Dr. Rafiq Zakaria Campus-II

Dr. Rafiq Zakaria College for Women

Navkhanda Jublee Park, Aurangabad

Course Outcomes (COs)

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Course Outcomes

PHYSICS

F.Y. B. Sc. Semester I

Paper I Mechanics, Properties of Matter

CO1: Describe Newton's law of gravitation and basics of potential and fields, define compound pendulum and its application to determine acceleration due to gravity.
CO2: Discuss the elastic properties of matter, Young's modulus, Bulk modulus and Modulus of rigidity.
CO3: Discuss the properties of liquid like viscosity and surface tension.
CO4: Define and discuss ultrasonic and acoustics.

Paper II Heat & Thermodynamics

CO1: Define thermal conductivity, learn the factors on which thermal conductivity depends and also learn the method to compare it.
CO2: Explain the corrected vander waal's equation and describe viscosity and thermal conductivity on the basis of transport phenomenon.
CO3: Identify the type of thermo dynamical process and describe the working of heat engines.
CO4: Understand the concept of entropy and apply Maxwell's relations.

Semester II

Paper IV Geometrical and Physical Optics

CO1: Define cardinal point and understand the concept of different eye pieces
CO2: Explain interference phenomenon of light and study experiment of Michelson's interferometer
CO3: Explain concept of diffraction of light and resolving power of prism and gratings
CO4: Describe polarization of light and determine specific rotation of liquid

Paper V Electricity & Magnetism

CO1: Explain the concept of scalar, vector triple product of vector algebra and interpret discuss the significance of divergence, gradient and curl. Solve universal identities of vector algebra
CO2: Explain Coulomb's law, Gauss law and dielectrics of materials.
CO3: : Explain the concept of Biot-Savart Law, Ampere's Law and describe the construction of Ballistic Galvanometer
CO4: Tell the variation of current in LR, RC and LCR circuits

S.Y. B.Sc. Semester III

Paper VII Mathematical, Statistical Physics and Relativity

CO1: Describe partial differentiation, successive differentiation and total differentiation Explain ordinary differential equation and solutions of first and second order differentiation equation.
CO2: Discuss the basis of statistical physics.
CO3: Compare theories of classical and quantum statics.
CO4: Explain theory of relativity, related transformation equations and apply it to derive Einstein's equation.

Paper VIII Modern Physics

CO1: State and discuss in detail Photoelectric Effect and its applications.
CO2: Elaborate the production, characteristic spectrum and uses of X- Ray and learn the uses of X rays to study crystal structure.
CO3: Discuss nuclear forces, binding energy and compare different nuclear models.
CO4: Classify different particle accelerator and counters.

Semester IV

Paper XI General Electronics

CO1: Describe semiconductors, junction diode, transistor and their characteristic curves.
CO2: Discuss amplifiers, their frequency response curve and techniques of transistor biasing.
CO3: Understand theoretical and practical knowledge of Oscillator and Multivibrator.
CO4: Conceptualize modulation, AM Modulation and FM modulation and compare them.

Paper XII Solid State Physics

CO1: Define terms related to crystallography and determine miller indices, inter planner spacing of Crystal structures.
CO2: Elaborate different types of bonds and concept of inter atomic forces.
CO3: Describe classical theory of lattice heat capacity and discuss its limitations of Debye's model.
CO4: Discuss free electron theory of Metals and use it to understand Hall effect and associated terminologies.

T.Y. B.Sc. Semester V

Paper XV Classical & Quantum Mechanics

CO1: Explain the mechanics of a single particle, and system of particle by using Newton's laws of motion.
CO2: Understand the concept of virtual work and different constraints.
Derive Lagrange's equation and apply it to different types of moving system.
CO3: Understand the basics of quantum mechanics and explain matter wave, Group velocity, particle velocity.
CO4: Define operators, wave function and expectation values and formulate them to solve problems.
CO5: Derive Schrodinger time dependent and independent equation and use it to obtain energy and momentum of particle in one-dimensional box.

