channel of spirit of inquiry.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
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1.	1B01ZLG PROTISTA AND NONCHORDATA - I	<p>CO1: To understand the basic methods in zoology and animal classification.</p> <p>CO2: Able to appreciate the process of evolution (unicellular cells to complex, multicellular organisms).</p> <p>CO3: Familiar with the protist and non-chordate world (from Phylum Porifera to Mesozoa) that surrounds us.</p> <p>CO4: Able to identify the invertebrates (from Phylum Porifera to Mesozoa) and classify them up to the class level with the basis of systematics.</p> <p>CO5: Understand the basis of life processes in the non-chordates (from Phylum Porifera to Mesozoa) and recognize the economically important invertebrate fauna.</p>
2.	2B02ZLG NON - CHORDATA - 2	<p>CO1: Familiar with the non-chordate world (Coelomates - from Phylum Annelida to Hemichordata) that surrounds us.</p> <p>CO2: Able to identify the invertebrates (Coelomates - from Phylum Annelida to Hemichordata) and classify them up to the class level with the basis of systematics.</p> <p>CO3: Understand the basis of life processes in the non-chordates (from Coelomates – from Phylum Annelida to Hemichordata) and recognize the economically important invertebrate fauna.</p>
3.	3B03ZLG CHORDATA – I	<p>CO1: Understand the origin and evolutionary relationship in different subphyla of chordates.</p> <p>CO2: To understand the diversity of chordates (from urochordates to reptiles).</p> <p>CO3: Understand the unique characters of urochordates, cephalochordates and vertebrates.</p> <p>CO4: Recognize life functions of chordates (from urochordates to reptiles).</p>
4.	4B04ZLG CHORDATA – II AND COMPARATIVE ANATOMY	<p>CO1: Understand the general and unique characteristics and classification of Aves and Mammals.</p> <p>CO2: Understand the diversity and relation in form and structure of chordates.</p>
5.	5B05ZLG EVOLUTION, ETHOLOGY AND	<p>CO1: Realize that the whole living system has a common ancestry and so all are related.</p>

	RESEARCH METHODOLOGY	<p>CO2: Realize the fundamental characteristics of science as a human enterprise.</p> <p>CO3: Apply scientific methods in day-to-day life.</p> <p>CO4: Able to design a research work on a topic.</p>
6.	5B06ZLG ANIMAL PHYSIOLOGY	<p>CO1: Understand the function of various systems at cellular and system levels.</p> <p>CO2: Understand the mechanisms that work to keep the body alive and functioning.</p> <p>CO3: Apply the knowledge to lead a healthy life.</p>
7.	5B07ZLG BIOCHEMISTRY AND BIOPHYSICS	<p>CO1: Understand the importance of Bio molecules.</p> <p>CO2: Familiar with various biochemical pathways.</p> <p>CO3: Develop knowledge about equipment like microscopes, spectrophotometers, centrifuges etc.</p>
8.	5B08ZLG GENETICS	<p>CO1: Comprehensive and detailed understanding of the chemical basis of heredity.</p> <p>CO2: Understanding about the role of genetics in evolution.</p> <p>CO3: The ability to evaluate conclusions that are based on genetic data.</p> <p>CO4: The ability to understand results of genetic experimentation in animals.</p>
9.	6B09ZLG CELL BIOLOGY, IMMUNOLOGY AND MICROBIOLOGY	<p>CO1: Structural and functional aspects of basic unit of life i.e. cell concepts.</p> <p>CO2: Gather basic concepts of Cell Biology along with various cellular functions.</p> <p>CO3: Understand the basic concepts of immunity.</p> <p>CO4: Understand the diversity of microbes and their use and harm.</p>
10.	6B10ZLG, MOLECULAR BIOLOGY & BIOINFORMATICS	<p>CO1: Understand the importance of Bio molecules.</p> <p>CO2: Familiar with various tools and applications of Bioinformatics.</p>
11.	6B11ZLG, ENVIRONMENTAL SCIENCE	<p>CO1: Able to describe the relation between abiotic and biotic factors.</p> <p>CO2: Students are able to describe various biological interactions.</p> <p>CO3: Students are able to understand how change in population affect the ecosystem.</p>

12.	6B12ZLG, DEVELOPMENTAL BIOLOGY	CO1: Understand the major steps in embryological development. CO2: Understand the intricate mechanisms involved in the development of animals.
COMPLEMENTARY COURSES		
13.	1C01ZLG DIVERSITY OF LIFE I, PROTISTANS & NON- CHORDATES	CO1: Familiar with the non-chordate world that surrounds us. CO2: Able to identify the invertebrates and classify them up to the class level with the basis of systematics. CO3: Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.
14.	2C02ZLG DIVERSITY OF LIFE – II, CHORDATE FORM AND FUNCTION	CO1: Understand the origin and evolutionary relationship in different subphyla of chordates. CO2: Understand the diversity of chordates. CO3: Understand the unique characters of urochordates, cephalochordates and vertebrates. CO4: Recognize life functions of chordates.
15.	3C03ZLG ANIMAL PHYSIOLOGY	CO1: Understand the function of various systems at cellular and system levels. CO2: Understand the mechanisms that work to keep the body alive and functioning. CO3: Apply the knowledge to lead a healthy life.
16.	4C04ZLG, MEDICAL ZOOLOGY	CO1: Understanding of the various causative organisms and factors and also how and what preventive measures can be adopted against these.
GENERIC ELECTIVE COURSES		
17.	5D02ZLG APICULTURE	CO1: Develop self-employment capabilities. CO2: Acquires scientific knowledge of profitable farming.
18.	5D03ZLG SERICULTURE	CO1: Develop self-employment capabilities. CO2: Acquires scientific knowledge of sericulture.

BA DEGREE PROGRAMME (FOR ARTS)

PROGRAMME OUTCOMES (PO)

PO1. Critical Thinking

- 1.1. Acquire the ability to apply the basic tenets of logic and science to thoughts, actions and interventions.
- 1.2. Develop the ability to chart out a progressive direction for actions and interventions by learning to recognize the presence of hegemonic ideology within certain dominant notions.
- 1.3 Develop self-critical abilities and also the ability to view positions, problems and social issues from plural perspectives.

PO2. Effective Citizenship

- 2.1. Learn to participate in nation building by adhering to the principles of sovereignty of the nation, socialism, secularism, democracy and the values that guide a republic.
- 2.2. Develop and practice gender sensitive attitudes, environmental awareness, empathetic social awareness about various kinds of marginalization and the ability to understand and resist various kinds of discriminations.
- 2.3. Internalize certain highlights of the nation and region history. Especially of the freedom movement, the renaissance within native societies and the project of modernization of the post-colonial society.

PO3. Effective Communication

- 3.1. Acquire the ability to speak, write, read and listen clearly in person and through electronic media in both English and in one Modern Indian Language
- 3.2. Learn to articulate, analyze, synthesize, and evaluate ideas and situations in a well-informed manner.
- 3.3. Generate hypotheses and articulate assent or dissent by employing both reason and creative thinking.

PO4. Inter disciplinarity

- 4.1. Perceive knowledge as an organic, comprehensive, interrelated and integrated faculty of the human mind.
- 4.2. Understand the issues of environmental contexts and sustainable development as a basic interdisciplinary concern of all disciplines.
- 4.3. Develop aesthetic, social, humanistic and artistic sensibilities for problem solving and evolving a comprehensive perspective.

Name of the Programme: **BA ECONOMICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

The programme with structured curricula will support the academic development of the undergraduates.

PSO2.

The programme will provide the students with the opportunity to pursue courses that emphasize quantitative, qualitative and theoretical aspects of economics.

PSO3.

The programme will provide a well-resourced teaching learning environment for the students of economics, which will definitely lead to the ultimate educational goal of “learning to be”.

PSO4.

The programme will promote academic writing, critical thinking and research aptitude among the students.

PSO5.

Needless to point out, the students will gain a source of livelihood by expanding their skill set and widening their knowledge horizon.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01ECO/DEVECO MICROECONOMIC ANALYSIS I	<p>CO1: A strong theoretical and empirical foundation in economics which produces employable graduates and has scope for a variety of opportunities for higher education in economics and related disciplines.</p> <p>CO2: Students familiarity about the tool box of micro economics will enhance the capacity for understanding the functioning of economies.</p> <p>CO3: A thorough knowledge and theoretical understanding of the foundations of modern economic analysis.</p>
2.	2B02ECO/DEVECO MICROECONOMIC ANALYSYS II	<p>CO1: Students may acquire confidence to apply the principles of micro economics to the decision making of firms and the functioning of the market.</p> <p>CO2: Students will also be able to analyze the distributional dynamics of the economy both at the micro and the macro level.</p>

3.	3B03ECO CENTRAL THEMES IN INDIAN ECONOMY	<p>CO1: To help the students to identify the basic structure and working of Indian economy by enabling them to use qualitative and quantitative data relating to various economic issues and policies.</p> <p>CO2: Students may get an opportunity to identify the strategic drivers in the development of Indian Economy.</p> <p>CO3: It will create an environment to comprehend and critically appraise the current problems and policies relating to Indian economy.</p>
4.	3B04ECO/DEVECO INTERNATIONAL ECONOMICS	<p>CO1: Enabling the students to assess current international economic issues based on theory and evidence.</p> <p>CO2: Preparing the students to undertake higher studies and research in issues related to International Economics.</p> <p>CO3: Students may get an opportunity to examine the trends in global economic performance.</p>
5.	4B05ECO/DEVECO RESEARCH METHODS AND TECHNIQUES FOR ECONOMIC ANALYSIS	<p>CO1: To initiate students to the field of academic research.</p> <p>CO2: Introduce quantitative, qualitative and analytical tools required to prepare small research projects.</p> <p>CO3: To bridge the gap between theory and empirics and to familiarize the use and importance of data in research.</p> <p>CO4: To highlight the importance of scientific research in economics based on academic honesty, integrity and ethics.</p>
6.	4B06ECO/DEVECO ENVIRONMENTAL ECONOMICS	<p>CO1: To provide a deeper understanding about the interface between ecology and economy.</p> <p>CO2: Understand the economic incentives to improve and conserve the environment.</p> <p>CO3: To provide basic conceptual understanding of environmental disaster, its management and mitigation.</p> <p>CO4: Ultimately, greater awareness will be imparted about the issues of environmentally sustainable development in an interdisciplinary perspective.</p>
7.	5B07ECO/DEVECO BASIC TOOLS FOR ECONOMIC ANALYSIS I	<p>CO1: To enable the students to understand economic concepts with the aid of mathematical and Statistical tools.</p>

		<p>CO2: To equip the students to quantify economic variables and to enable them to apply statistical techniques in Economics.</p> <p>CO3: To analyze and interpret empirical data with the help of statistical tools.</p>
8.	5 B08ECO/DEVECO HETERODOX ECONOMICS	<p>CO1: Familiarity with different perspectives of alternative schools of thought may get easily exposed to pluralistic approach to both economic theory and policy.</p> <p>CO2: Through such an exposure the course will enhance and diversify the knowledge profile of the students and may get opportunities to pursue higher studies and research in heterodox economics.</p>
9.	5B09ECO/DEVECO MACROECONOMIC ANALYSIS -I	<p>CO1: Students will be able to get a perspective on the working of an economy.</p> <p>CO2: By sharpening the macroeconomic tool box students will be able to appreciate macroeconomic policies.</p> <p>CO3: Enables the students to pursue higher studies in the core domain of economics.</p>
10.	5B10ECO DEVELOPMENT ECONOMICS	<p>CO1: To make the students aware of the methodological and measurement issues relating to growth and development.</p> <p>CO2: To enable the students to understand the theory and empirics of Development Economics with special reference to less developed countries.</p> <p>CO3: To provide an understanding about the various development issues and the development gap between policy and practice.</p>
11.	5B11ECO/DEVECO ECONOMICS OF BANKING AND FINANCE	<p>CO1: The students will be equipped with theoretical as well as practical aspects of the structure and working of financial system and regulatory mechanisms.</p> <p>CO2: The course is expected to expand the skill set of the students for higher studies and employment in finance.</p> <p>CO3: The students will be aware of the innovations and the related trends in the field of banking and finance with special reference to instruments like derivatives.</p>

12.	6B12ECO/DEVECO BASIC TOOLS FOR ECONOMIC ANALYSIS II	<p>CO1: To enable the students to understand and interpret economic concepts with the aid of mathematical and statistical tools.</p> <p>CO2: To enable students to apply statistical techniques in Economics.</p> <p>CO3: To analyze and interpret empirical data with the help of statistical tools.</p>
13.	6B13ECO/DEVECO MACROECONOMIC ANALYSIS II	<p>CO1: Students will be equipped with a sound idea of advancements in macroeconomics with tools like IS-LM and the developments there after.</p> <p>CO2: Students will be equipped with the theories of economic fluctuations and needed policy intervention.</p> <p>CO3: Student will be able to develop critical thinking and research inquisitiveness in macroeconomics.</p> <p>CO4: Opportunities to higher studies and prospects for employment through the knowledge of theories and concepts in Macroeconomics will be enhanced.</p>
14.	6B14ECO/DEVECO PUBLIC ECONOMICS	<p>CO1: Better conceptualization of the economic rationale of govt. in terms of allocation, distribution, stabilization and growth in a federal system.</p> <p>CO2: Better exposure to resource mobilization by the govt. through innovative fiscal instruments like GST.</p> <p>CO3: Students are expected to get an overall perspective of public policy and the development programmes aimed at public welfare as well.</p>
15.	6B15ECO/DEVECO BASIC ECONOMETRIC ANALYSIS	<p>CO1: This course provides a comprehensive introduction to basic econometric concepts, methodology and techniques of analysis.</p> <p>CO2: The students will acquire knowledge and adequate skills for the development of simple linear econometric models.</p> <p>CO3: The students will be able to perform econometric analysis relating to their project work and future research and development.</p>
16.	6B 16 ECO/DEVECO PROJECT WORK	<p>CO1: Students will be able to identify a research topic .</p> <p>CO2: The course will provide the students a basic understanding about various steps in doing research.</p> <p>CO3: Students will be able to develop a research aptitude.</p>

COMPLEMENTARY ELECTIVE COURSES		
17.	1C01ECO/DEVECO MATHEMATICS FOR ECONOMIC ANALYSIS I	<p>CO1: Students will be equipped with the basics of mathematical tools and their application for better understanding and interpretation of economic theory.</p> <p>CO2: This course is expected to provide students with an elementary introduction to mathematical concepts that are used in the study of economics at UG level.</p> <p>CO3: The basic outcome of the course will be the enhancement of skills in applying mathematical concepts that are indispensable for in depth study of theoretical as well as empirical economics.</p>
18.	2C02ECO/DEVECO MATHEMATICS FOR ECONOMIC ANALYSIS II	<p>CO1: The course will provide the basics of mathematical tools for analyzing economic theory.</p> <p>CO2: The analytical ability of students in dealing with economic theories and concepts is expected to be enhanced by involving in calculus and matrix algebra.</p>
19.	3C03ECO/DEVECO MATHEMATICAL ECONOMICS-I	<p>CO1: Understanding of the basic mathematical concepts and tools will be improved.</p> <p>CO2: Students will be able to conceptualize economic problems mathematically and develop skills in applying mathematical tools and techniques in microeconomic theory.</p>
20.	4C04ECO/DEVECO MATHEMATICAL ECONOMICS-II	<p>CO1: The course will provide an understanding of the fundamental concepts of linear programming, input output analysis and game theory and their applications in economics.</p> <p>CO2: It will enhance the capacity of the students in recognizing an economic variable with the help of mathematical tools.</p>
21.	1C05ECO INTRODUCTORY ECONOMICS -I	<p>CO1: The students will get an overall background of the economic theory.</p> <p>CO2: Specific inputs from micro economics covering the fundamental concepts will improve their analytical skills.</p>
22.	2C06ECO INTRODUCTORY ECONOMICS II	<p>CO1: To familiarize the students about the subject matter of economics mainly relating to concepts in macroeconomics and public finance.</p> <p>CO2: Students are expected to get an awareness of the development issues of Indian economy with special reference to poverty, inequality, unemployment and</p>

		black economy.
23.	3C07ECO HISTORY OF ECONOMIC THOUGHT- I	CO1: Students are expected to get an idea of the economic philosophy in a historical perspective CO2 Students are also exposed to heterogeneous thinking in economics.
24.	4C08ECO HISTORY OF ECONOMIC THOUGHT- II	CO1: Students are expected to get an idea of the economic philosophy in a historical perspective. CO2: Students are also exposed to some of the heterogeneous thinking in economics like Neoclassical, Keynesian and Indian economic thinking.
25.	1C09ECO POPULATION AND DEVELOPEMNT	CO1: Students will be able to identify the linkage between population and development. CO2: Students will be able to get an idea of the basic demographic concepts like fertility, mortality, migration and urbanization. CO3: Students are also expected to get an understanding on the regional, national and global population trends.
26.	2C10ECO ECONOMIC GEOGRAPHY	CO1: Students will be exposed to the emerging branch of economic geography. CO2: The course will provide preliminary inputs for sharpening their analytical tools of economic geography. CO3: Students will also get an idea of geography of key economic variables in the Indian context.
27.	3C11ECO AGRICULTURAL ECONOMICS	CO1: The course is expected to provide a basic knowledge of the essentials of agricultural economics. CO2: Students are expected to get an opening for higher studies and research in agricultural economics. CO3: The course will help students to get an agrarian entrepreneurship towards a source of livelihood.
28.	4C12ECO GENDER ECONOMICS	CO1: Students will be having an understanding of the basic concepts relating to gender as a social construct and its link with development. CO2: Students are exposed to gender challenges to development.
GENERIC ELECTIVE COURSE		

29.	5D01ECO/DEVECO BASICS OF ECONOMICS	CO1: Students will have an understanding of the basic concepts of economics in everyday life. CO2: Students will be able to get an idea of major economic issues.
30.	5D03ECO/DEVECO KERALA ECONOMY	CO1: Students will be able to understand the structural changes in Kerala Economy. CO2: The course will provide the students a basic understanding about the developmental issues of Kerala Economy.