Paper XVI Electrodynamics

CO1: Describe and understand basic terms in electrostatics and obtain first Maxwell's equation using Gauss law. Can apply Gauss law to determine field due to charged bodies.
CO2: Explain concepts of self-induction, mutual induction, displacement current vector and obtain Maxwell's equations.
CO3: Describe the origin of electromagnetic wave equation in conduction medium, transverse nature of EM waves and Poynting vector and Poynting theorem.
CO4: Understand the boundary condition for electromagnetic field vectors B, E, D and H and apply them to study reflection and refraction at the boundary of two non-conducting media.

Semester VI

Paper XIX Atomic, Molecular Physics & LASER

CO1: Explain different models used to explain the structure of atom and apply it to discuss the H-atom spectra.

CO2: Describe the Vector atomic model, quantum numbers associated with it, Coupling Scheme and Zeeman and Stark effect.

CO3: Describe the origin of Rotational, Vibrational Spectra, Raman Effect and its applications in various areas of research.

CO4: Discuss the principle of LASERs and its properties; apply it to study different types of LASER and their applications in different fields.

Paper XX Non-conventional Energy Sources and Optical Fiber

CO1: Understand the concept of non-conventional sources of energy and describe various renewable energy sources like wind energy, geothermal energy

CO2: Explain the construction and working of solar cells, study electrical storage cell

CO3: Classification of optical fiber and learn the terminologies used in basic optical fiber system

CO4: Classify the techniques of fiber fabrication and understand the construction and properties of optical fiber cables.

COs: CHEMISTRY

BSc. First Year Semester I

Paper I Inorganic Chemistry

CO1: Understand the concept of, Heisenberg uncertainty principle, shapes of s, p, d orbitals, Aufbau and Pauli's exclusion principles, Hund's rule.

CO2: Discuss Bohr's theory for structure of an atom, quantum numbers.

CO3: Explain periodic properties, trends in periodic table and application in predicting and explaining the chemical behavior.

CO4: Define diagonal relationship, solvation and complexation tendencies of elements.

CO5: Describe interhalogen compounds and its types.

Paper II Organic Chemistry

CO1: Understand basic concepts of organic chemistry like resonance, conjugation, inductive effect and steric effect in chemical compounds.

CO2: Explain reactivity and mechanism of organic reactions.

CO3: Discuss stereo chemistry and its importance.

CO4: Explain nomenclature and structures of aliphatic and aromatic compounds.

Semester II

Paper IV Physical Chemistry

CO1: Understand basic mathematical concepts like derivation, integration, curve sketching (graphical representation) use of logarithm.

CO2: Understand chemical kinetics and catalysis.

CO3: Explain states of matter by using different laws.
CO4: Describe types of colloidal system.

Paper V Inorganic Chemistry

CO1: Understand chemistry of nobel gases.
CO2: Understand theory of nuclear chemistry.
CO3: Analyze types of chemical bonding.
CO4: Solve problems of volumetric analysis.

BSc. Second Year Semester III

Paper VII Organic Chemistry

CO1: Understand chemistry of Alcohol, Phenol, Aldehyde- Ketone and Carboxylic acids their structure, reactivity and methods of preparation.
CO2: Explain chemistry of organic compounds of nitrogen and its chemic reaction.
CO3: Understand the basic functional group transformations.
CO4: Distinguish between different organic name reactions.

Paper VIII Physical Chemistry

CO1: Understand basic concepts of thermodynamics.
CO2: Describe Carnot cycle and its applications.
CO3: Explain concept of entropy and internal energy.
CO4: Understand concept of chemical equilibrium.
CO5: Solve problems of chemical equilibrium.

Semester IV

Paper X Inorganic Chemistry

CO1: Understand chemistry of d-block and f-bolck elements.
CO2: Understand concepts and theories in coordination compounds.
CO3: Apply the concept of VBT to coordination compounds.
CO4: Explain chemistry of acids and bases.
CO5: Describe the theory of non-aqueous solvents.

Paper XI Physical Chemistry

CO1: Understand terms involved in phase equilibrium.
CO2: Distinguish between one component and two component system.
CO3: To understand the relation between electric and chemical phenomenon by studying electrochemistry.
CO4: Describe different types of electrodes.

BSc. III Year Semester V

Paper XIII Physical Chemistry

CO1: Understand the behavior and properties of matter at atomic and subatomic level by studying quantum mechanics.
CO2: Explain the wave particle duality and uncertainty principle.
CO3: Describe interaction of radiation with matter and able to understand spectroscopic technique.

CO4: Define laws of photochemistry, different photochemical processes and their applications.
CO5: Predict the molecular structure by using physical properties like dipole moment, optical activity, magnetic properties.
CO6: Define nanomaterial and their applications and preparation.

Paper XIV Organic Chemistry
CO1: Interpret the structure of molecules by using spectroscopic techniques.
CO2: Define chemical shift, shielding and deshielding effect.
CO3: Explain chemistry of Fat, oil and manufacture of soaps & Detergent.
CO4: Describe structure, preparation and applications of organometallic compounds.
CO5: Explain organic synthesis via enolate.

Semester VI
Paper XVI Inorganic Chemistry
CO1: Understand metal-ligand bonding in transition metal complexes.
CO2: Explain electronic spectra of transition metal Complexes.
CO3: Understand reactivity and structures of organometallic compounds.
CO4: Describe the concepts of bioinorganic chemistry.
CO5: Explain the chromatographic techniques.

Paper XVII Organic Chemistry
CO1: Understand reactions and their mechanism of heterocyclic compounds.
CO2: Understand carbohydrates and its types.
CO3: Explain types and applications of synthetic polymers.
CO4: Describe concepts of synthetic dyes and drugs.

COs: ANALYTICAL CHEMISTRY

B.Sc. first year semester I
Paper I Fundamentals of analytical chemistry
CO1: Scope and Importance of Analytical Chemistry: Useful tool for all human beings.
CO2: Sampling of Analytical samples: Quality control department of pharma, Chem, Agro, Food, etc.
CO3: Reagents Solvents and their Classification: In distillation plant, Homeopathic preparation
CO4: Working in Analytical Chemistry: Quality Control of Industries
CO5: Digital electronics and Computers: As a tool in laboratories.
Paper II Basic concepts of analytical chemistry
CO1: Balance: Weighing in laboratory, pharmaceutical analysis, Research centre.
CO2: Chemical Apparatus and Laboratory Note Book for Analytical Chemistry: In Quality control laboratories, bulk drug manufacturing, forensic laboratories.
CO3: Chemical Calculations: All chemical pharmaceutical laboratories, research institutes.
CO4: Common Apparatus: All chemical pharmaceutical laboratories, research institutes.
CO5: Acid-Base Equilibria: Surgical preparations.

Semester II

Paper V Statistical treatment & modern methods of analysis

CO1: Data Handling : Mathematical tool for chemists.
CO2: Chromatography: As a tool in pharmaceutical industry, chemical, agriculture, pesticide, forensic laboratory etc.
CO3: Electrophoresis: Protein analysis, separation of compounds.
CO4: Flame Photometry: Estimation of alkali metals.
CO5: Environmental Pollution: Analysis of industrial waste, Vehicle effluent control, Waste management.

Paper VI Classical & spectral methods of analysis

CO1: Titrimetric Methods of Analysis: As a tool in quality control department.
CO2: Gravimetric Analysis: Metallurgical industry.
CO3: Spectral Method of Analysis: Research centres, pharmaceutical industries.
CO4: Precipitation Titration: As a tool in quality control department.
CO5: Complexometric Titrations & Some basic concepts of redox titrations: In agricultural industries, Biochemical industries.