Name of the Programme: **BA POLITICAL SCIENCE**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

To improve understanding of basic facts and concepts about political system, including philosophical, constitutional and legal foundations, policy making processes etc.

PSO2.

To support students to acquire advanced knowledge of national and international politics. They will gain conceptual depth in the field of Political Science.

PSO3.

To promote acquisition of citizenship skills and the ability to understand and appreciate human diversity; and to engage in community life as active citizens.

PSO4.

To enable students to evaluate and analyze political processes and effectively apply theoretical and analytical skills to address significant issues in the political world by taking political and administrative responsibilities.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1BO1POL PRINCIPLES OF POLITICAL SCIENCE	CO1: Provide students an overview of the nature of politics and government. CO2: Enable the students to understand the function of institutional structures and how they drive individual and organizational behaviors. CO3: Students will be able to work with the approaches and theories used by political scientists to understand political phenomena. CO4: Students will be able to analyze current political situations.
2.	2BO2POL POLITICAL THEORY	CO1: Enable the students to understand the theoretical foundations of the discipline by studying political theory in the classical and modern context. CO2: While understanding the basic concepts of Law, Liberty, Equality, Justice, Rights, and duties students can develop a theoretical outlook in the political sphere CO3: Develops the ability to apply abstract theory to concrete problems by using the ideas of political theorists to address contemporary social issues.

		CO4: Students will be able to identify the people who made substantial contributions to the study and/or practice of politics.
3.	3BO3POL INTRODUCTION TO INDIAN CONSTITUTION	<p>CO1: Should be able to understand the Political system of India.</p> <p>CO2: Can comprehend the legal-formal nature of citizenship and the aspects of Fundamental Rights, Directive Principles and Fundamental Duties as envisaged by the constitution.</p> <p>CO3: Should be able to discuss and explain the organization and functions of the constitutional offices.</p> <p>CO4: Helps to Understand the nature and functioning of constitution in post-Independent India.</p>
4.	3BO4POL ANCIENT AND MEDIEVAL POLITICAL THOUGHT	<p>CO1: Enable students to identify the major streams and traditions of ancient political thought.</p> <p>CO2: Understand the philosophical and political roots of modern democratic institutions.</p> <p>CO3: Should be able to identify the role of ancient political thinkers in building up a modern political theory.</p> <p>CO4: Enables to analyze the historical and social developments leading to renaissance, secularism, and scientism.</p>
5.	4BO5POL STATE AND POLITICS IN INDIA	<p>CO1: Enable the students to understand and evaluate the sociological foundations of Indian state.</p> <p>CO2: Enable students to identify the development of nationalism in India.</p> <p>CO3: Should be able to recognize areas of tensions between union and states: their nature and implications.</p> <p>CO4: Enables students to identify the nature of Indian state and to promote the cause of national harmony and integration.</p>
6.	4BO6POL MODERN WESTERN POLITICAL THOUGHT	<p>CO1: Students can understand the philosophical radicalism and the scientific rationalism of the Modern period.</p> <p>CO2: Able to discuss the possessive individualism of Hobbes, John Locke's state of Nature and Enlightenment ideas of Rousseau.</p>

		<p>CO3: Should be able to recognize European school of political theory. Utilitarianism also helps to understand the necessity of legal and social reform.</p> <p>CO4: Enables to identify various radical socialist schools and contemporary affluent stream of thoughts.</p>
7.	5BO7POL RESEARCH METHODOLOGY IN POLITICAL SCIENCE	<p>CO1: Students will be able to identify various types of research in political science. The student will also inculcate the spirit of scientific enquiry and objective research.</p> <p>CO2: Student will accumulate knowledge on different types of variables, concept of hypotheses, sampling etc.</p> <p>CO3: Can elaborate different types of tools and techniques used for data collection and to describe concept, purpose and uses of various tools and techniques in Political Science research.</p> <p>CO4: Become aware of various components of research proposal and enable to prepare write up for research proposal.</p>
8.	5BO8POL COMPARATIVE GOVERNMENT AND POLITICS	<p>CO1: Student will be able to analyze the nature, scope, usefulness and relevance of comparative politics.</p> <p>CO2: Students come to know what is the comparative method and distinguish comparison as a method to acquire knowledge of social and political phenomena flourishing in various Political systems.</p> <p>CO3: Enable students to identify cultural contexts of political systems and evaluate them.</p> <p>CO4: Acquire ability to define, explain, describe and to conclude about different political structures and processes in different political systems.</p>
9.	5BO9POL POLITICAL SOCIOLOGY	<p>CO1: Students should be able to define Political sociology, describe the nature, explain the scope, analyze approaches to political Sociology.</p> <p>CO2: Able to discuss the concept of power, legitimacy and authority and their intertwined relation with each other.</p> <p>CO3: Should be able to recognize the meaning, nature and importance of Political culture and Political socialization as well as Political Modernization and Development.</p>

		CO4: Enables to distinguish between social movements and new social movements and to identify features of new social movements.
10.	5B10POL INTERNATIONAL POLITICS	<p>CO1: Enable to understand the meaning and changing nature of the study of International Politics.</p> <p>CO2: Students will familiarize the major concepts used in the study of international relations.</p> <p>CO3: Develop capacity to evaluate the various dimensions of foreign policy.</p> <p>CO4: Enable students to critically evaluate the current issues and problems of global politics.</p>
11.	5B11POL HUMAN RIGHTS	<p>CO1: Enable students to understand the historical growth of human rights.</p> <p>CO2: The course provides the student with the capacity to identify issues and problems relating to the realization of human rights.</p> <p>CO3: Students will be able to develop investigative and analytical skills in the field of human rights.</p> <p>CO4: Enable the students to promote human rights in the community.</p>
12.	6B12POL STATE AND POLITICS IN KERALA	<p>CO1: The course develops comprehensive understanding about the economy, society and politics of Kerala.</p> <p>CO2: It enables students to explain the role of state in economic development.</p> <p>CO3: It enables students to analyze and interpret political development in the state.</p> <p>CO4: The course enables the students to understand new challenges faced by the society of Kerala and to respond to such challenges.</p>
13.	6B13POL INDIAN POLITICAL THOUGHT	<p>CO1: Students should be able to identify the major traditions of Indian political thought.</p> <p>CO2: Able to discuss the different strands of anti-colonial and nationalist thoughts in India. Also helps to narrate the main currents of political Thoughts in Modern India.</p> <p>CO3: Should be able to acquaint with the broad contours of the socio-political reforms in the countries.</p> <p>CO4: Internalize the great values of Indian tradition propagated by social reformers and political thinkers.</p>

14.	6B14POL PUBLIC ADMINISTRATION	<p>CO1: Enable students to identify the significance of public administration in modern society.</p> <p>CO2: Familiarize the concept of organization and the various components of organization.</p> <p>CO3: Should be able to recognize the meaning, nature and importance of financial administration. Also helps to identify the crucial components of financial administration.</p> <p>CO4: Enables to understand the impact of globalization on Administration and changing nature of public service.</p>
15.	6B15POL INTERNATIONAL ORGANIZATION & REGIONAL ARRANGEMENTS	<p>CO1: Students will familiarize with the developments of international organization and its structure.</p> <p>CO2: Enable students to understand the pattern of new global order and to critically analyse the same.</p> <p>CO3: To understand the growing activity of state and non-state actors in the global and regional platforms.</p> <p>CO4: Empower the students with capacity to analyse the national and international developments.</p>
16.	6B16POL PROJECT WORK	<p>CO1: To familiarize the students with methods and strategies of social science research and to instill in them a passion for research and analysis.</p>
COMPLEMENTARY ELECTIVE COURSES		
17.	1C01POL PRINCIPLES OF POLITICAL SCIENCE	<p>CO1: Provide to the students an overview of the nature of politics and government.</p> <p>CO2: Enable the students to understand the function of institutional structures and how they drive individual and organizational behaviors.</p> <p>CO3: Students will be able to work with the approaches and theories used by political scientists to understand political phenomena.</p> <p>CO4: Students will be able to analyze current political situations.</p>
18.	2C02POL INTRODUCTION TO INDIAN POLITICAL SYSTEM	<p>CO1: Students will have a thorough understanding of the structure and various provisions of the constitution.</p> <p>CO2: Enable students to understand the function of different constitutional bodies and institutions.</p> <p>CO3: Students will be able to evaluate the working of the political system.</p>

		CO4: Empower the students with skills necessary for a good citizen in a democracy.
19.	3C03POL FOUNDATIONS OF POLITICAL SCIENCE	<p>CO1: Provide to the students an overview of the nature of politics and government.</p> <p>CO2: Enable the students to understand the function of institutional structures and how they drive individual and organizational behaviors.</p> <p>CO3: Students will be able to work with the approaches and theories used by political scientists to understand political phenomena.</p> <p>CO4: Students will be able to analyze current political situations.</p>
20.	4C04POL DYNAMICS OF INDIAN POLITICAL SYSTEM	<p>CO1: Students will have a thorough understanding of the structure and various provisions of the constitution.</p> <p>CO2: Enable students to understand the function of different constitutional bodies and institutions.</p> <p>CO3: Students will be able to evaluate the working of the political system.</p> <p>CO4: Empower the students with skills necessary for a good citizen in a democracy.</p>
21.	3C05POL INTRODUCTION TO POLITICAL SCIENCE	<p>CO1: Provide to the students an overview of the nature of politics and government.</p> <p>CO2: Enable the students to understand the function of institutional structures and how they drive individual and organizational behaviors.</p> <p>CO3: Students will be able to work with the approaches and theories used by political scientists to understand political phenomena.</p> <p>CO4: Students will be able to analyze current political situations.</p>
22.	4C06POL FOUNDATIONS OF INDIAN POLITICAL SYSTEM	<p>CO1: Students will have a thorough understanding of the structure and various provisions of the constitution.</p> <p>CO2: Enable students to understand the function of different constitutional bodies and institutions.</p> <p>CO3: Students will be able to evaluate the working of the political system.</p> <p>CO4: Empower the students with skills necessary for a good citizen in a democracy.</p>
23.	3C07POL ELEMENTS OF POLITICAL SCIENCE	CO1: Provide to the students an overview of the nature of politics and government.

		<p>CO2: Enable the students to understand the function of institutional structures and how they drive individual and organizational behaviors.</p> <p>CO3: Students will be able to work with the approaches and theories used by political scientists to understand political phenomena.</p> <p>CO4: Students will be able to analyze current political situations.</p>
24.	4C08POL INDIAN CONSTITUTION AND POLITICAL SYSTEM	<p>CO1: Students will have a thorough understanding of the structure and various provisions of the constitution.</p> <p>CO2: Enable students to understand the function of different constitutional bodies and institutions.</p> <p>CO3: Students will be able to evaluate the working of the political system.</p> <p>CO4: Empower the students with skills necessary for a good citizen in a democracy.</p>
GENERIC ELECTIVE COURSES		
25.	5D01POL HUMAN RIGHTS IN INDIA	<p>CO1: Enable students to understand the historical growth of human rights.</p> <p>CO2: The course provides the student with the capacity to identify issues and problems relating to the realization of human rights, and strengthens the ability to contribute to the resolution of human rights issues and problems.</p> <p>CO3: Students will be able to develop investigative and analytical skills in the field of human rights.</p> <p>CO4: Enable the students to promote human rights through legal as well as non-legal means.</p>
26.	5D03POL ELECTORAL POLITICS IN INDIA	<p>CO1: Acquire in depth knowledge of the electoral process and its various mechanisms.</p> <p>CO2: Enable students to critically evaluate the electoral politics in India.</p> <p>CO3: Empower students to understand the working of political parties and their role in India.</p> <p>CO4: Students will be able to critically evaluate issues of Indian election and can develop solutions for the same.</p>

Name of the Programme: **BA HISTORY**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand factual and conceptual aspects of historical changes in multiple areas of the world.

PSO2.

Think contextually and critically about the past to understand human experiences.

PSO3.

Analyze why and how historical events take place based on the verification of diverse evidences and arguments.

PSO4.

Design and write research papers based on primary and secondary sources.

PSO5.

Make logical oral presentation of factual and theoretical knowledge of historical events and changes.

PSO6.

Develop rational, humanitarian, democratic and secular outlook based on historical knowledge and contemporary societal, economic and political issues.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01HIS HISTORY OF INDIA I: PRE-HISTORIC TIMES TO C.200 CE	CO1: Recognize important primary sources for the study of ancient Indian history. CO2: Identify early Indian settlements, centres of political and cultural importance. CO3: Demonstrate factual and theoretical knowledge of social, economic, cultural and political transformations in early India. CO4: Analyze and explain the significance of different religious and philosophical trends in ancient India.
2.	2B02HIS CULTURAL TRANSFORMATIONS IN EUROPE	CO1: Recognize the geographic locations of Greek and Roman states and medieval towns. CO2: Understand the broad pattern of political and cultural changes in Europe before 1500 CE.

		<p>CO3: Discuss cultural and intellectual legacies of Greek and Roman civilizations to Modern West.</p> <p>CO4: Evaluate cultural differences between ancient and medieval societies in Europe.</p>
3.	3B03HIS HISTORY OF INDIA II: POLITY, SOCIETY AND CULTURE (C.200-1206)	<p>CO1: Understand factual knowledge of social and political formations.</p> <p>CO2: Locate major centres political and cultural importance in India.</p> <p>CO3: Explain theories of social formation and feudalism in Indian history.</p> <p>CO4: Analyze the intellectual and cultural legacy of ancient and early Medieval India.</p>
4.	3B04HIS HISTORY OF KERALA I: EARLIEST TIMES TO C. 1500 CE	<p>CO1: Identify sources for the study of ancient and medieval Kerala history.</p> <p>CO2: Locate prehistoric and early historic settlements, ports, towns and political boundaries in Kerala.</p> <p>CO3: Describe social, economic, political and cultural formations of Kerala in ancient and medieval times.</p> <p>CO4: Produce well researched written work on any aspects of Kerala history using primary and secondary sources.</p>
5.	4B05HIS HISTORY OF INDIA III: SULTANATE TO BRITISH CONQUEST (1206 -1757)	<p>CO1: Understand socio-political formations in Medieval India.</p> <p>CO2: Describe the evolution of Indo-Saracen art and architecture.</p> <p>CO3: Analyze and explain the formation of secular political values in India.</p> <p>CO4: Locate centres of cultural, political and commercial importance.</p>
6.	4B06HIS IDEOLOGIES AND REVOLUTIONS IN THE MODERN WORLD	<p>CO1: Understand origin, stages and results of selected revolutions in the modern world.</p> <p>CO2: Analyze and explain different interpretations of world revolutions.</p> <p>CO3: Relate the results of modern world revolutions to contemporary developments in the world.</p> <p>CO4: Produce written work on ideological, humanistic and secular aspects of any of the modern world revolutions.</p>

7.	5B07HIS HISTORY OF INDIA IV: COLONIAL TRANSFORMATIONS (1757-1885)	<p>CO1: Understand the concept of colonialism and its historiography in India.</p> <p>CO2: Discuss critically the impact of colonial policies in political, social, economic and cultural life of Indians.</p> <p>CO3: Assess the influence of social and religious reforms in the modernization of India.</p> <p>CO4: Analyze and explain how anti-colonial movements originated in the nineteenth century.</p> <p>CO5: Identify major centres of commerce and anti-colonial movements.</p>
8.	5B08HIS HISTORY OF INDIA V: MAKING OF THE NATION (1885-1947)	<p>CO1: Understand political, social and economic background of freedom struggle.</p> <p>CO2: Specify major stages of freedom struggle and their ideological distinctions.</p> <p>CO3: Analyze the role of nationalist movement in the making of modern India.</p> <p>CO4: Develop an attitude of nationalism cutting across limited boundaries of religion and caste in order to resist communal forces.</p>
9.	5B09 HIS HISTORY OF KERALA II: MAKING OF MODERN KERALA (1500 TO 1970)	<p>CO1: Understand factual knowledge of modern Kerala history.</p> <p>CO2: Explain political, social, cultural, religious and intellectual factors that led to the formation of modern Kerala.</p> <p>CO3: Analyze and discern the influence of caste and communal organizations in Kerala society and politics.</p> <p>CO4: Understand the significance of secular and egalitarian values and forces in the making of the cultural identity of Kerala.</p>
10.	5B10HIS METHOD AND WRITING OF HISTORY	<p>CO1: Distinguish between primary and secondary sources.</p> <p>CO2: Use historical and interdisciplinary methods of research and research tools.</p> <p>CO3: Analyze and synthesize historical data collected from different sources.</p> <p>CO4: Create reasonable arguments and interpretations with the support of documentary evidences.</p>

		CO5: Write well researched article on any historical events and leaders.
11.	5B11HIS HISTORIOGRAPHY: PERSPECTIVES & PRACTICES	<p>CO1: Understand basic terms, concepts and categories of historiography.</p> <p>CO2: Describe the origin and growth of history as a branch of knowledge from ancient times.</p> <p>CO3: Analyze and explain ideological and methodological foundations of historical writing in ancient, medieval and modern period in world history.</p> <p>CO4: Discuss the relevance of interdisciplinary research and objectivity in historical writings.</p>
12.	6B12HIS HISTORY OF INDIA VI: DEVELOPMENTS SINCE INDEPENDENCE (1947-2000)	<p>CO1: Understand political, economic and cultural changes after independence.</p> <p>CO2: Assess the role of India at global level as an active member in international organizations.</p> <p>CO3: Critically examine and explain the growth of communal forces in independent India.</p> <p>CO4: Analyze and discuss the condition of marginalized communities in independent India.</p>
13.	6B13HIS HISTORY OF THE CONTEMPORARY WORLD (1945 -2000)	<p>CO1: Understand Major Political Issues and Events in The World Since World War II.</p> <p>CO2: Analyze international problems in the context of diverse political interests and ideological movements.</p> <p>CO3: Interpret the present political issues in relation with pertinent international events in the twentieth century.</p> <p>CO4: Develop anti-colonial and anti-racist attitude and universal citizen concept.</p>
14.	6B14HIS INDIAN HISTORIOGRAPHY	<p>CO1: Understand the historical traditions and writings in Ancient and Medieval India.</p> <p>CO2: Demonstrate comprehensive understanding of the origin and growth of major schools of modern Indian historiography.</p> <p>CO3: Explain theoretical and methodological differences in historical writings.</p> <p>CO4: Develop a critical approach in assessing the work of a historian.</p>
15.	6B15HIS PROJECT	CO1: Learn how to select a research topic and prepare research plan/proposal.