Semester III

Paper VII Laboratory Techniques: Inorganic and Organic Analysis

CO1: Theory of Redox titration and Iodometric titration: Metallurgical industries.
CO2: Complexometric titration: Water Analysis.
CO3: Organic Estimations: Food & Chemical industries.
CO4: Common Laboratory Techniques: As a tool for all laboratories.
CO5: Theory of Redox titration and Iodometric titration:Metallurgical industries.

Paper VIII Advance Analytical Techniques

CO1: To understand Solvent Extraction, Gas Chromatography, Column Chromatography, Biotechnological Companies.
CO2: Ion Exchange Chromatography: Water purification, Biomedical preparation.
CO3: Affinity Chromatography:Biochemical industries.

Semester IV

Paper XI Instrumental methods of Analysis-I

CO1: Conductance measurements: Water Analysis, Soil Analysis.
CO2: Potentiometry: Pathological lab.
CO3: High Frequency Titrations: Metal industries.
CO4: Atomic Absorption Spectroscopy: Ayurvedic pharmulation.
CO5: Nephlometry:Distilleries.

Paper XII Instrumental methods of Analysis-II

CO1: Polarography: Drug, Metal industries.
CO2: Physical methods of analysis: Organic laboratories.
CO3: Thermal methods of analysis: In Metallurgical industries.
CO4: Radio chemical methods of analysis: In Medical preparations, Pharmaceutical industries, Fluorimetry: Paint industries.

Semester V

Paper XV Modern Techniques in Analysis

CO1: I.R. Spectroscopy: Research study, Pharmaceutical industries, Determination of functional group, probable structure of compounds.

CO2: NMR-Spectroscopy: Research centres, determination of protons Mass Spectroscopy: Determination of mass of new compounds in Research centre/pharma chemical laboratories.

CO3: Fluorescence Spectroscopy: Surface analysis, life of the geochemical, Archeological department.

Paper XVI Industrial, Microbiological & Biochemical Analysis

CO1: Industrial Analysis: Analysis of waste management, bulk drug analysis.

CO2: Microbiological analysis: Microbial count in water i.e. E. Coli, etc.

CO3: Biochemical analysis: Estimation of Proteins, Carbohydrates, Blood Chemistry.

Semester VI

Paper XIX Applied Analytical Chemistry-I

CO1: Inorganic Analysis: Estimation of metals, Non-metals etc.

CO2: Analysis of cement and coal: Estimation of Ca, Mg, Proximate analysis.

CO3: Analysis of fertilizers: Estimation of Na, K, P.

CO4: Environmental Analysis: Air sampling, Analysis of SO_x , NO_x , CO, Water Analysis, Waste and waste, Acid Rain: water analysis, Estimation of BOD, COD.

CO5: Analysis of soil: Estimation of Na, K, P, Fe, pH, Water holding capacity.

Paper XX Applied Analytical Chemistry-II

CO1: Introduction to food analysis: Food Industry, Food & Drugs Department.

CO2: Analysis of food and food products: Bakery Products, Food Beverages.

CO3: Pharmaceutical analysis: Analysis of Tablets, Capsules, Injections etc.

CO4: Clinical chemistry or analysis: Blood Analysis, Urine Analysis, Forensic Laboratory.

COs: MATHEMATICS

Semester I

Mat 101 Differential Calculus

CO1: Prerequisite, Function, Limit and Captivity.

CO2: Differentiation.

CO3: Successive Differentiation.

CO4: Apply knowledge of function as basic tools to higher Mathematics.

CO5: Available to apply and recognize knowledge to solve differentiation.

CO6: Applying knowledge of Differentiation to nth derivation terms.

CO7: Recognizing different types of severable variable file.

CO8: Students are able to understand the concepts of continuous differentiation.

Mat 102 Differential Equation

CO1: Prerequisite, ordinary and partial different equations, order and degree & Types.
CO2: Solution of Differential equation.
CO3: Uses and application of ordinary differential equation.
CO4: Type of differential equation with constant and variable coefficient.
CO5: Application of two or more than two variable of differential equation.
CO6: Acquainted with different types of D.E and its solution.

Semester II

Mat 201 Integral Calculus

CO1: Method of integration, Reduction formula Integration of algebraic ration function.
CO2: Applying the Reduction Method and solving Polynomial equations.
CO3: Higher power of Trigonometric function and its solution.
CO4: Fundamental Theorem
CO5: Find the Areas, Volumes and Surfaces Revolution of Structural surfaces.
CO6: Students get knowledge of integral applicable to geometrical problems.

Mat 202 Geometry

CO1: Uses and Application of three dimensional Geometry.
CO2: Three Dimensional Geometry.
CO3: Properties of conic section.
CO4: Behavior of plane passing through conic section.
CO5: Application of line, Plane, Sphere and Cylinder.

Semester III

Mat 301 Number Theory

CO1: Acquired to Process to apply Number System in a Compact way.
CO2: Development of writing a Algorithms.
CO3: Basic Fundamental properties of arithmetic behavior.
CO4: Fermat theorem, Eulers Theorem and some other well known theorems.

Mat 302 Integral transform

CO1: Uses of Integral system.
CO2: Application of Beta and Gamma function.
CO3: Relation between integral equation and Beta, Gamma function.
CO4: Transformation of system from one domain to another domain.
CO5: Application of transformation by using Trigonometric properties.

Mat 303 Mechanics-I

CO1: Types of forces and its states.
CO2: Like forces, parallel forces and its conditions.
CO3: Weight acting on the particles.
CO4: Relation between force and center of gravity.
CO5: Students are able to study forces applicable on different types of bodies.

Semester IV

Mat 401 Numerical Method

CO1: Different methods of solutions.
CO2: Prediction of data analysis.
CO3: Uses of system of equations.
CO4: Solving Ordinary Differential equation.
CO5: Students are able to apply numerical methods in computer programming.

Mat 402 Partial Differential Equation

CO1: Known to solve servable variables function.
CO2: Complete and particular solution.
CO3: Linear and non-linear solution based upon various methods.
CO4: Knowledge to get acquainted with working of severable varaiables.

Mat 403 Mechanics-II

CO1: Physical properties of vector quantity.
CO2: Law of Motions.
CO3: Projection and type of projectile.
CO4: Gravitation effects on object.

Semester V

Mat 501 Real analysis (I)

CO1: Ability to handle the functions.
CO2: Solution technique of sequence and series.
CO3: Metric spaces, continuity of metric spaces.
CO4: Acquired the knowledge of analysis.

Mat 502 Abstract Algebra (I)

CO1: Facility of understanding the natural nature of algebraic problems.
CO2: Understanding basic theorem and properties of fundamental elements.
CO3: Nature and method of Mapping.
CO4: Students get acquainted the basic structure framing of problem.

Mat 505 Ordinary differential equation

CO1: Solution of linear equation in one variable
CO2: Equation with constant coefficient
CO3: Solution to the system of n^{th} order linear equation The convergence related properties
CO4: Uses of metric space
CO5: Fundamental properties and theorem of calculus
CO6: Students are able to actuarial maths problems

Semester VI

Mat 601 Analysis (II)

CO1: Ability to solve the sequence and series of infinite terms.
CO2: The convergence related properties.
CO3: Uses of metric space.

CO4: Fundamental properties and theorem of calculus.
CO5: Ability to solve the convergence and divergence of series.
CO6: Properties and important of metric spaces.
CO7: Application of sine and cosine series.

Mat 602
Abstract Algebra (II)
CO1: Solving the linear system equations.
CO2: Vector space, dependence and independence.
CO3: Application and its properties of normed linear spaces.