		<p>CO2: Understand processes of data collection and research methods.</p> <p>CO3: Undertake critical analysis of data and make interpretations.</p> <p>CO4: Prepare a well written and authentic research work with proper references and select bibliography.</p>
DISCIPLINE SPECIFIC ELECTIVE		
16.	6B16HIS-A GENDER AND SOCIETY IN INDIA	<p>CO1: Understand basic concepts related to gender in Indian society.</p> <p>CO2: Explain central theoretical studies in gender studies.</p> <p>CO3: Assess and interpret why gender discriminations and oppressions take place in India.</p> <p>CO4: Develop an attitude and awareness to treat woman as equal human being and respect her rights.</p>
17.	6B16HIS-B ENVIRONMENTAL HISTORY OF INDIA	<p>CO1: Understand the concept of environment and importance of environmental history.</p> <p>CO2: Explain human interactions with environment and depletion of natural resources.</p> <p>CO3: Assess the dynamic role of environmental movements in India.</p> <p>CO4: Develop an attitude and awareness to protect the natural environment of the country.</p>
18.	6B16HIS-C HISTORY OF CONTEMPORARY KERALA (1956-2000)	<p>CO1: Understand political formations, educational progress and economic development of Kerala after 1956.</p> <p>CO2: Analyze and explain the concept of Kerala model development.</p> <p>CO3: Infer and interpret the nature and background of resistance movements.</p> <p>CO4: Critically examine impact of globalization on the people of Kerala.</p>
COMPLEMENTARY ELECTIVE COURSES		
19.	1C01HIS HISTORY OF ENGLAND I: EARLIEST TIMES TO C.1600 CE	<p>CO1: Identify geographical features and early settlements.</p> <p>CO2: Understand the evolution of social and political life in England.</p> <p>CO3: Describe the origin and growth of English language and literature.</p>

		CO4: Analyze and explain historical background of social and cultural transitions.
20.	2C02HIS HISTORY OF ENGLAND II: FROM 1600 TO 2000 CE	CO1: Understand the growth of English literature in different stages. CO2: Explain the political and social history of modern England. CO3: Analyze how history of England and English literature are intertwined. CO4: Assess new features of new literary trends in English.
21.	3C03HIS TRANSFORMATIONS IN THE MODERN WORLD	CO1: Understand political, economic and intellectual transformations in the modern world. CO2: Explain how modern European nation states established their colonial empires in the rest of the world. CO3: Analyze and describe the positive and negative effects of colonialism. CO4: Assess the role of anti-colonial movements in the making of democratic systems.
22.	4C04HIS INTELLECTUAL HISTORY OF THE MODERN WORLD	CO1: Demonstrate clear understanding of major intellectual traditions of the modern world. CO2: Explain conceptual and methodological challenges within intellectual history. CO3: Relate current intellectual trends to studies and researches in Social Sciences and Humanities. CO4: Elucidate logically how transnational intellectual contributions molded the political and cultural identity of the modern world.
23.	1C05HIS POLITICAL REVOLUTIONS IN THE MODERN WORLD	CO1: Demonstrate clear understanding of major events in selected revolutions. CO2: Identify and explain the central principles of revolutions. CO3: Analyze and interpret major causes and impacts of revolutions. CO4: Relate the results of the revolutions to contemporary political systems.
24.	2C06HIS HISTORY OF TWENTIETH CENTURY WORLD	CO1: Understand major events and issues in twentieth century world. CO2: Analyze and explain how ideological and political differences divided the world.

		<p>CO3: Relate present day political problems to pertinent historical context.</p> <p>CO4: Develop an analytical construct to discuss global political issues.</p>
25.	1C07HIS ECONOMIC HISTORY OF MODERN INDIA (1793-1947)	<p>CO1: Demonstrate comprehensive understanding of colonialism and economic changes that took place under colonial rule.</p> <p>CO2: Explain the nature of industrialization in India and how it acted as impetus to national movement</p> <p>CO3: Analyze the impact of British colonialism on Indian economy.</p> <p>CO4: Develop a critical approach to discuss the exploitative nature of colonial and capitalist economic policies.</p>
26.	2C08HIS INDIAN NATIONAL MOVEMENT	<p>CO1: To understand the background of Indian national movement.</p> <p>CO2: To create awareness on different stages and streams of Indian national Movement.</p> <p>CO3: To analyze the role of Indian National Movement in the making of modern India.</p> <p>CO4: To develop a sense of pride in India's past and to mold an ideal citizen.</p> <p>CO5: To develop a secular and national outlook among the students.</p>
27.	1C09HIS/3C09 HIS TOURISM STUDIES: A HISTORICAL PERSPECTIVE	<p>CO1: Understand tourism within global historical, cultural and economic context.</p> <p>CO2: Show empathy and respect for multicultural expressions and perspectives.</p> <p>CO3: Evaluate and expose common implications of tourism practices.</p> <p>CO4: Develop an attitude to promote environment friendly tourism.</p>
28.	2C10HIS/4C10 HIS HISTORY OF TOURISM DEVELOPMENT IN INDIA	<p>CO1: Understand tourism within the historical, cultural and economic context of India.</p> <p>CO2: Show empathy and respect for multicultural expressions and perspectives of India.</p> <p>CO3: Evaluate and expose common implications of tourism practices in the country.</p> <p>CO4: Prepare research projects on any aspect of tourism.</p>

29.	3C11HIS CULTURAL HERITAGE OF KERALA	<p>CO1: Identify and locate cultural centers of Kerala.</p> <p>CO2: Describe the role of external contacts in the making of cultural fabric of the State.</p> <p>CO3: Analyze the influence of economic, religious and social contexts in cultural heritage.</p> <p>CO4: Develop an attitude to appreciate and respect cultural heritage.</p>
30.	4C12HIS CULTURAL HERITAGE OF INDIA	<p>CO1: Identify and locate cultural centers of India.</p> <p>CO2: Understand the role of external factors in the making of the cultural fabric of India.</p> <p>CO3: Develop an attitude to appreciate and respect cultural diversity of India.</p> <p>CO4: Analyze the influence of religious ideas and practices in social life.</p>
GENERIC ELECTIVE COURSE		
31.	5D01HIS SOCIAL REFORM MOVEMENTS IN KERALA	<p>CO1: Understand the role of Western education, missionary activities and indigenous reform movements in the making of modern Kerala.</p> <p>CO2: Evaluate the ideas, programmes and tactics of social reformers.</p> <p>CO3: Promote critical thinking about various social and religious issues in Kerala.</p> <p>CO4: Analyze and explain secular foundations of Kerala society.</p>
32.	5D02HIS INDIA'S STRUGGLE FOR FREEDOM	<p>CO1: Demonstrate factual and theoretical knowledge of India's freedom struggle.</p> <p>CO2: Understand diverse perspectives of the leaders of freedom struggle.</p> <p>CO3: Analyze communal politics and its impact on Indian society.</p> <p>CO4: Interpret the role of national movement in the making of modern India.</p>

Name of the Programme: **BA HINDI**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Development of language skills.

PSO2.

Development of aesthetic perception.

PSO3.

Development of functional nature of language.

PSO4.

Developing the skill of linguistic analysis.

PSO5.

Development of translation skill.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1BO1HIN NATYASAHITHYA	CO1: Analyse Dramatical Elements in Literature. CO2: Understand the distinct features of Hindi Drama. CO3: Understand the difference between Drama and one act play. CO4: Enrich the knowledge of Art of Drama.
2.	2BO2HIN HINDI SAHITHYA KA ITIHAS REETHIKAL THAK	CO1: Trace the development of Ancient Hindi Literature from its beginning. CO2: Demonstrate knowledge of Literary terms, major periods, authors genres and theories. CO3: Apply critical thinking independent judgment, inter cultural sensitivity and regional, national and global perspectives to identify and solve problems in Ancient Hindi Literature. CO4: Develop complex reading, writing and research skills.
3.	3BO3HIN VYAKARAN	CO1: Understand the correct usage of Hindi grammar in writing and speaking. CO2: Understand the differences between spoken and written Hindi.

		<p>CO3: Understand the factors that influence use of grammar and vocabulary in speech and writing.</p> <p>CO4: Understand the different ways in which grammar has been described.</p>
4.	3B04HIN HINDI SAHITHYA KA ITIHAS GADHYA	<p>CO1: Trace the development of modern Hindi Prose from its beginning to the present day.</p> <p>CO2: Interpret the works of great literary personalities in the modern Hindi prose.</p> <p>CO3: Demonstrate significant cultural and social issues presented in Modern Hindi prose.</p> <p>CO4: Understand theoretical approaches to critical reading of literary texts.</p>
5.	4B05HIN HINDI SAHITHYA KA ITIHAS PADYA	<p>CO1: Trace the development of modern Hindi literature poetry form its beginning to the present day.</p> <p>CO2: Demonstrate knowledge of literary terms, major periods, authors, genres and theories.</p> <p>CO3: Develop complex reading writing and research skills.</p> <p>CO4: Demonstrate through discussion and writings an understanding of significant cultural and social issues presented in modern Hindi Literature poetry.</p>
6.	4B06HIN HINDI BHASHA KA UDBHAV AUR VIKAS	<p>CO1: Trace the process of beginning and growth of Hindi language.</p> <p>CO2: Basic knowledge on the nature of language and place of language study in society.</p> <p>CO3: Get integrated view about origin and development of script.</p> <p>CO4: Identifying the dialects of Hindi language family.</p>
7.	5B07HIN ANCIENT AND MEDIEVAL HINDI POETRY	<p>CO1: Understanding the socio-cultural background of Adikaleen Hindi poetry.</p> <p>CO2: Understanding the socio-cultural background of Madyakaleen Hindi poetry.</p> <p>CO3: Analyse the poetries of all Pracheen poets.</p> <p>CO4: Understanding the relevance of Pracheen and Madyakaleen poetry.</p>
8.	5B08HIN ANUVAD SIDHANTH AUR PRAYOG	<p>CO1: Develop the art of translation.</p> <p>CO2: Understand the importance of translation in present world with its various theories.</p>

		<p>CO3: Understand the idea of basic principles in translation, issues faced by translators.</p> <p>CO4: Understand the cultural aspects of translation.</p>
9.	5B09HIN BHARATHEEYA SAHITHYA SASTRA	<p>CO1: Understand the critical practices from the past to present.</p> <p>CO2: Develop a critical perspective on the historical over view of Indian literary theory.</p> <p>CO3: Understand these theories and its application</p> <p>CO4: Analyse literary texts from different points of view.</p>
10.	5B10HIN HINDI KATHA SAHITHYA	<p>CO1: Analyse variety of short stories in the cultural and historical context.</p> <p>CO2: Analyse novel in the modern context.</p> <p>CO3: Understand the story content and structure in depth.</p> <p>CO4: Develop the skill of analytical reading of fiction.</p>
11.	5B11HIN GADHYA KE VIVIDH AYAM	<p>CO1: Understand about the modern prose forms</p> <p>CO2: Understand the literariness of Hindi prose</p> <p>CO3: Understand the values of life.</p> <p>CO4: Develop skill of creative writing.</p>
12.	6B12HIN BHASHA VIGYAN	<p>CO1: Understand the history of general Linguistics.</p> <p>CO2: Understand core areas of language analysis including its phonology, morphology, syntax and semantics.</p> <p>CO3: Develop Linguistic competence and communicative skills.</p> <p>CO4: Understand the nature of language and the place of language study in society.</p>
13.	6B13HIN ADHUNIK EVAM SAMAKALEEN HINDIKAVITHA	<p>CO1: Understanding the concepts of Romantic Hindi poetry.</p> <p>CO2: Understanding the socio-cultural background of modern Hindi poetry and the concept of modernity.</p> <p>CO3: Understanding the literariness and the aesthetic aspect of contemporary Hindi poetry.</p> <p>CO4: Developing critical and analytic approach to poetry.</p>

14.	6B14HIN HINDI SAHITHYALLOCHANA	<p>CO1: Understanding the development of Hindi criticism in the modern era.</p> <p>CO2: Understanding the Romantic theory of Hindi criticism.</p> <p>CO3: Understanding the theory of psycho analysis and Marxian theory of Hindi literature.</p> <p>CO4: Demonstrating the contemporary Hindi criticism and critics.</p>
15.	6B15HIN PASHCHATHYA SAHITHYA SASTRA	<p>CO1: Understand the issues and questions raised by literary theorists.</p> <p>CO2: Understand the terms and concepts employed in the discussion of literary theories.</p> <p>CO3: Understand the history and evolution of western literary theory.</p> <p>CO4: Develop the ability to apply different literary theories and interpretive approaches to the analysis and interpretation of specific literary works.</p>
16.	6B16HIN PARIYOJANA KARYA	<p>CO1: Demonstrate a depth of knowledge of Hindi Language and literature.</p> <p>CO2: Demonstrate knowledge of contemporary issues in their chosen field of research.</p> <p>CO3: Developing the research skill and language skill.</p> <p>CO4: Demonstrate an ability to present and defend their research work to scholars.</p>
COMPLEMENTARY ELECTIVE COURSES		
17.	1C01HIN HINDI MEDIA LEKHAN	<p>CO1: Understanding the history of Indian Cinema.</p> <p>CO2: Develop script writing skill.</p> <p>CO3: Understand about the different types of medias and its writing skill.</p> <p>CO4: Develop skill in film criticism.</p>
18.	2C02HIN HINDI JOURNALISM/ SANSKRIT	<p>CO1: Understand the basic theory of journalism</p> <p>CO2: Understand the history of journalism in Hindi.</p> <p>CO3: Demonstrate the various newspapers in Hindi.</p> <p>CO4: Develop writing skill in Hindi media.</p>
19.	3C03HIN CULTURAL HISTORY OF INDIA/SANSKRIT	<p>CO1: Understand cultural set up in India.</p>

		<p>CO2: To get a basic knowledge about Indian cultural diversity.</p> <p>CO3: To know about Indian cultural civilizations.</p> <p>CO4: To know about cultural renaissance of India.</p>
20.	4C04HIN FUNCTIONAL HINDI	<p>CO1: Understand the meaning concept and importance of functional Hindi.</p> <p>CO2: Understanding various forms of functional Hindi and official language acts.</p> <p>CO3: Understanding various forms of official letter drafting.</p> <p>CO4: Develop official word knowledge.</p>
32.	5D02HIS INDIA'S STRUGGLE FOR FREEDOM	<p>CO1: Demonstrate factual and theoretical knowledge of India's freedom struggle.</p> <p>CO2: Understand diverse perspectives of the leaders of freedom struggle.</p> <p>CO3: Analyze communal politics and its impact on Indian society.</p> <p>CO4: Interpret the role of national movement in the making of modern India.</p>

Name of the Programme: **BA FUNCTIONAL HINDI**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Development of language skills.

PSO2.

Development of aesthetic perception.

PSO3.

Development of functional nature of language.

PSO4.

Developing the skill of linguistic analysis.

PSO5.

Development of translation skill.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1BO1FHI NATAK EVAM EKANKI	CO1: Analyze Dramatical Elements in Literature. CO2: Understand the distinct features of Hindi Drama. CO3: Understand the difference between Drama and one act play. CO4: Enrich the knowledge of Art of Drama.
2.	2B02FHI HINDI UPANYAS	CO1: Understanding the literariness of Hindi Novels. CO2: Understanding socio cultural background of Hindi Novels. CO3: Developing the skill of creative analysis. CO4: Development of humanity.
3.	3BO3FHI UPAYOGI HINDI VYAKARAN	CO1: Understand the correct usage of Hindi grammar in writing and speaking. CO2: Understand the differences between spoken and written Hindi. CO3: Understand the factors that influence use of grammar and vocabulary in speech and writing. CO4: Understand the different ways in which grammar has been described

4.	3B04FHI HINDI SAHITHYA KA ITIHAS (RITHIKAL THAK)	<p>CO1: Trace the development of Ancient Hindi Literature from its beginning.</p> <p>CO2: Demonstrate knowledge of Literary terms, major periods, authors genres and theories.</p> <p>CO3: Apply critical thinking independent judgment, inter cultural sensitivity and regional, national and global perspectives to identify and solve problems in Ancient Hindi Literature.</p> <p>CO4: Develop complex reading, writing and research skills.</p>
5.	4B05FHI HINDI SAHITHYA KA ITIHAS GADYA	<p>CO1: Trace the development of modern Hindi Prose from its beginning to the present day.</p> <p>CO2: Interpret the works of great literary personalities in the modern hindi prose.</p> <p>CO3: Demonstrate significant cultural and social issues presented in Modern Hindi prose.</p> <p>CO4: Understand theoretical approaches to critical reading of literary texts.</p>
6.	4B06FHI PRAYOJAN MOOLAK HINDI	<p>CO1: Understand the meaning concept and importance of functional hindi.</p> <p>CO2: Understanding various forms of functional hindi.</p> <p>CO3: Understanding official language policy.</p> <p>CO4: Develop official word knowledge.</p>
7.	5B07FHI HINDI SAHITHYA KA ITIHAS -PADYA	<p>CO1: Trace the development of modern Hindi literature poetry form its beginning to the present day.</p> <p>CO2: Demonstrate knowledge of literary terms, major periods, authors, genres and theories.</p> <p>CO3: Develop complex reading writing and research skills.</p> <p>CO4: Demonstrate through discussion and writings an understanding of significant cultural and social issues presented in modern Hindi Literature poetry.</p>
8.	5B08FHI HINDI COMPUTING	<p>CO1: Develop computer literacy, their basic understanding of operative systems and working knowledge of software commonly used in academic and professional environments.</p> <p>CO2: Develop knowledge on Microsoft word, power point & excel</p>

		CO3: Develop practical knowledge about Hindi typing& PDF file etc.
9.	5B09FHI ADHUNIK HINDI KAVITHA	CO1: Understanding the concepts of Romantic Hindi poetry. CO2: Understanding the socio-cultural background of modern hindi poetry and the concept of modernity. CO3: Understanding the literariness and the aesthetic aspect of contemporary hindi poetry. CO4: Developing critical and analytical approach to poetry.
10.	5B10FHI BHARATHEEYA KAVYA SHASTRA	CO1: Understand the critical practices from the past to present. CO2: Develop a critical perspective on the historical over view of Indian literary theory. CO3: Understand the theory and its application CO4: Analyze literary texts from different points of view.
11.	5B11FHI ANUVAD VIGYAN	CO1: develop the art of translation. CO2: Understand the importance of translation in present world with its various theories. CO3: Understand the idea of basic principles in translation, issues faced by translators. CO4: Understand the cultural aspects of translation.
12.	6B12FHI PASHCHATHYA KAVYA SHASTRA	CO1: Understand the issues and questions raised by literary theorists. CO2: Understand the terms and concepts employed in the discussion of literary theories. CO3: Understand the history and evolution of western literary theory. CO4: Develop the ability to apply different literary theories and interpretive approaches to the analysis and interpretation of specific literary works.
13.	6B13FHI BHASHA VIGYAN	CO1: Understand the history of general Linguistics. CO2: Understand core areas of language analysis including its phonology, morphology, syntax and semantics. CO3: Develop Linguistic competence and communicative skills.

		CO4: Understand the nature of language and the place of language study in society.
14.	6B14FHI HINDI BHASHA KI UTHPATHI AUR VIKAS	CO1: Trace the process of beginning and growth of Hindi language. CO2: Basic knowledge on the nature of language and place of language study in society CO3: Get integrated view about origin and development of script. CO4: Identifying the dialects of Hindi language family.
15.	6B15FHI SAMAKALEEN HINDI KAHANI	CO1: Understanding contemporary Hindi short stories. CO2: Understanding the techniques of contemporary hindi short stories. CO3: Analysing contemporary short stories. CO4: Demonstrate aesthetic aspects of short stories.
16.	6B16FHI PARIYOJANA KARYA	CO1: Demonstrate a depth of knowledge of Hindi Language and literature. CO2: Demonstrate knowledge of contemporary issues in their chosen field of research. CO3: Developing the research skill and language skill. CO4: Demonstrate an ability to present and defend their research work to scholars.
COMPLEMENTARY ELECTIVE COURSE		
17.	1C01FHI HINDI PATRAKARITHA	CO1: Understand the basic theory of journalism CO2: Understand the history of journalism in Hindi. CO3: Demonstrate the various newspapers in Hindi. CO4: Develop writing skill in Hindi media.
18.	2C02FHI HINDI MEDIA LEKHAN	CO1: Understanding the history of Indian Cinema. CO2: Develop script writing skill. CO3: Understand about the different types of medias and its writing skill. CO4: Develop skill in film criticism
19.	3C03FHI HINDI MEIM DAFTHARI KAMKAJ	CO1: Understand the meaning concept and importance of functional Hindi. CO2: Understanding various forms of functional hindi and official language acts. CO3: Understanding various forms of official letter drafting.

		CO4: Develop official word knowledge
20.	4C04FHI HINDI MEIM COMPUTER SHIKSHA	CO1: Understanding the development of computer. CO2: Understanding the techniques of computer in hindi. CO3: Demonstrate the use of computer in day today life. CO4: Developing computer terminology in hindi.
GENERAL ELECTIVE COURSES		
21.	D01FHI DESKTOP PUBLISHING	CO1: Develop computer literacy, their basic understanding of operative systems and working knowledge of software commonly used in academic and professional environments. CO2: Develop knowledge on Microsoft word, power point & excel. CO3: Develop practical knowledge about Hindi typing& PDF file etc.

Name of the Programme: **BA ENGLISH**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand the historical contexts behind the origin and development of English literature with a special focus on various movements and the important works belonging to such movements.

PSO2.

Understand the current methodological issues in the study of literature and apply the various reading strategies employed to selected literary as well as cultural texts.

PSO3.

Understand and apply the extended meaning of “English Literature” to various post-colonial and other writings in English.

PSO4.

Understand the basics of related disciplines like film studies, cultural studies, fine arts, women’s writing, post-colonial writing, Indian writing in English, Malayalam literature and literature in other Indian languages.

PSO5.

Understand and appreciate the interdisciplinary links that literary studies have with disciplines like philosophy, history, political science, sociology, anthropology and the sciences.

COURSE OUTCOMES (COs) FOR COMMON COURSES

Sl. No	Name of the Course	Outcomes
1.	1A01ENG COMMUNICATIVE ENGLISH	CO1: Understand and apply the rubrics of English grammar. CO2: Recognize and apply the basic patterns in English vocabulary. CO3: Read and elicit data, information, inferences and interpretations based on a given material in English. CO4: Develop the ability to speak in English in real life situations. CO5: Elicit necessary information after listening to an audio material in English. CO6: Compose academic and non-academic writings including letters, paragraphs and essays on a given topic and CV’s for specific purposes.

2.	1A02ENG READINGS ON KERALA	<p>CO1: Understand the basic facts and patterns regarding the cultural evolution of Kerala through articles, poems, stories, life writings and historical narratives.</p> <p>CO2: Acquaint with the life and works of the illustrious leaders of Kerala Renaissance and the major events.</p> <p>CO3: Assimilate the notion of Kerala as an emerging society and critically examine the salient features of its evolution.</p> <p>CO4: Understand the evolution and contemporary state of the concept of “gender” with reference to Kerala</p> <p>CO5: Understand the form and content of Kerala’s struggle against “casteism” and for “secularism”</p> <p>CO6: Develop an awareness about the ecological problems and issues in Kerala.</p>
3.	2A03ENG READINGS ON LIFE AND NATURE	<p>CO1: Understand the basic themes and issues related to ecology through articles, poems, stories, life writings and historical narratives.</p> <p>CO2: Assume ecologically friendly attitudes in events related to everyday life.</p> <p>CO3: Identify the specific ecological problems related to Kerala.</p> <p>CO4: Identify the major ecological movements around the world and within the country.</p> <p>CO5: Ability to express specific opinions when confronted with ecology/development binary.</p> <p>CO6: Identify the major or minor ecological issues happening around the student’s native place.</p>
4.	2A04ENG READINGS ON GENDER	<p>CO1: Understand the basic themes and issues related to gender through articles, poems, stories, life writings and historical narratives.</p> <p>CO2: Understand the basic topics related to gender studies.</p> <p>CO3: Understand gender as a social construct and also as a site of struggle.</p> <p>CO4: Critically engage with certain seminal topics that have become a part of gender studies.</p> <p>CO5: Understand the basic gender issues faced by Kerala.</p>

		CO6: Appreciate and use gender sensitive and politically right terms and usages in everyday life.
5.	3A05ENG READINGS ON DEMOCRACY AND SECULARISM	<p>CO1: Understand the relationship between higher education and nation building.</p> <p>CO2: Understand the basic Constitutional values and themes through articles, poems, stories, life writings and historical narratives.</p> <p>CO3: Evolve a deeper understanding and appreciation of the meaning of the words sovereignty, socialism, secularism and democracy in the Indian context.</p> <p>CO4: Appreciate the relationship between higher education and the Constitutional directives regarding “scientific temper” and “the spirit of enquiry”.</p> <p>CO5: Appreciate the prevalence of “human rights” as a prerequisite for democratic living.</p>
6.	4A06ENG READINGS ON PHILOSOPHY OF KNOWLEDGE	<p>CO1: Understand the basic issues related to construction and acquisition of knowledge through articles, poems, stories, life writings and historical narratives.</p> <p>CO2: Understand the relationship between higher education and nation building.</p> <p>CO3: Evolve a deeper understanding of disciplines, multi-disciplinary approaches, interdisciplinary approaches and the various systems of knowledge.</p> <p>CO4: Understand knowledge as a social construct and the dynamics of paradigm shifts.</p> <p>CO5: Understand the epistemological and ontological factors within higher education.</p> <p>CO6: Understand logical fallacies and apply critical thinking.</p>

COURSE OUTCOMES (COs) FOR ENGLISH CORE COURSES

Sl. No	Name of the Course	Outcomes
1.	1B01 ENG MALAYALAM LITERATURE IN ENGLISH TRANSLATION	<p>CO1: Understand the word ‘literature’ and ‘literary’ in a broad and inclusive perspective by reading select literary pieces and by applying critical reading strategies.</p> <p>CO2: Recognise and describe literary genres and its subclasses.</p>

		<p>CO3: Describe with examples select literary terms and concepts.</p> <p>CO4: Understand the basic issues related to translation and in that process develop a sensibility for native and local literatures.</p> <p>CO5: Use English to translate and describe everyday activities, regional themes and personal narratives by reading Malayalam literature in translation.</p> <p>CO6: Learn to read, enjoy, analyse and critically engage with select literary pieces on their own with minimum guidance.</p>
2.	2B02ENG ACADEMIC WRITING, METHODOLOGY AND RESEARCH PROJECT	<p>CO1: Understand and apply the nuances of academic writing.</p> <p>CO2: Understand the various methodological as well as epistemological aspects of literary studies.</p> <p>CO3: Familiarise with the approaches to literature.</p> <p>CO4: Choose a tentative topic for the research project to be submitted in semester six.</p>
3.	3B03ENG OLD ENGLISH TO MEDIEVAL ENGLISH LITERATURE (500-1500)	<p>CO1: Have an understanding of the contexts which produced Old English literature.</p> <p>CO2: Read translation extracts from key texts of the Old English period.</p> <p>CO3: Understand the key aspects of Old English language.</p> <p>CO4: Understand the key genres, authors, texts, styles and themes of the Medieval English Period.</p> <p>CO5: Read excerpts from the variety of writings produced during this period.</p> <p>CO6: Understand the key aspects of Medieval English dialects.</p>
4.	3B04ENG RENAISSANCE AND RESTORATION LITERATURES (1485-1780)	<p>CO1: Define Renaissance literature/ Problems of definition</p> <p>CO2: Trace the relationship between political economy, cultural history and production of arts and literature during the early modern period</p> <p>CO3: Read specimens of major works belonging to the Renaissance period.</p> <p>CO4: Understand the problematics of “modernisation” of Britain including the development of political parties and parliamentary</p>

		<p>Restoration period</p> <p>CO5: Identify literary narratives that deal with slave trade and colonial aspirations.</p> <p>CO6: Understand the development of literary criticism as a meta-narrative to literature.</p> <p>CO7: Read specimens of major works belonging to the Restoration period.</p>
5.	4B05ENG THE ROMANTIC PERIOD (1780-1832):	<p>CO1: Understand the cultural history of the period and recognise the features of literary romanticism.</p> <p>CO2: Trace the relationship between political economy, cultural history and production of arts and literature with reference to the romantic period.</p> <p>CO3: Read specimens of major works belonging to the period.</p>
6.	4B06ENG THE VICTORIAN AGE (1832-1901):	<p>CO1: Understand a range of Victorian literature in relation to a range of contexts including Victorian anxieties about modernity, madness, sexual transgression and disease.</p> <p>CO2: Analyze the work of a range of Victorian writers, both canonical and less well-known, and with a range of genres including the novel, short story and poetry.</p> <p>CO3: Identify and discuss theoretical discourses concerning class, sexuality, gender and colonialism as these illuminate a range of Victorian texts.</p> <p>CO4: Understand and deploy a range of terms and concepts integral to Victorian literature.</p>
7.	5B07ENG THE EARLY TWENTIETH CENTURY ((1901-1939)	<p>CO1: Understand the cultural, political, and stylistic protocols of modernism and its various literary manifestations.</p> <p>CO2: Trace the relationship between political economy, cultural history and production of arts and literature</p> <p>CO3: Read specimens of major works belonging to the period.</p>
8.	5B08ENG THE LATE TWENTIETH AND TWENTY-FIRST CENTURIES (1939- 2018)	<p>CO1: Understand the cultural, political, and stylistic protocols of post-modernism and the various literary movements.</p> <p>CO2: Understand and apply the basics of the various reading strategies that emerged during the period</p>

		CO3: Read specimens of major works belonging to the period.
9.	5B09ENG POSTCOLONIAL LITERATURES IN ENGLISH	<p>CO1: Understand the cultural, political, and stylistic protocols of post-modernism and the various literary movements</p> <p>CO2: Understand and apply the basics of the various reading strategies that emerged during the period</p> <p>CO3: Read specimens of major works belonging to the period.</p>
10.	5B10 ENG LINGUISTICS	<p>CO1: Learn the theories Regarding origin, development and history of Languages.</p> <p>CO2: Learn the cardinal concepts related to Linguistics.</p> <p>CO3: Understand the modern directions In Linguistic Studies.</p> <p>CO4: Understand the basic concepts of Linguistics.</p> <p>CO5: Understand the various Levels of Linguistic Analysis (Phonology, Morphology Etc.)</p> <p>CO6: Apply Linguistics to Different areas of activities like ELT , Translation etc.</p>
11.	6B11ENG PROJECT	<p>CO1: Learn and apply prescribed documentation styles and methodological formalities.</p> <p>CO2: Understand and apply the mechanics of writing.</p> <p>CO3: Critically engage with a literary theme or topic and generate ideas while gathering, evaluating and organising existing materials.</p> <p>CO4: Understand the basic formalities regarding research in humanities.</p>
12.	6B12ENG LITERARY THEORY	<p>CO1: Understand the basics of various theoretical positions in literary and culture studies.</p> <p>CO2: Apply specific theoretical insights into the study of specific works of art as well as other cultural articulations.</p> <p>CO3: Understand the ideological assumptions underlying common-sense notions and canon formation.</p>
13.	6B13ENG WOMEN'S WRITING	CO1: Understand women's writing as a specific genre.