Mat 604 Ordinary differential equation (II)
CO1: Handling of initial value problems and its uses.
CO2: Homogenous and Non-Homogenous system of ordinary differential equation.
CO3: Point of singularity
CO4: Application of Euler's and Bessel's Function
CO5: Acquainted with knowledge of ode and its system.

COs: BOTANY

B.Sc. First Year Semester I
Paper I Botany Diversity of Cryptogams-I
CO1: Understand about basic primitive living organism that is smallest bacteria, lichen, fungi and algae.
CO2: Know the information about lower plants and their life cycle.
CO3: Understand diversity of Algae.
CO4: Know about useful and harmful activities of algae.
CO5: Understand the structure, morphology, reproduction classification and life cycle pattern in Fungi.
CO6: Know the economic importance of fungi.
Paper-II Morphology of Angiosperms
CO1: To introduce to basic structure of plants.
CO2: To learn plant part right from root stem leaves flower fruit and seed.
CO3: To understand the concept of root, structure, types, types and modification.
CO4: To understand the concept of stem, structure, types, types and modification.
CO5: To understand the concept of leaves, structure, types, types and modification.
CO6: To learn the vegetative and reproductive parts of plant.
CO7: To learn the various types of fruits.
CO8: Understand the mode of pollination.

Paper III and IV Practical based on the paper I and Paper II
CO1: Observation of characters of different algae, fungi, lichens, bacteria, virus and mycoplasma.
CO2: Observation of different types of roots, stems, leaves, inflorescence and fruits.
CO3: Observation of mode of pollination.

Semester II

Paper V Diversity of Cryptogams-II

CO1: To Under stand catégories of plants with morphological features of Bryophytes and Pteridophytes.

CO2: Understand the economic importance of Bryophytes.

CO3: Know the classification their occurrence thallus structure, reproduction pattern in Bryophytes.

CO4: Know the economic importance of Bryophytes and Pteridophytes.

CO5: Know the classification ,morphology ,anatomy ,reproduction ,life cycle Pattern in Pteridophytes.

Paper-VI- Histology Anatomy and Embryology

CO1: Understand the types of tissue System their origin and function-Simple,Complex, Mechanical,Epidermal,Storage tissue.

CO2: Know about Anatomical structure of the plants: Primary structure of root ,stem and leaf of Monocot (Maize) and Dicot (Sunflower),Secondary growth in root and stem of Dicot (Sunflower), wood anatomy, Growth ring, heart wood and sap wood.

CO3: Know the peridem: origin, structure and functions.

CO4: Understand the embryological structure of their development.

CO5: Understand the structure of anther ,microsporogenesis and development of male gametophyte.

CO6: Know the Structure and types of ovule, megasporogenesis and developmentof female

CO7: Understand the Pollination -Mechanism, types and agencies.

CO8: Know the Double fertilization and its significance, Development of Dicot embryo.

CO9: Study the Structure of Dicot and Monocot seed of the plants.

CO10: Know the various histological organisation and vascular bundles.

Practical -VII and VIII-Based on V and VI

CO1: Observation of morphological, anatomical and reproductive characters ofdifferent Bryophytes and Pteridophytes.

CO2: Observation of different types of tissue system

CO3: Observation of internal structures of roots, stem, leaves of the plants.

CO4: Observation of anthers, pollen grains.

CO5: Observation of pollinating agents and pollination mechanisms.

B.Sc.Second Year Semester III

Paper IX Taxonomy of Angiosperm

CO1: Know the Salient features, origin and evolution of Angiosperms

CO2: Understand Bentham and Hooker's system of classification upto series levelwith its merits and demerits

CO3: To know the relation of Taxonomy to anatomy, embryology, palynology, ecology and Cytology.

CO4: To know the concept of herbaria and botanical garden.

CO5: Understand the concept of Binomial Nomenclature, and its advantages, concept of genus , species and epithet.