		<p>CO2: Appreciate the variety in women's literature and the correlation between such variety and specific socio-political contexts.</p> <p>CO3: Understand the various dialogic positions within women's writing.</p>
14.	6B14ENG INDIAN WRITING IN ENGLISH	<p>CO1: Understand Indian Writing in English as a specific genre based on certain common sociopolitical contexts</p> <p>CO2: Understand the various dialogic positions within Indian Writing in English.</p> <p>CO3: Read specimens of major works belonging to the genre of Indian Writing in English</p> <p>CO4: Understand the regional diversities and thematic plurality of IWE.</p>
15.	6B15ENG FILM STUDIES	<p>CO1: Understand the major Movements, Genres and Masters in the history of Cinema and how cinema connects with history, politics, technology, psychology and performance.</p> <p>CO2: Understand the nature of representation on screen and how class, race, caste, ethnicity and gender are represented.</p> <p>CO3: Analyze and appreciate film as art form thorough close readings of films.</p>
GENERIC ELECTIVE COURSES		
16.	5D01ENG ENGLISH FOR COMPETITIVE EXAMINATIONS	<p>CO1: To familiarise students with the language items required to take competitive examinations at various levels</p> <p>CO2: To acquaint the students with the basics of English grammar</p> <p>CO3: To enable the students to enrich their vocabulary</p> <p>CO4: To provide opportunities for the students to improve their listening and reading comprehension skills</p> <p>CO5: To familiarise the students with the questions that are commonly asked in various interviews and to help them frame the desirable responses.</p>

BCOM & BBA DEGREE PROGRAMMES

PROGRAMME OUTCOMES (PO)

PO1. Critical Thinking

- 1.1. Acquire the ability to apply the basic tenets of logic and science to thoughts, actions and interventions.
- 1.2. Develop the ability to chart out a progressive direction for actions and interventions by learning to recognize the presence of hegemonic ideology within certain dominant notions.
- 1.3 Develop self-critical abilities and also the ability to view positions, problems and social issues from plural perspectives.

PO2. Effective Citizenship

- 2.1. Learn to participate in nation building by adhering to the principles of sovereignty of the nation, socialism, secularism, democracy and the values that guide a republic.
- 2.2. Develop and practice gender sensitive attitudes, environmental awareness, empathetic social awareness about various kinds of marginalization and the ability to understand and resist various kinds of discriminations.
- 2.3. Internalize certain highlights of the nation and region history. Especially of the freedom movement, the renaissance within native societies and the project of modernization of the post-colonial society.

PO3. Effective Communication

- 3.1. Acquire the ability to speak, write, read and listen clearly in person and through electronic media in both English and in one Modern Indian Language
- 3.2. Learn to articulate, analyze, synthesize, and evaluate ideas and situations in a well-informed manner.
- 3.3. Generate hypotheses and articulate assent or dissent by employing both reason and creative thinking.

PO4. Inter disciplinarity

- 4.1. Perceive knowledge as an organic, comprehensive, interrelated and integrated faculty of the human mind.
- 4.2. Understand the issues of environmental contexts and sustainable development as a basic interdisciplinary concern of all disciplines.
- 4.3. Develop aesthetic, social, humanistic and artistic sensibilities for problem solving and evolving a comprehensive perspective.

Name of the Programme: **BCOM**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Understand the concepts and techniques of Commerce and its application in business environment.

PSO2.

Conceive the ideas on entrepreneurship and develop the skill for setting up and management of business organizations.

PSO3.

Develop skills and abilities to become competent and competitive in the business world.

PSO4.

Develop the competency to take wise decisions at personal and professional level.

PSO5.

Appraise the impact of other disciplines on the working business.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01COM MANAGEMENT CONCEPTS AND PRINCIPLES	CO1: Understand the evolution of management thoughts, concept of management, scope and its functions. CO2: Familiarize with current management practices. CO3: Understand the importance of ethics in business. CO4: Acquire knowledge and capability to develop ethical practices for effective management. CO5: Describe the emerging trends in management .
2.	2B02COM FUNCTIONAL APPLICATIONS OF MANAGEMENT	CO1: Describe nature and scope of financial management and the elements in the management of finance. CO2: Enumerate marketing management and its different aspects. CO3: Explain Human Resources Management and the activities involved in it. CO4: Understand the modern global marketing trends and its challenges.
3.	3B03 COM ADVANCED ACCOUNTING	CO1: Understand the theoretical and practical knowledge of the basics of accounting.

		<p>CO2: Acquire the knowledge of accounting for royalty, Consignment and Hire Purchase.</p> <p>CO3: Imbibe the accounting concepts of Inland Branch Business.</p> <p>CO4: Comprehend the procedure for determining profit and financial position from incomplete records.</p>
4.	4B05 COM CORPORATE ACCOUNTING	<p>CO1: Understand the mode of presentation and understanding of financial reporting.</p> <p>CO2: Learn the accounting procedure for recording transaction relating to the issue and redemption of shares and debentures.</p> <p>CO3: Imbibe the techniques of recording transactions in respect of amalgamation, reconstruction and liquidation of companies.</p> <p>CO4: Understand the concept of IFRS and Ind AS.</p>
5.	5B07 COM BUSINESS RESEARCH METHODOLOGY	<p>CO1: Understand the fundamental aspects of research in business.</p> <p>CO2: Identify and define research problem.</p> <p>CO3: Formulate research plan.</p> <p>CO4: Understand various methods of collecting data.</p> <p>CO5: Prepare research report themselves.</p>
6.	5B08 COM INCOME TAX LAW AND PRACTICE	<p>CO1: Define the basic concepts in Income tax, explain its evolution.</p> <p>CO2: Determine the residence and incidence of Tax.</p> <p>CO3: Understand the incomes exempt from tax of an individual.</p> <p>CO4: Compute income under different heads of income.</p>
7.	5B09 COM COST ACCOUNTING	<p>CO1: Explain the nature, scope, objectives and limitations of costing.</p> <p>CO2: Identify the elements of cost and describe the methods of their ascertainment and control.</p> <p>CO3: Explain the various methods of costing and their suitability for different industries.</p> <p>CO4: Ascertain the cost of production of products and jobs</p>

8.	5B10 COM BANKING PRINCIPLES AND OPERATIONS	<p>CO1: Explain banking and describe the different types of banks and the functions of commercial bank.</p> <p>CO2: Narrate the role of RBI in the credit control, promotion and regulation of monetary system.</p> <p>CO3: Describe the relationship between banker and customer and the procedure for opening and operating the account.</p> <p>CO4: Understand the modern trends and technology used in banking</p>
9.	6B12 COM FINANCIAL MARKETS AND SERVICES	<p>CO1: Understand the financial system and its constituents.</p> <p>CO2: Familiarise with the activities taking place in the financial markets.</p> <p>CO3: Appraise the various financial services available in the financial markets.</p> <p>CO4: Acquire knowledge about financial derivatives and their features</p>
10.	6B13 COM MANAGEMENT ACCOUNTING	<p>CO1: understand the fundamental concepts of management accounting.</p> <p>CO2: acquire analytical skills associated with the interpretation of accounting reports.</p> <p>CO3: apply management accounting concepts in real life situations.</p> <p>CO4: Develop judgmental skills associated with the use of accounting information in decision making.</p> <p>CO5: Understand the use of marginal costing and budgetary control to plan and control cost and profit</p>
11.	6B14COM AUDITING AND CORPORATE GOVERNANCE	<p>CO1: Understand the term auditing, its concept, principles, procedures and requirements needed for Auditing in accordance with current legal requirements and professional standards.</p> <p>CO2: Familiarize with the various aspects of audit consisting of internal check, vouching, verification and valuation of assets and liabilities.</p> <p>CO3: Understand the appointment, rights, duties and the liabilities of an auditor.</p> <p>CO4: Explain the concept of Corporate Governance and its aspects.</p>

12.	6B15COM INCOME TAX AND GST	<p>CO1: Compute total income and determine the tax liability of an individual and partnership firm, company and cooperative society.</p> <p>CO2: Describe the income tax authorities, their powers and assessment procedure.</p> <p>CO3: Explain the procedure regarding deduction of tax at source, advance tax, refund, penalties and prosecution.</p> <p>CO4: Describe Goods and Service Tax, its levy and collection</p>
13.	6B17COM PROJECT	<p>CO1: Understand the method of carrying out a project.</p> <p>CO2: Undertake project & work independently.</p>
ELECTIVE STREAM III - FINANCE		
14.	3B04COM FINANCE I – FINANCIAL MANAGEMENT	<p>CO1: Understand the concept, importance and techniques of capital budgeting.</p> <p>CO2: Gain knowledge about sources and uses of working capital and significance of working capital management.</p> <p>CO3: Explain optimum capital structure, theories of capital structure, distinguish between financial and operating leverage.</p> <p>CO4: Describe the concept of cost of capital and compute the component cost of capital and weighted average cost of capital.</p> <p>CO5: Differentiate the types of dividend, explain dividend policy and factors affecting dividend policy.</p>
15.	4B06 COM FINANCE II – INVESTMENT MANAGEMENT	<p>CO1: Understand the concept of investment and risk</p> <p>CO2: Explain the different types of securities and their schemes.</p> <p>CO3: Develop a thorough knowledge about security market, its participants and factors affecting security market.</p> <p>CO4: Conduct fundamental and technical analysis of investments in the security market.</p> <p>CO5: Discuss the application of Portfolio Theory, process of portfolio management and measurement of portfolio performance.</p>
16.	5B11 COM	<p>CO1: Understand the basic concept of GST.</p>

	FINANCE III – GOODS AND SERVICE TAX	CO2: Explain how GST is levied and collected. CO3: Describe IGST, its levy and collection. CO4: Familiarise with the preparation of invoice and filing of return under GST.
17.	6B16 COM FINANCE IV – CORPORATE TAX PLANNING	CO1: Understand the concept of tax planning and determine the tax liability of companies. CO2: Understand the methods of reducing tax liability through proper tax planning. CO3: Take financial and managerial decisions after considering the impact of direct tax laws.
GENERAL AWARENESS COURSES		
18.	1A11 COM BUSINESS STATISTICS AND BASIC NUMERICAL SKILLS	CO1: Define statistics and explain its importance, scope, applications and limitations. CO2: Understand the basic knowledge of statistical techniques, which are applicable to business. CO3: Understand basic concepts in mathematics, which are applied in the managerial decision making. CO4: Develop the basic mathematical skill needed for analyzing numeric problems related to business.
19.	3A12 COM ENTREPRENEURSHIP DEVELOPMENT	CO1: Identify the characteristics of an entrepreneur. CO2: Describe the importance of entrepreneurs in the economic development of a nation. CO3: Identify the different types of entrepreneurs. CO4: To strengthen their skill and quality as an entrepreneur.
20.	4A13 COM GENERAL INFORMATICS SKILLS	CO1: Explain the Fundamentals of Computers the use of computers in day-to-day application. CO2: Up to date and expand the basic informatics skills necessary in the emerging knowledge society. CO3: Effectively utilize the digital knowledge resources for their studies. CO4: State the areas where IT can be used effectively. CO5: Perform accounting by using the appropriate accounting packages.
21.	4A14 COM ENVIRONMENTAL STUDIES AND DISASTER	CO1: Understand the components of environment and need for the protection of environment.

	MANAGEMENT	<p>CO2: Understand the effect of pollution on environment and the ways of protecting the environment.</p> <p>CO3: Explain the social issues relating to environmental pollution.</p> <p>CO4: Clearly understand the various environmental hazards and the ways of managing disaster.</p>
COMPLEMENTARY ELECTIVE COURSES		
22.	2C01 COM QUANTITATIVE TECHNIQUE FOR BUSINESS DECISIONS	<p>CO1: Acquaint with the basic statistical tools, which can be applied in business and economic situations.</p> <p>CO2: Develop knowledge in quantitative techniques, which help in tackling various problems for modern business.</p> <p>CO3: Understand and solve problems in probability, correlation and regression.</p> <p>CO4: Understand the effect of trend and seasonal variations on business.</p> <p>CO5: Familiarize with the testing of hypothesis.</p>
23.	3C02 COM BUSINESS REGULATORY FRAMEWORK	<p>CO1: Understand the nature of contracts and the essential elements of a valid contract.</p> <p>CO2: Explain the difference between a valid contract and a void contract.</p> <p>CO3: Understand the breach of contract and remedies available for a breach of contract.</p> <p>CO4: Understand various kinds of special contracts like indemnity, guarantee, bailment and agency contract.</p>
24.	3C03 COM BUSINESS ECONOMICS	<p>CO1: Understand the concept of economics and its use in business.</p> <p>CO2: Understand the concept of demand, elasticity and demand forecasting.</p> <p>CO3: Understand production function and law of production.</p> <p>CO4: Understand the methods of determining price of a product.</p> <p>CO5: Explain the methods of computing national income.</p> <p>CO6: Conceive the developmental issues of Indian economy and Kerala economy.</p>

25.	4C04 COM CORPORATE LAW AND BUSINESS REGULATIONS	<p>CO1: Understand the provisions of Companies Act 2013.</p> <p>CO2: Describe the procedure for the formation, registration and winding up of the company.</p> <p>CO3: Explain various kinds of companies and the authorities of companies in India.</p> <p>CO4: Understand the management and administration of Companies.</p>
GENERIC ELECTIVE COURSES		
26.	5D01 COM BASIC ACCOUNTING	<p>CO1: Describe the basic accounting concepts.</p> <p>CO2: Record the business transactions in the proper books of accounts.</p> <p>CO3: Prepare financial statements of a sole trading concern.</p>

Name of the Programme: **BBA**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Gain knowledge and skills in the areas of Management principles and practices, finance, human resource management and marketing.

PSO2.

Acquire knowledge in accounting principles and practices and its application in real business settings.

PSO3.

Apply concepts, theories, tools and techniques of statistics, information techniques, economics and numerical skills for decision making.

PSO4.

Build entrepreneurial spirit, develop research attitude and entrepreneurial competencies and managerial abilities.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	1B01BBA PRINCIPLES AND PRACTICES OF MANAGEMENT	CO1: Acquaint with the basics of management. CO2: Understand the process and functions of management. CO3: Familiarize the students with the current management practices. CO4: Develops administrative skills.
2.	2B02BBA BUSINESS ENVIRONMENT	CO1: Acquire in-depth knowledge about different environment in business climate. CO2: Understand the minor and major factors affecting the business in various streams. CO3: Familiarize the role of socio-cultural factors on development of economy and business. CO4: Develop good business policies.
3.	2B03BBA ENTREPRENEURSHIP DEVELOPMENT	CO1: Understand different stages of business and create innovative thinkers to take forward new initiatives. CO2: Acquaint them with the challenges faced by the entrepreneur. CO3: Familiarize the students the entrepreneurship opportunities available in the society.

		CO4: Develop the motivation to enhance entrepreneurial competency.
4.	3B04BBA FINANCIAL ACCOUNTING	<p>CO1: Understands accounting concepts and principles.</p> <p>CO2: Apply knowledge regarding concepts in the preparation of final accounts of sole traders.</p> <p>CO3: Understands the basic concepts of company, shares and share capital.</p> <p>CO4: Demonstrates skills in preparation of final accounts of companies.</p>
5.	3B05BBA MARKETING MANAGEMENT	<p>CO1: Develop knowledge on the concept modern marketing, marketing environment, marketing mix, market segmentation and target marketing.</p> <p>CO2. Enhance knowledge on product decision, product mix, product life cycle, pricing strategies and price discrimination.</p> <p>CO3. Apply the concept of market promotion, market promotion mix and sales promotion techniques in real business situations.</p> <p>CO4. Understand the new market realities, direct marketing, online marketing and customer relationship marketing.</p> <p>CO5. Identify the key characteristics of customer relationship marketing and common draw back.</p> <p>CO6. Develop idea on branding and strategies of branding.</p> <p>CO 7. Acquire skill in preparing advertisement copy very effectively.</p>
6.	4B06BBA HUMAN RESOURCE MANAGEMENT	<p>CO1: Understand basic concept and principles of Human Resource Management.</p> <p>CO2: Sensitize to the training process and methods.</p> <p>CO3: Equip with the importance of the performance management system in enhancing employee performance.</p> <p>CO4: Equip with the importance of the performance management system in enhancing employee performance.</p>
7.	4B07BBA FINANCIAL MANAGEMENT	<p>CO1. Understand the concept and objective of financial management.</p> <p>CO2. Develop the ability to select the feasible and viable investment proposal.</p>

		<p>CO3. Apply decision making tools in organisational context.</p> <p>CO4. Ability to assess the risk and return of investment projects.</p>
8.	4B08BBA OPERATIONS MANAGEMENT	<p>CO1: Understand the transformation system.</p> <p>CO2: Identify the components involved in designing effective operations system.</p> <p>CO3: Understand the meaning and importance of managing quality.</p> <p>CO4: Understand the meaning and importance of productivity and ways to improve productivity.</p> <p>CO5: Understand the decisions and process of operations management in business firms.</p>
9.	4B09BBA INDUSTRIAL VISIT AND REPORT	<p>CO1: Acquire hands on experience of how industry operations are executed.</p> <p>CO2: Analyses real life environment of business.</p> <p>CO3: Enhance interpersonal skills and communication techniques.</p> <p>CO4: Acquire practical knowledge of industry practices and regulations.</p>
10.	5B10BBA BUSINESS RESEARCH METHODS	<p>CO1: Acquire basic concepts of research and its types.</p> <p>CO2: Gain insight and acquire the ability to apply different research designs.</p> <p>CO3: Acquire skill of data processing in terms of tabulation and classification.</p> <p>CO4: Generate the ability to write research reports based on approved formats.</p>
11.	5B11BBA ACCOUNTING FOR MANAGEMENT	<p>CO1: Understand the concepts of cost and management accounting.</p> <p>CO2: Prepare cost sheet and budgets of an organisation.</p> <p>CO3: Analyse financial statements of corporate organisations using accounting ratios.</p> <p>CO4: Apply the concepts of marginal costing and standard costing in decision making.</p>
12.	6B14BBA ORGANISATIONAL BEHAVIOUR	<p>CO1. Understand concepts, theories and techniques in the field of human behaviour at individual, group and organization level.</p> <p>CO 2. Understand personality determinants within personal and organizational context.</p>

		<p>CO3. Understand concepts of learning and motivation and its context in organizational setting.</p> <p>CO4. Identify the role and relevance of group dynamics in organizational management.</p>
13.	6B15BBA BANKING THEORY AND PRACTICE	<p>CO1. Acquire knowledge about basics of banking.</p> <p>CO2. Understands the law and practices of banking .</p> <p>CO3. Understands the various banking terminologies.</p> <p>CO4. Acquire knowledge of modern banking practices.</p>
14.	6B16BBA PROJECT REPORT AND VIVA VOCE	<p>CO1: Analyses real life situations.</p> <p>CO2: Acquires group dynamic skills by group involvement.</p> <p>CO3: Develops solutions or inferences on the problem of study.</p> <p>CO4: Sythesis facts in the form of report.</p>
DISCIPLINE SPECIFIC ELECTIVE COURSES		
15.	5B12BBA CONSUMER BEHAVIOUR	<p>CO1: Understand the relevance of consumer behaviour theories and concepts to marketing decisions.</p> <p>CO2: Use appropriate techniques to apply market solutions.</p> <p>CO3: Acquire social and ethical implications of marketing actions on consumer behaviour.</p> <p>CO4: Formulate marketing strategies that influence consumer behaviour.</p>
16.	5B13BBA ADVERTISING AND BRAND MANAGEMENT	<p>CO1: Understand the fundamental theories, concepts, and frameworks in advertising and brand management.</p> <p>CO2: Apply advertising and branding techniques in different situations.</p> <p>CO3: Understanding ethical challenges related to responsible management advertising and brand strategy.</p> <p>CO4: Acquires skill in media planning and scheduling.</p>

17.	6B17BBA LOGISTICS MANAGEMENT	<p>CO1: Understand the structure of supply chains and the different ways through which supply chains can become competitive in the market.</p> <p>CO2: Explain how to use the levers of the logistics strategy to redefine the points necessary to make this harmonization.</p> <p>CO3: Analyse the importance of the term “value creation” and to propose actions in the field of management of logistics costs towards the creation of value.</p> <p>CO4: Distinguish the forces shaping international logistics in a global market.</p> <p>CO5: Assess accurately the risks occurred due to loss of focus on the satisfaction of end customer demand.</p>
18.	6B18BBA RETAIL MANAGEMENT	<p>CO1: Understand basic marketing theories, principles, practices and terminology related to each functional area of business.</p> <p>CO2: Identify the ways that retailers use marketing tools and techniques to interact with their customers and perform basic functions appropriate to each functional area of business.</p> <p>CO3: Analyse the contribution of retailers to the product value chain; consumer motivations, shopping behaviours, and decision processes for evaluating retail Offering and purchasing merchandise and services; corporate objectives, competitor analysis, and competitive strategy.</p> <p>CO4: Understand how retailers differentiate their offering as an element in their corporate strategy and factors affecting strategic decisions involving investments in locations, supply chain and Information systems, and customer retention program.</p>

COMPLEMENTARY ELECTIVE COURSE		
19.	1C01BBA STATISTICS FOR BUSINESS DECISIONS	<p>CO1: Understand the importance and relevance of statistics, primary data, secondary data and the statistical technique as applicable to business.</p> <p>CO2: Classify, tabulate and represent the statistical data in appropriate manner using statistical methods.</p> <p>CO3: Analysis trend and seasonality in a time series data.</p> <p>CO4: Construct index numbers and enable to compare the price movements of commodities over different time periods.</p> <p>CO5: Identify the correlation between variables.</p> <p>CO6: Problem solving and fit the regression line which enable to draw conclusion about data distribution.</p>
20.	1C02BBA MANAGERIAL ECONOMICS	<p>CO1. Understand basic managerial economic concepts.</p> <p>CO2. Understands economics and related disciplines and relationships.</p> <p>CO3. Apply economic analysis in the formulation of business policies.</p> <p>CO4. Use economic reasoning to problems of business.</p>
21.	2C03BBA QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS	<p>CO1. Understands concepts of quantitative techniques.</p> <p>CO2. Develops analytical thinking and logical reasoning for effective decision making.</p> <p>CO3. Apply probability theories in real life situations.</p> <p>CO4. Understands theoretical distributions and hypothesis testing and its applications in live situations.</p>
22.	3C04BBA LEGAL ASPECTS OF BUSINESS	<p>CO1. Understand the conditions and rules that are applicable to a contract and the importance of law in business.</p> <p>CO2. Identify the important and relevant documents needed for registering Indian companies.</p> <p>CO3. Awareness about the latest amendments in the Indian Companies Act.</p> <p>CO4. Develop knowledge on the Sale of Goods Act, GST, the application of CGST, SGCT and its challenges and opportunities.</p>

		CO5. Apply the knowledge on consumer protection Act, rights of consumer and dispute redressal agencies in real life situations.
ABILITY ENHANCEMENT COURSE		
23.	3A12BBA PERSONALITY DEVELOPMENT AND COMMUNICATION SKILLS	<p>CO1: Understand the 'self' through analysis of one's own strengths, weaknesses, opportunities and threats to face the challenging and competitive world.</p> <p>CO2: Set new goals specific, measurable, achievable, realisable and time-bounded to reshape the personality and identify the shortcomings to be corrected.</p> <p>CO3: Develop inter personal skills and problem solving skills.</p> <p>CO4: Understand the role of body language in effective communication.</p> <p>CO5: Critically evaluate the need for stress management and experience the essence of different techniques in reducing stress.</p> <p>CO6: Perform effectively the assigned work to the fullest satisfaction; with utmost concentration and self motivation to achieve success in near future.</p>
24.	4A14BBA ENVIRONMENTAL STUDIES	<p>CO1. Acquire knowledge about environment and enable to contribute towards maintaining and improving the quality of the environment.</p> <p>CO2. Understand the importance of protecting the environment and effect of environmental hazards.</p> <p>CO3. Analysis the ecosystem and the bio diversity nature of our country.</p> <p>CO4. Apply the awareness to point our Hot -spot of bio diversity in India and its conservation.</p> <p>CO5. Identify the effect of environmental Degradation and the role of Government in protecting the environment.</p> <p>CO6. Formulate some action plan to engage in activities for preventing environmental degradation.</p>
SKILL ENHANCEMENT COURSE		
25.	3A11BBA NUMERICAL SKILLS	<p>CO1. Understand common numerical methods.</p> <p>CO2. Apply numerical methods to obtain approximate solutions to mathematical problems.</p> <p>CO3. Analyses and evaluate the accuracy of common numerical methods.</p>

		CO4. Derive numerical methods for various mathematical operations and tasks.
26.	4A13BBA IT TOOLS FOR BUSINESS	CO1: Understand the working on word, PowerPoint, Excel etc. CO2: Develop basic computer awareness for letter drafting, Slide making, Payroll preparation. CO3: Understand the various shortcuts for faster functioning on the computer system.
GENERAL ELECTIVE COURSE		
27.	5D03BBA ELECTRONIC COMMERCE	CO1: Familiarize the basic concepts and methods of e-commerce. CO2: Understand how e-commerce affect today's business world. CO3: Identify the precautionary measures to be followed while entering in online transactions. CO4: Analyse factors influencing the success of e-commerce.
28.	5D04BBA EVENT MANAGEMENT	CO1: Understand the concept and significance of event management. CO2: Familiarize the techniques to improve event finance, sponsorship and cost control. CO3: Practice preparing time limits for event. CO4: Develops skill for conducting an event.



Name of the Programme: **BA MALAYALAM**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

PSO2.

PSO3.

PSO4.

PSO5.

PSO6.

PSO7.

PSO8.

PSO9.

COURSE OUTCOMES (COs) FOR COMMON COURSES

Sl. No.	Name of the Course	Outcomes
1.	1A07MAL	<p>CO1: ,</p> <p>CO2: .</p> <p>CO3: , ,</p> <p>CO4: .</p>
2.	2A08MAL	<p>CO1. , ,</p> <p>CO2. .</p> <p>CO3. , , ,</p> <p>CO4. .</p>
3.	3A09MAL	<p>CO1. / , /</p> <p>CO2. .</p>

		<p>CO3.</p> <p>CO4.</p> <p>CO5.</p>
4.	4A10MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p> <p>CO4.</p> <p>CO5.</p>
5.	1A07-1MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p>

		CO4.
6.	2A08-1MAL	CO1. CO2. CO3. CO4. CO5.

COURSE OUTCOMES (COs) FOR CORE COURSES

Sl. No.	Name of the Course	Outcomes
7.	1B01MAL	CO1. CO2. CO3. CO4.
8.	2B02MAL	CO1. CO2.

		<p>CO3.</p> <p>CO4.</p>
9.	3B03MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p> <p>CO4.</p> <p>CO5.</p>
10.	3B04MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p> <p>CO4.</p>
11.	4B05MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p>

		CO4.
12.	4B06MAL	CO1. , , , CO2. . CO3. , , , , , CO4. . CO5. , , , , , CO6. . CO7. . - .
13.	5B07MAL	CO1. CO2. . CO3. . CO4. . CO5. . .

14.	5B08MAL	CO1. CO2. CO3. CO4.
15.	5B09MAL	CO1. CO2. CO3. CO4. CO5. CO6.
16.	5B10MAL	CO1. CO2. CO3.

		<p>CO4.</p> <p>CO5.</p> <p>CO6.</p>
17.	5B11MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p> <p>CO4.</p>
18.	6B12MAL	<p>CO1.</p> <p>CO2.</p> <p>CO3.</p> <p>CO4.</p> <p>CO5.</p>
19.	6B13MAL	<p>CO1.</p>



		CO2. CO3. CO4. CO5.
20.	6B14MAL	CO1. CO2. CO3. CO4. CO5.
21.	6B15MAL	CO1. CO2. CO3. CO4.
COMPLIMENTRY ELECTIVE COURSES		

22.	1C01MAL -	CO1. CO2. CO3. CO4.
23.	4C04MAL	CO1. () CO2. CO3. CO4. CO5. / (, ,)
GENERIC ELECTIVE COURSES		
24.	5D01MAL	CO1. CO2. CO3. CO4.

		CO5.
25.	5D02MAL	CO1. CO2. CO3. CO4. CO5.
26.	5D03MAL	CO1. CO2. / CO3. CO4. CO5.
27.	5D04MAL	CO1. CO2.

		CO3. CO4.
28.	5D05MAL :	CO1. CO2. CO3. CO4. CO5.

MSc PROGRAMME (FOR SCIENCE)

PROGRAMME OUTCOMES (PO)

PO1. Advanced Knowledge & Skills:

Postgraduate courses aim to provide students with in-depth knowledge and advanced skills related to their chosen field. The best outcome would be to acquire a comprehensive understanding of the subject matter and develop specialized expertise.

PO2. Research & Analytical Abilities:

Research and Analytical Abilities: Postgraduate programs often emphasize research and analytical thinking. The ability to conduct independent research, analyse complex problems, and propose innovative solutions is highly valued.

PO3. Critical Thinking & Problem-Solving Skills:

Developing critical thinking skills is crucial for postgraduate students. Being able to evaluate information critically, identify patterns, and solve problems creatively are important outcomes of these programs.

PO4. Effective Communication Skills:

Strong communication skills, both written and verbal, are essential in various professional settings. Postgraduate programs should focus on enhancing communication

abilities to effectively convey ideas, present research findings and engage in academic discussions.

PO5. Ethical & Professional Standards:

Graduates should uphold ethical and professional standards relevant to their field. Understanding and adhering to professional ethics and practices are important outcomes of postgraduate education.

PO6. Career Readiness:

Postgraduate programs should equip students with the necessary skills and knowledge to succeed in their chosen careers. This includes practical skills, industry-specific knowledge, and an understanding of the job market and its requirements.

PO7. Networking & Collaboration:

Building a professional network and collaborating with peers and experts in the field are valuable outcomes. These connections can lead to opportunities for research collaborations, internships and employment prospects.

PO8. Lifelong Learning:

Postgraduate education should instill a passion for lifelong learning. The ability to adapt to new developments in the field, pursue further education, and stay updated with emerging trends is a desirable outcome.



Name of the Programme: **MSc CHEMISTRY**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

In-depth knowledge of core concepts: Understanding of the fundamental principles and theories in various sub-disciplines of chemistry, including organic, inorganic, physical, analytical and theoretical chemistry.

PSO2.

Advanced laboratory skills: Possess advanced laboratory skills necessary for planning, executing and analysing experiments in diverse areas of chemistry. This includes skill in handling chemical reagents, instruments and equipment, as well as accurate measurement techniques.

PSO3.

Research and scientific inquiry: Exhibit competence in designing and conducting independent research projects in chemistry, including formulating research questions, implementing methodologies, collecting and interpreting data, and drawing appropriate conclusions.

PSO4.

Critical thinking, data analysis, interpretation, and problem-solving: Apply critical thinking skills to analyse complex chemical problems and propose innovative solutions. Effective in interpreting experimental data using appropriate statistical methods and computational tools.

PSO5.

Effective communication: Communicate scientific ideas, research findings, and complex concepts effectively through written reports, research papers, and oral presentations.

PSO6.

Safety and ethical practices: Awareness of ethical principles and safety protocols in all aspects of chemical research and laboratory work.

PSO7.

Interdisciplinary knowledge and collaboration: Display the ability to integrate knowledge from various field, collaborate with interdisciplinary teams, and apply chemical principles to solve problems in related areas, such as environmental science, materials science, pharmaceuticals, biochemistry, nanoscience etc.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	MSCHE01C01: THEORETICAL CHEMISTRY - I	CO1. Understand and examine the basic principles of Quantum Mechanics.

		<p>CO2. Apply the postulates of quantum mechanics to simple systems.</p> <p>CO3. Make use of the approximation methods to calculate the properties of simple systems.</p> <p>CO4. Demonstrate the principles of chemical bonding in diatomic and polyatomic molecules.</p> <p>CO5. Apply HMO theory to simple conjugated systems.</p>
2.	MSCHE01CO2: INORGANIC CHEMISTRY - I	<p>CO1: Apply the theory of precipitation phenomena in the determination of metal ions.</p> <p>CO2: Impart advanced knowledge of the theory of complexometric titration.</p> <p>CO3: Predict the stabilities of complexes based on the HSAB principle.</p> <p>CO4: Understand different types of Non-aqueous solvents and their applications.</p> <p>CO5: Develop and attain advanced knowledge of nuclear Chemistry and radiation Chemistry and their applications.</p> <p>CO6: Demonstrate the preparation, structure, and properties of compounds of Boron, Phosphorous and Nitrogen.</p>
3.	MSCHE01C03: ORGANIC CHEMISTRY - I	<p>CO1. Study the various reaction intermediates in organic reactions.</p> <p>CO2. Investigate the role of reaction conditions and reagents in the generation of intermediates.</p> <p>CO3. Formulate a mechanism for the suggested reactions.</p> <p>CO4. Analyse the structure-property relations in aliphatic substitution reactions. Apply the concept of elimination to various organic molecules.</p> <p>CO5. Understand the various aromatic systems and their reactions. Classify molecules based on the aromatic behaviour.</p> <p>CO6. Study the different photochemical reactions and apply to natural photochemical reactions.</p>
4.	MSCHE01C04: PHYSICAL CHEMISTRY - I	<p>CO1. Illustrate the concepts of the third law of thermodynamics and thermodynamic irreversibility.</p> <p>CO2. Analyse phase transitions and phase diagrams of three component systems.</p>

		<p>CO3. Develop an understanding of the theoretical aspects of electrochemical activities and various facets of electrochemistry.</p> <p>CO4. Interpret the mechanism of electrode-electrolyte interaction.</p> <p>CO5. Analyse different aspects of the electrode process.</p> <p>CO6. Illustrate the importance and concepts of electrochemistry in other fields like supercapacitors, batteries, and corrosion.</p>
5.	MSCHE02CO8: THEORETICAL CHEMISTRY - II	<p>CO1. Analyse the symmetry aspects of a given molecule and find its point group.</p> <p>CO2. Explain the basic principles of group theory and construction of the character table.</p> <p>CO3. Apply the principles of group theory to spectroscopy and chemical bonding.</p> <p>CO4. Understand the interaction of matter with radiation in terms of the relation with the molecular energy levels.</p> <p>CO5. Explain and apply the selection rules pertaining to various molecular spectral transitions.</p> <p>CO6. Develop advanced awareness about the various spectroscopic techniques- IR, Raman, Electronic, and NMR.</p>
6.	MSCHE02C09: INORGANIC CHEMISTRY - II	<p>CO1: Develop advanced knowledge about the VB and MO theory of coordination compounds.</p> <p>CO2: Explain the spectroscopic features of complexes and interpret the spectra of complexes.</p> <p>CO3: Describe the magnetic behaviour of complexes and apply magnetic properties in the structural determination of complexes.</p> <p>CO4: Understand the various mechanisms operative in inorganic complexes during substitution and in electron transfer reactions.</p> <p>CO5: Explain different physical methods in Inorganic chemical analysis</p>
7.	MSCHE02C10: ORGANIC CHEMISTRY - II	<p>CO1. Understand the basic concepts of conformational analysis and evaluate the effect of conformational changes in molecular reactions.</p> <p>CO2. Apply the basic concepts of stereochemistry in stereoselective asymmetric synthesis.</p> <p>CO3. Understand molecular orbital approaches in pericyclic reactions.</p>