CO6: Understand Plant description about morphological and reproductive sketch of plants and identify the different families with specific key character.

CO7: Know the floral variations in angiospermic families their phylogeny and evolution.

Paper-X -Plant Ecology

CO1: To know the importance and scope of study of ecology.

CO2: Understand the different climatic factors and their effect on plants

CO3: To learn the plant communities and ecological adaptation in plants.

CO4: Know the Biogeographical regions and vegetation types of India.

CO5: Understand the structure and functions of the ecosystem (Food chain, food web, energy flow and biogeochemical cycle

Practical-XI- Based on Paper-IX

CO1: To illustrate the type merits and demerits of various system of classification.

CO2: Understand the vegetative and reproductive characters of locally available plants belonging to different families.

Practical-XII- Based on Paper-X

CO1: Study of morphological and anatomical adaptations.

CO2: Study of vegetation by quadrat method.

CO3: Understand estimation of Importance Value Index (IVI) of grassland ecosystem.

CO4: Know the determination of water holding capacity of different soils.

CO5: Study of meteorological instruments -Rain gauge, Hygrometer, Barometer.

CO6: Know the determination of percent leaf area injury of different infected leaf samples.

CO7: Learn the estimation of salinity of different water sample.

CO8: Able to determination of pH of different soils by pH papers/universal Indicator/pH Meter.

B.Sc. Second Year Semester-IV

Paper-XIII-Gymnosperms and Utilization of Plants

CO1: Understand the diversity of Gymnospems in India.

CO2: Know about Geological time scale, fossilization, types of fossils, *Lyginopteris*, fossil fuels.morphology, anatomy, reproduction (excluding developmental stages) and graphical representation of life cycle of the Cycadales – *Cycas* and Coniferales – *Pinus.*

CO3: Know the Domestication of plants and their centers of origin.

CO4: Understand the history, origin, cultivation, harvesting, improved varieties and economic importance Food plants, Sugar plant, Fiber yielding plants, oilyielding plants, and Beverages.

CO5: Know the Botanical name, family name and economic importance of Medicinal plants,

CO6: Understand theTimber and Gum plants; Cosmetics and Perfumes, Spices.

Paper -XIV-Plant Physiology

CO1: Know the scope and importance of plant physiology.

CO2: Understand the plants and plant cells in relation to water.

CO3: Learn About the movement of sap and absorption of water in plant body.

CO4: Learn and understand about mineral nutrition in plants and its deficiency.

CO5: Understand the translocation of solutes and ascent of sap.
CO6: Know the chemical nature, properties and mechanism of enzyme action.
CO7: Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways. CAM Cycle.
CO8: Understand the respiration in higher plants with particular emphasis on aerobicand anaerobic respiration.
CO9: Understand the growth and developmental processes, and role of growth hormones inPlants.
CO10: Know the chemical nature, properties and mechanism of enzyme action.

Practical-XV-Based on Paper-XIII

CO1: Understand the different characters of Cycas and Pinus and to know how to prepare the permanent slides.
CO2: Study of different types of fossils.
CO3: Learn about the economic importance of the locally available plants.

Practical-XVI-Based on Paper-XIV

CO1: Detection of mineral elements in plant ash.
CO2: Separation of chloroplast pigments by paper chromatography.
CO3: Isolation of starch.
CO4: Digestion of starch by amylase.
CO5: Detection of enzyme activity: oxidase, peroxidase, catalase and dehydrogenase.
CO6: Isolation of pectin.
CO7: Estimation of total and reducing sugar in fruit juice by Fehling Solution.
CO8: Separation of amino acid by paper chromatography

B.Sc Third Year Semester V

Paper- XVII Cell Biology and Molecular Biology

CO1: Gain Knowledge about cell science.
CO2: Understand the cell wall and cell organelles and cell division
CO3: Study of Nucleic acids and chromosomes
CO4: Study of Structural and Numerical aberration
CO5: To gets complete knowledge of karyotype

Paper-XVIII-Plant Pathology

CO1: Understand the concept principles and types of sterilization methods.
CO2: Know the concept and characteristic of antiseptic disinfectant and their mode of action.
CO3: Learn the cultivation methods of bacteria, fungi and viruses.
CO4: Students understand the principle working and application of instrument, pH metres autoclave spectrophotometer, laminar flow centrifuge machine, viscometer Shaker and seed germinator.
CO5: Understand scope and importance of plant pathology.