		<p>CO4. Formulate mechanisms for pericyclic reactions and problems.</p> <p>CO5. Understand and analyse various name reactions in organic chemistry.</p> <p>CO6. Generate mechanisms for reactions and understand the basic concepts for asymmetric synthetic reagents.</p>
8.	MSCHE02C11: PHYSICAL CHEMISTRY - II	<p>CO1. Apply the theory and methods of the statistical approach of thermodynamics.</p> <p>CO2. Analyse different classical and quantum mechanical distribution functions.</p> <p>CO3. Interpret classical and quantum statistical mechanics, including Boltzmann, Fermi-Dirac, and Bose-Einstein statistics.</p> <p>CO4. Illustrate band theory and the reciprocal lattice (k-space) formalism in terms of the crystal lattice.</p> <p>CO5. Analyse the theory of X-ray diffraction in solids.</p> <p>CO6. Develop an idea of different solid properties, focusing on electric and magnetic properties.</p>
9.	MSCHE01&02C05: INORGANIC CHEMISTRY PRACTICAL- I	<p>CO1: Identify advanced laboratory practices and develop laboratory skills through hands on experiences.</p> <p>CO2: Identify the cations including rare elements, in a mixture of unknown salts.</p> <p>CO3: Analyse metal ions using the volumetric method .</p> <p>CO4: Analyse water quality parameters like hardness and DO.</p> <p>CO5: Synthesize and characterize metal complexes of historical importance by various physicochemical methods.</p> <p>CO6: Record, interpret and analyse UV-Vis and IR spectra, TG curves, and XRD patterns of different metal complexes.</p> <p>CO7: Predict the spectral characteristics of a given metal complex.</p>
10.	MSCHE01&02C06: ORGANIC CHEMISTRY PRACTICAL - I	<p>CO1. Develop hands-on laboratory experience in the separation and purification of organic compounds.</p> <p>CO2. Analyse organic compounds and acquire lab skills in the synthesis of organic compounds.</p>

		<p>CO3. Determine physical constants and purification techniques.</p> <p>CO4. Develop skills in chromatography.</p>
11.	MSCHE01&02C07: PHYSICAL CHEMISTRY PRACTICAL - I	<p>CO1. Correlate and experimentally verify basic electrochemical principles related to conductance, mobility, and activities of ions.</p> <p>CO2. Estimate concentration and molecular weights using cryoscopic methods.</p> <p>CO3. Analyse physical constants like viscosity to determine the composition and molecular weights in the solution.</p> <p>CO4. Perform electrochemical titrations in the laboratory by measuring the conductance and potential of solutions, and determination of dissociation constants of acids.</p> <p>CO5. Apply Physical chemistry concepts in the areas as of phase equilibrium.</p>
12.	MSCHE03&04C15: INORGANIC CHEMISTRY PRACTICAL - II	<p>CO1. Predict the methods for separation cations of a mixture.</p> <p>CO2. Estimate metal ions present in a binary mixture following volumetric, gravimetric, and colorimetric methods.</p> <p>CO3. Interpret data from an experiment, including constructing appropriate graphs and evaluating errors.</p> <p>CO4. Analyse alloys and detect the cations present.</p> <p>CO5. Analyse trace metals using optical methods.</p> <p>CO6. Synthesize and characterize nanoparticles by various methods.</p>
13.	MSCHE03&04C16: ORGANIC CHEMISTRY PRACTICAL - II	<p>CO1. Develop lab skills in the extraction of natural compounds and qualitative analysis.</p> <p>CO2. Synthesize and purify organic compounds.</p> <p>CO3. Develop skills in chromatographic techniques.</p> <p>CO4. Analyse, examine, and solve spectral data.</p>
14.	MSCHE03&04C17: PHYSICAL CHEMISTRY PRACTICAL - II	<p>CO1. Experimentally analyse the concepts related to the kinetic aspects of chemical reactions determination of concentration from graphs based on surface chemistry concepts.</p> <p>CO2. Utilize stereochemical principles related to optical isomers to determine the concentration and kinetic parameters of specific reactions.</p>

		<p>CO3. Apply UV-Visible spectroscopy to determine solution concentration, complex formation, equilibrium constant, metal ion concentration.</p> <p>CO4. Perform basic spectral calculations and determination of specific parameters from UV-Visible spectroscopy and X-ray diffraction data.</p> <p>CO5. Apply Computational chemistry to perform single-point energy calculation, geometry optimization, and Frontier orbital calculation at the HF level of theory</p>
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Name of the Programme: **MSc PHYSICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

CORE COURSES

The core courses in the M.Sc. Physics Programme are carefully curated to ensure that students acquire a solid foundation in classical and modern physics. The specific objectives of core courses include:

PSO1.

Understanding fundamental concepts and principles in classical mechanics, electrodynamics, quantum mechanics, mathematical physics and statistical mechanics.

PSO2.

Developing proficiency in solving complex physics problems using mathematical techniques and numerical methods.

PSO3.

Gaining insights into cutting-edge research and recent advancements in various fields of physics.

ELECTIVE COURSES

The Programme offers elective courses that allow students to specialize in specific areas of interest within physics. The specific objectives of elective courses include:

PSO4.

Allowing students to explore advanced topics such as Astrophysics, Nonlinear Dynamics, Quantum Field Theory, Optics and photonics, plasma physics, Computational Physics, Microprocessors, Materials Sciences, Atmospheric physics and Electronic Instrumentation, among others.

PSO5.

Encouraging critical thinking and analytical skills in solving specialized physics problems.

PSO6.

Providing opportunities for students to develop expertise in their chosen fields and prepare them for further research or industry.

MULTIDISCIPLINARY OPEN ELECTIVE COURSES

These courses are designed to foster interdisciplinary thinking and encourage students to explore areas beyond physics. The specific objectives of multidisciplinary open elective courses include:

PSO7.

Promoting a broader perspective and understanding of how physics interfaces with other scientific and non-scientific disciplines.

PSO8.

Encouraging creativity and innovation through the application of physics concepts to real-world challenges in various domains.

PSO9.

Developing communication skills to effectively collaborate with professionals from different backgrounds.

INTERNSHIP/RESEARCH PROJECT:

The internship or project component of the Programme aims to provide students with hands-on experience in applying theoretical knowledge to practical situations. The specific objectives of internships/projects include:

PSO10.

Offering opportunities to work on real-world problems in academia, research institutions, or industry settings.

PSO11.

Enhancing problem-solving and research skills by conducting independent investigations. Cultivating teamwork, project management, and presentation skills.

INSTITUTIONAL/INDUSTRIAL VISITS

The institutional and industrial visits are crucial for exposing students to the actual working environment of research institutions and industries. The specific objectives of these visits include:

PSO12.

Providing insights into the application of physics principles in real-life scenarios.

PSO13.

Facilitating interaction with professionals and researchers to gain practical knowledge and career insights.

PSO14.

Fostering networking opportunities for potential future collaborations or job prospects.

EXPERIENTIAL LEARNING AND COMPUTATIONAL PHYSICS

By incorporating experiential learning and computational physics as integral parts of the practical and project components, the specific objectives are:

PSO15.

Enabling students to gain hands-on experience in conducting experiments and simulations to reinforce theoretical concepts.

PSO16.

Developing proficiency in using computational tools and numerical methods for modelling and analysing complex physical systems.

PSO17.

Enhancing problem-solving skills and fostering a research-oriented mindset.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	MSPHY01C02-MATHEMATICAL PHYSICS I	<p>CO1: Deal with particle mechanics at an advanced level.</p> <p>CO2: Use the calculus of variations to characterize the function that extremizes a functional.</p> <p>CO3: Understand the concept of constraints, principle of least action and formulation of Lagrange's method and apply Lagrange's equation for simple dynamical systems.</p> <p>CO4: Understand Central force and its application in Kepler's problem.</p> <p>CO5: Formulate and solve problems in classical mechanics using the Lagrangian, Hamiltonian and Hamilton-Jacobi formulations.</p> <p>CO6: Apply the methods of classical mechanics to identify conserved quantities and normal modes.</p> <p>CO7: Analyze motion of rigid bodies in non-inertial frames of reference using Euler angles and Euler's equations.</p>
2.	MSPHY01C02-MATHEMATICAL PHYSICS I	<p>CO1: Provide a solid foundation in linear algebra: This includes a thorough understanding of vectors, matrices, linear transformations, eigenvalues, eigenvectors, and the concept of diagonalization. Students will also learn the basics of tensor analysis.</p>

		<p>CO2: Understand infinite series and Fourier transforms: Students will be exposed to the concepts of infinite and power series, along with their convergence properties. Furthermore, they will learn about the Fourier series and Fourier transforms, including their properties and applications in physics.</p> <p>CO3: Master special functions and orthogonal polynomials: The course aims to impart knowledge about special functions like Gamma and Beta functions, Legendre and Bessel functions, and the concept of orthogonal polynomials such as Hermite and Laguerre polynomials. Students will learn how these functions and polynomials are used to solve problems in physics.</p> <p>CO4: Develop expertise in ordinary and partial differential equations (ODEs and PDEs): Students will learn how to solve ODEs and PDEs, with a specific focus on systems of ODEs, the Laplace equation, and the wave equation. They will also gain an understanding of their applications in physics.</p> <p>CO5: Apply mathematical methods to physical problems and promote computational skills: The course aims to develop students' ability to use these mathematical methods to analyse and solve problems in physics. The tutorial sessions will particularly focus on practical applications, enhancing problem-solving skills. As part of the course, students will use computational tools to solve complex problems, enhancing their computational physics skills.</p>
3.	MSPHY01C03 - ELECTRODYNAMICS	<p>CO1: Understand the fundamental principles and concepts of classical electrodynamics.</p> <p>CO2. Analyze and interpret electromagnetic fields, potentials, Maxwell's equations and their implications.</p> <p>CO3. Describe the behaviour of electromagnetic waves in different media.</p> <p>CO4. Understand the interaction of electromagnetic waves with matter, including reflection and transmission phenomena.</p> <p>CO5. Understand the principles of electromagnetic radiation and waveguides.</p> <p>CO6. Apply the principles of electrodynamics in the context of special relativity.</p> <p>CO7. Enhance problem-solving and critical-thinking skills through tutorials and exercises</p>

		CO8. Acquire a solid foundation in electromagnetism, laying the groundwork for further research or specialization in related fields.
4.	MSPHY01C04- ELECTRONICS	<p>CO1. Explain the theory, working and applications of OPAMP (Module 1)</p> <p>CO2. Understand the applications of the OPAMP with special reference to filters, oscillators etc (Module 2)</p> <p>CO3. Appreciate combinational circuits, Sequential circuits, D/A & A/D converters (Module 3)</p> <p>CO4. Apprehend the architecture of the 8085 Microprocessor. (Module 4)</p>
5.	MSPHY01C05 & MSPHY02C05 - PRACTICAL I - BASIC PHYSICS LABORATORY	<p>CO1. Develop proficiency in setting up and conducting physics experiments using various scientific instruments.</p> <p>CO2. Understand the principles of instrumentation and calibration processes to ensure accurate measurements.</p> <p>CO3. Develop the ability to troubleshoot experimental setups and address technical issues.</p> <p>CO4. Develop skills in collecting and analysing experimental data, including the use of statistical tools and software for data processing.</p> <p>CO5. Improve scientific writing skills to present experimental results in a clear and concise manner.</p> <p>CO6. Encourage critical analysis of experimental results and drawing valid conclusions.</p>
6.	MSPHY01C06 & MSPHY02C06- PRACTICAL II - ELECTRONICS LABORATORY	<p>CO1. Develop hands-on skills in using electronic equipments, tools and instruments commonly used in the electronics industry like oscilloscopes, signal generators, multimeters, soldering irons etc.</p> <p>CO2. Gain proficiency in designing, building, and analysing electronic circuits, both analog and digital to perform specific functions like amplification, voltage regulation, signal generation, mathematical operations and digital operations using BJT/FET/ICS.</p> <p>CO3. Learn how to identify and diagnose problems in electronic circuits and systems and develop effective strategies to debug and fix issues.</p> <p>CO4. Improve scientific writing skills to present experimental results in a clear and concise manner.</p> <p>CO5. Encourage critical analysis of experimental results and drawing valid conclusions.</p>

		CO6. Understand the importance of safety protocols when working with electronic components and systems.
7.	MSPHY02C08- QUANTUM MECHANICS-I	CO1. Understand the Time-Independent Schrödinger Equation and its applications CO2. Apply mathematical tools in Quantum Mechanics CO3. Analyze the Theory of Angular Momentum CO4. Recognize symmetries and conservation laws in quantum systems
8.	MSPHY02C09- STATISTICAL MECHANICS	CO1: Understand how a probabilistic description of nature at the microscopic level gives rise to deterministic laws at the macroscopic level. CO2: Relate the concepts of entropy and temperature as defined in statistical mechanics to their more familiar versions in thermodynamics. CO3: Solve for the thermal properties of classical and quantum gases and other condensed systems from a knowledge of their microscopic Hamiltonians. CO4: Appreciate that interactions between particles can explain the various phases of matter observed in nature as in phase transitions.
9.	MSPHY02C10- MATHEMATICAL PHYSICS II	CO1: Develop a foundational understanding of complex numbers and functions: including properties, analytical methods, and complex integration. Students should be able to apply these concepts to the study of physics, such as electrodynamics and quantum mechanics. CO2: Laplace Transforms and Group Theory: Learn to use Laplace transforms in physics problems. Additionally, gain a thorough understanding of the principles of group theory, including groups, subgroups, and group representations. Students should be able to identify and work with special groups such as unitary, orthogonal, and homogeneous Lorentz groups. CO3: Numeric Analysis: Equip students with the skills to conduct numerical analysis, such as error propagation, numerical integration and differentiation, and numerical methods for linear algebra. Students should be able to apply these techniques to solve ordinary and partial differential equations.

		<p>CO4: Probability and Statistics: Provide students with a solid understanding of data analysis and probability theory, including random variables, probability distributions, and statistical methods. Students should be able to apply these concepts to the fields of hypothesis testing, quality control, and regression.</p> <p>CO5: Apply mathematical methods to physical problems and promote computational skills: The course aims to develop students' ability to use these mathematical methods to analyze and solve problems in physics. The tutorial sessions will particularly focus on practical applications, enhancing problem-solving skills. As part of the course, students will use computational tools to solve complex problems, enhancing their computational physics skills.</p>
10.	MSPHY02C11: SPECTROSCOPY	<p>CO1: Understand structure of atom from the atomic spectra</p> <p>CO2: Understand vector atom model through space quantization</p> <p>CO3: Understand the influence of external magnetic and electric field on the atomic system</p> <p>CO4: Understand the microwave and infrared spectroscopy techniques of the molecular system</p> <p>CO5: Understand the electronic and Raman spectroscopy techniques of the molecular system</p> <p>CO6: Understand nuclear magnetic resonance (NMR) and electron spin resonance (ESR) spectroscopy techniques</p> <p>CO7: Understand Mossbauer spectroscopy and its applications</p>
11.	MSPHY01C05 & MSPHY02C05- PRACTICAL I - BASIC PHYSICS LABORATORY	<p>CO1. Develop proficiency in setting up and conducting physics experiments using various scientific instruments.</p> <p>CO2. Understand the principles of instrumentation and calibration processes to ensure accurate measurements.</p> <p>CO3. Develop the ability to troubleshoot experimental setups and address technical issues.</p> <p>CO4. Develop skills in collecting and analysing experimental data, including the use of statistical tools and software for data processing.</p> <p>CO5. Improve scientific writing skills to present experimental results in a clear and concise manner.</p>

		CO6. Encourage critical analysis of experimental results and drawing valid conclusions.
	MSPHY01C05 & MSPHY02C06- PRACTICAL II - ELECTRONICS LABORATORY	<p>CO1. Develop hands-on skills in using electronic equipment, tools and instruments commonly used in the electronics industry like oscilloscopes, signal generators, multimeters, soldering irons etc.</p> <p>CO2. Gain proficiency in designing, building, and analysing electronic circuits, both analog and digital to perform specific functions like amplification, voltage regulation, signal generation, mathematical operations and digital operations using BJT/FET/ICS.</p> <p>CO3. Learn how to identify and diagnose problems in electronic circuits and systems and develop effective strategies to debug and fix issues.</p> <p>CO4. Improve scientific writing skills to present experimental results in a clear and concise manner.</p> <p>CO5. Encourage critical analysis of experimental results and drawing valid conclusions.</p> <p>CO6. Understand the importance of safety protocols when working with electronic components and systems.</p>

Name of the Programme: **MSc MATHEMATICS**

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Inculcate and develop mathematical aptitude and train students to apply their theoretical knowledge to solve problems.

PSO2.

Develop the knowledge, skills and attitudes necessary to pursue further studies in mathematics.

PSO3.

Develop abstract, logical and critical thinking so that students can reflect critically upon their work and the work of others.

PSO4.

Appreciate the international dimension of mathematics and its multicultural and historical perspectives,

PSO5.

Develop in the student the ability to read, follow and appreciate mathematics.

PSO6.

Train students to communicate mathematical ideas in a lucid and effective manner.

PSO7.

Have a strong foundation in core areas of Mathematics both pure and applied.

PSO8.

Communicate mathematical ideas effectively, in writing as well as orally.

PSO9.

Conduct Professional and Scholarly activities efficiently.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	MSMAT01C01 ABSTRACT ALGEBRA	CO: After successful completion of the course, student will be able to understand the basic algebraic structures such as group theory and ring theory.

2.	MSMAT01C02 LINEAR ALGEBRA	CO: After successful completion of the course, student will be able to understand the basic linear algebra- vector space, linear transformations and inner product spaces.
3.	MSMAT01C03 REAL ANALYSIS	CO: After successful completion of the course, student will be able to understand the basic real analysis- convergence, differentiation and integration
4.	MSMAT01C04 TOPOLOGY	CO: After successful completion of the course, student will be able to understand the topological spaces, continuous functions and connected spaces.
5.	MSMAT01C05 ORDINARY DIFFERENTIAL EQUATIONS	CO: After successful completion of the course, student will be able to understand the basics of differential equations and the method of solving them.
6.	MSMAT02C06 ADVANCED ABSTRACT ALGEBRA	CO: After successful completion of the course, student will be able to understand some topics in algebra including Galois theory.
7.	MSMAT02C07 MEASURE THEORY	CO: After successful completion of the course, student will be able to understand some topics in measure theory Lebesgue integration.
8.	MSMAT02C08 ADVANCED REAL ANALYSIS	CO: After successful completion of the course, student will be able to understand uniform convergence and functions of several variables.
9.	MSMAT02C09 ADVANCED TOPOLOGY	CO: After successful completion of the course, student will be able to understand Compactness, Separation Axioms and classical Theorems in topology such as Urysohn Lemma, Urysohn Metrization theorem, Tietze Extension, Tychonoff Theorem and Stone – Cech Compactification.
10.	MSMAT02C10 PDE AND INTEGRAL EQUATIONS	CO: Upon the successful completion of the course students will learn techniques to solve first order PDE and analyse the solution to get information about the parameters involved in the model and get an idea about Integral equations.

11.	MSMAT03C11 FUNCTIONAL ANALYSIS	CO: After successful completion of the course, student will be able to bring together the theories of linear algebra, topology and analysis and get acquainted with the basic theories of functional analysis.
12	MSMAT03C12 COMPLEX ANALYSIS	CO: After successful completion of the course, student will study Cauchy's theorems, residue integration and space of analytic and meromorphic functions.
13	MSMAT03C13 DIFFERENTIAL GEOMETRY	CO: After successful completion of the course, student will be able to understand the basics of differential geometry and several variable calculus.
14	MSMAT04C14 OPERATOR THEORY	CO: After successful completion of the course, student will be able to understand the advanced level operator theory and their interplay with other branches of higher mathematics.
15	MSMAT04C15 COMPLEX FUNCTION THEORY	CO: After successful completion of the course, student will develop knowledge in advanced complex analysis and would be capable to apply these knowledge in solving Harmonic PDEs.
16	MSMAT04C16 PROJECT/DISSERTATION	CO: After successful completion of the project work, student will be able to study or research in a topic that is beyond the regular classroom learning in both rigor and content. Further, students will be able to produce reports that exhibit both the background and the conclusions reached as a result of such study or research.
CORE ELECTIVE COURSES		
17.	MSMAT03E01 NUMBER THEORY	CO: After successful completion of the course, student will study the basics of both Analytic and Algebraic Number Theory.
18.	MSMAT03E02 CALCULUS OF VARIATIONS	CO: After successful completion of the course, student will be able to understand the basic theory of calculus of variations, get acquainted with Euler equations and apply them in solving extremal problems.
19.	MSMAT03E03 ALGEBRAIC TOPOLOGY	CO: After successful completion of the course, student will be able to understand the basics of algebraic topology and understand the fundamental group from a different perspective.

20.	MSMAT03E04 NUMERICAL ANALYSIS AND COMPUTING	CO: After successful completion of the course, student will be able to understand different methods of finding numerical solutions of a system of equations.
OPEN ELECTIVE COURSES		
21.	MSMAT03O01 GRAPH THEORY	CO: After successful completion of the course, student will develop knowledge n connectivity in graphs, independent sets and Matchings, Edge and vertex colorings and related concepts.
22.	MSMAT03O02 DISCRETE MATHEMATICS	CO: After successful completion of the course, student will develop knowledge in Combinatorics and Graph theory
23.	MSMAT03O03 OPERATIONS RESEARCH	CO: After successful completion of the course, student will be able to understand different techniques involved in operations research.
24.	MSMAT03O04 FUZZY MATHEMATICS	CO: After successful completion of the course, student will be able to understand the basics of fuzzy mathematics
25.	MSMAT03O05 CODING THEORY	CO: After successful completion of the course, student will be able to understand the basics of coding theory.
26.	MSMAT03O06 AUTOMATA AND FORMAL LANGUAGES	CO: After successful completion of the course, student will be able to understand the basic theory of Automata and Formal languages.

MA PROGRAMME (MA ENGLISH)

PROGRAMME OUTCOMES (PO)

PO1.

The programme in M.A. English will prepare students to carry out an independent and original scholarship that informs research, teaching, and service in English departments.

PO2.

The programme will also equip the students to understand how English Literature as a discipline has widened from British and American literary traditions to a global reach by providing ample exposure to significant writers, their works, and the connections between them.

PO3.

The programme helps the students to recalibrate their understanding about the structure of English language and its changes over time and across social situations and groups.

PO4.

The programme promotes interdisciplinary and cross-cultural study of texts, traditions and discourses and motivates students to critically engage with literary texts and traditions.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1.

Appreciate, interpret and evaluate literatures in English and other languages from the contemporary theoretical perspectives.

PSO2.

Demonstrate an appropriate level of expertise in literary history, literary narratives, literary theory, and rhetoric.

PSO3.

Develop skills and abilities in related areas among the students to engage in the socio-economic life of the present society.

PSO4.

Assess the ways in which language and literature become operative in specific socio-political contexts and enable them to participate in the profession of literary studies / other areas through conferences, publications, and memberships in learned societies.

PSO5.

Formulate research questions and write research papers to engage in research activities to develop knowledge and become expertise in their field of study/carry out research in disciplinary / interdisciplinary or transdisciplinary areas.

COURSE OUTCOMES (COs)

Sl. No	Name of the Course	Outcomes
1.	MAENG01C01 Poetry I	<p>CO1. To develop a comprehensive knowledge about the various poetical traditions that have influenced and contributed to the growth of poetry in the early world.</p> <p>CO2. To develop the skill to pursue the radical potential of poetry by critically appreciating the shifts in the literary and cultural milieu with the advancement of events such as humanism, enlightenment, romanticism, transcendentalism etc.</p> <p>CO3. To enhance the skill to recognize how poets of the late eighteenth and early nineteenth centuries have made use of the movements of the times, and to critically appreciate poetry in terms of styles and styli sticks</p> <p>CO4. To recopies that the style and the technique of the larger body of literature of the early modern poetry is built upon the insights drawn from pre-modern literary world and that it would continue to shape the future course of world literature Students will gain a critical appreciation of varied genres of poetry and their contexts building upon skills and insights they acquired in Poetry I.</p>
2.	MAENG01C02 PROSE AND FICTION I	<p>CO1: comprehend genres of Prose and Fiction associated with various conventions that emerged as part of the narrative tradition.</p> <p>CO2: read and appreciate different types of prose works of literary masters and take pleasure in the world classic fiction that evoke imaginative worlds.</p> <p>CO3: familiarize with the stylistic nuances of narrative framework and develop varied perspectives on themes expounded in the novels of Britain, Europe, Americas, Atica and the Asia-Pacific region.</p> <p>CO4: cultivate the ability of examining the ideological issues being discussed and questioning the factors of gender, class, race etc dilulged in the literary</p>

		works up to 1900.
3.	MAENG01C03 DRAMA AND THEATRE STUDIES -L	<p>CO1: Students familiarize themselves with the terms that designate the trends and traditions in theatre across the globe.</p> <p>CO2: Students learn representative theatre texts and appreciate the different manifestations and techniques of theatre in different historical and cultural milieus.</p> <p>CO3: Students develop critical skills at analyzing theatre texts and dramatic conventions, and the technicalities in their adaptations</p> <p>CO4: Students develop the necessary skills in producing, adapting and staging theatrical performances.</p>
4.	MAENG01C04 LITERARY CRITICISM AND THEORY	<p>CO1: Demonstrate critical understanding of the major critical and aesthetic concepts and principles in Western aesthetic traditions up to the 20th century</p> <p>CO2: Critically examine the different aesthetic traditions in India with special reference to their cultural contexts and power dynamics</p> <p>CO3: Critically evaluate the concepts developed by the formalist schools of literary criticism in Russia and America in the 20th century and assess the prospects and limitations of these concepts for literary analysis.</p> <p>CO4: Explain the linguistic turn in the study of literature and the subsequent developments in structuralism.</p> <p>COs: Attempt new historicist critiques of literary and other cultural texts.</p>
5.	MAENG02C05 POETRYII	<p>CO1: gain a critical appreciation of varied genres of poetry and their contexts building up on skills and insights they have acquired.</p> <p>CO2: evaluate and appreciate the influence of diverse movements of the 20th and the 21st century on Literature by learning poetry from a variety of cultures throughout the world.</p> <p>CO3: emerge with a comprehensive perspective of the different dimensions of appreciating poetry and thus enabling them towards effective and critical self-expression.</p>
6.	MAENG02C06 PROSE AND FICTION II	<p>CO1: opens students to the world of English Literature of the recent past and contemporary times through selected representative works from 1900 till present.</p>

		<p>CO2: provide a window for students to understand ideologies that played a pivotal role in shaping narratives on a global scale by familiarizing them with works from around the globe.</p> <p>CO3: helps students understand the way English language in general and prose writing especially, inclusive of its form, structure, content and construction has evolved and changed with time.</p> <p>CO4: awakens the spirit of questioning, inquiry and constructive criticism in students, thereby helping them become responsible global citizens.</p>
7.	MAENG02C07 DRAMA AND THEATRE STUDIES 2	<p>CO1: Students familiarize themselves with the movements, events and concepts that designate the trends and traditions in theatre across the globe.</p> <p>CO2: Students learn representative theatre texts and appreciate the different manifestations and techniques of theatre in different historical and cultural milieus.</p> <p>CO3: Students develop critical skills at analyzing theatre texts and dramatic conventions, and their adaptations. Technicalities in their adaptation.</p> <p>CO4: Students develop the necessary skills in production, adaptation and staging of theatrical performances.</p>
8.	MAENG02C08 CRITICAL THEORY	<p>CO1. Analyze and interpret texts/ practices using the concepts and tools of post structural theories.</p> <p>CO2. Write argumentative and critical essays and articles on issues of caste, class, caste, region, and race with sound theoretical footing.</p> <p>CO3. Make interventions into contemporary academic discourses concerning mind, body, sexualities, and other marginalities.</p> <p>CO4. Develop familiarity with the recent developments in humanities and thereby identify and pursue their area of academic interest.</p>
CORE ELECTIVE COURSES		
9.	MAENG01E01 LIFE WRITING	<p>CO1. To develop a comprehensive knowledge about the various poetical traditions that have influenced and contributed to the growth of poetry in the early world.</p> <p>CO2. To develop the skill to pursue the radical potential of poetry by critically appreciating the shifts in the literary and cultural milieu with the advent of events such as humanism, enlightenment, romanticism,</p>

		<p>transcendentalism etc.</p> <p>CO3. To enhance the skill to recognize how poets of the late eighteenth and early nineteenth centuries have made use of the movements of the times, and to critically appreciate poetry in terms of styles and stylistics.</p> <p>CO4. To recognize that the style and the technique of the larger body of literature of the early modern poetry is built upon the insights drawn from pre-modern literary world and that it would continue to shape the future course of world literature Students will gain a critical appreciation of varied genres of poetry and their contexts building upon skills and insights they acquired in Poetry I.</p>
10.	MAENG01E02 DISABILITY STUDIES	<p>CO1: The course offers a general introduction to the field of Disability Studies.</p> <p>CO2: It explores disability's capacity to offer a special gestalt in the interpretation of cultural domains such as literature.</p> <p>CO3: And it explores the ways and means with which disability transpires into an interdisciplinary phenomenon in a way much broader than a mere identity marker</p>
11.	MAENG01E03 INTRODUCTION TO CHILDREN'S LITERATURE	<p>CO1: Display knowledge of several classic children's novels, as well as more recent contributions to the genre.</p> <p>CO2: Explain how children's literature developed within broader philosophical, literary, and social contexts.</p> <p>CO3: Demonstrate skills in reading and interpreting multiple dimensions of literary texts, including the verbal, the pictorial, and the physical, or material.</p> <p>CO4: Evaluate a range of current critical issues in the study of children's literature, including attention to gender, race, class, and disability.</p>
12.	MAENG01E04 TRAVEL NARRATIVES	<p>CO1: Display an awareness of the evolution and flourishing of travel narratives, its distinctive features, and to distinguish between its various forms.</p> <p>CO2: Demonstrate the cross-cultural links between travel narratives and other genres such as memoirs, history, ethnography, fiction and movies so on.</p>

		<p>CO3: Develop insights into the various nuances of the author's subjectivity and perceptions that colour the narrative on different places across the globe.</p> <p>CO4: Develop critical understanding regarding the many cultural corulations and prejudices that are embedded in many travel narratives through critical reading of travel texts.</p>
13.	MAENG01E05 HISTORY OF ENGLISH LANGUAGE	<p>CO1. Demonstrate a thorough understanding of diachronic changes in English from Old English to Present day English, and the ability to situate those in their socio-political contexts.</p> <p>CO2. Develop the linguistic skills required in the close analysis of individual words and other texts.</p> <p>CO3. Demonstrate a critical understanding of different and sometimes conflicting approaches to the study of the history of the English language.</p> <p>CO4. Demonstrate the ability to use the sources provided and collected through independent reading as supportive documents in exploring evidence of language change and/or the ideology that has influenced the development of the English language.</p>
14.	MAENG02E06 FOLKLORISTIC STUDIES	<p>CO1. Demonstrate thorough understanding and knowled of the nature and form of folklore and thereby understa people and their regional traditions.</p> <p>CO2. Develop research related.</p> <p>CO3. Show an ability to evolve and skills while understanding and critically analyzing the nuances of folklore. Multicultural competence through an investigation of learning to establish relationship with past and present different traditions and texts Cultural traditions.</p> <p>CO4. Reflect critical and reflective thinking through the ability to analyze not only written but oral texts too.</p>
15.	MAENG02E07 DALIT STUDIES	<p>CO1: Discuss the debates on caste.</p> <p>CO2: Discuss the issues raised in Dalit narratives.</p> <p>CO3: Discuss the experience of the marginalized.</p>
16.	MAENG02E08 GENDER STUDIES	<p>CO1: Apply key concepts when analysing a text.</p> <p>CO2: Identify the connections that obtain between gender and various other categories, and categorizations such as gender, subjectivity, identity, nation, region, religion, class, caste, colour, race, health, sexuality and age among others.</p>

		CO3: Discuss the main issues in gender studies.
17.	MAENG02E09 SHAKESPEARE STUDIES	<p>CO1: Demonstrate the understanding about the socio-political and historical events which were instrumental in patterning Elizabethan consciousness.</p> <p>CO2: Trace the Shakespeare's contribution in enriching the English Language and to understand the timeless genius of Shakespeare across cultures, literatures and authors.</p> <p>CO3: Develop insights into contemporary adaptations of Shakespeare, with special emphasis on the trans-cultural appeal of Shakespearian works.</p> <p>CO4: Develop critical reviews of Shakespearian works and adaptations based on the contemporary theoretical perspectives.</p>
18.	MAENG02E010 MEDICAL HUMANITIES	<p>CO1. Develop an understanding of medical humanities and increase empathy for patients' and physicians' experiences of illness and health care.</p> <p>CO2. Analyze and assess historical arguments and compare research methodologies in global histories of medicine.</p> <p>CO3. Deepen students' understanding of disease, its treatment and the cultural attitudes toward these issues.</p> <p>CO4. Equip students to analyze diverse perspectives of medical narratives and acquire on-field experience.</p>