B .Sc Third Year Semester VI

Paper-XXI -Genetics and Biotechnology

CO1: Understand the Mendelian principles laws with statistics data.
CO2: Understand sex determination in plants human insects Birds.
CO3: Learn to import the knowledge of interaction of genes.
CO4: Know about multiple alleles.
CO5: Learn DNA Recombinant Technology.
CO6: Comes to know about amino sentences and genetic counselling.
CO7: Learn the application of genetic engineering.
CO8: Understand inborn error of genetic metabolism.

B.Sc III Year Semester VI

Paper XXII Microbiology And Disease Management

C**O1**: Understand the sterilization methods.
CO2: Learn the methods of media preparation.
C**O3**: Understand the pathogen and their life cycle.
CO4: Understand the prevention and control measures of plant diseases and its effects on economy of crops.

COs: ZOOLOGY

Semester I

Paper I Protozoa to Annelida

CO1: To create awareness about fundamentals of invertebrate animals.
CO2: To understand the nature, classification of phylum system anatomy and development.
CO3: To equip students with life science fundamental practical skills.

Paper II Cell biology

CO1: To understand structure and functions of cell organelles in animal cells.
CO2: To study cell structure and the process of cell division.

Semester II

Paper IV Arthropoda to Echinodermata & Protochordata

CO1: To introduce learners to higher invertebrates, morphological features, evolutionary development and connecting links and adaptations.
CO2: To analyze peculiar characteristics of animal groups in relation with internal characteristics.

Paper V Genetics I

CO1: To understand important terminology in genetics, laws, & its applications.
CO2: To observe and calculate probabilities in cross, heredity and variations in genetics.

Semester III

Paper VII Vertebrate Zoology

CO1: To familiarize students with basic terminology and animal systematics.
CO2: To understand classification, anatomy and development of vertebrates.

CO3: To understand classification, morphological structures, identification of specimens and anatomy of some vertebrate animals.
CO4: To understand embryological process of development.

Paper VIII Genetics II
CO1: To create awareness of mechanism of protein synthesis, DNA fingerprinting, recombinant DNA technology and rDNA.
CO2: To understand mechanism of protein synthesis and solve problems in genetics.

Semester IV
Paper XI Animal physiology
CO1: To study animal processes.
CO2: To understand life processes through experiments.

Paper XII Biochemistry & Endocrinology
CO1: To focus on biochemical processes - metabolism and catabolism process.
CO2: To inculcate advance study in biochemical reactions, principle, functioning and & uses of instruments.

Semester V
Paper XV Ecology
CO1: To study basic terms and subject applications in life sciences.
CO2: To understand basic information of types of ecosystems, role of living things in ecosystems and basic ecological concepts.
CO3: To analyze biotic, abiotic factors and animal interactions.

Paper VI Fishery I
CO1: To familiarize students with basic terminology of fishes, biodiversity of fishes, and their classification.
CO2: To understand morphology, economic importance and anatomy of fishes.
CO3: To understand Freshwater Aquaculture.

Semester VI
Paper IX Evolution
CO1: To study basic terms and subject applications in life sciences.
CO2: To participate in laboratory experiments for understanding the basic principles of evolution through models and helpful for gaining primary information.

Paper XX Fishery II
CO1: To know the Areas of Specialization in Fish Farming.
CO2: To understand Hatchery and Fingerlings Production.
CO3: To learn Processing and Preservation of Fish Products.
CO4: To know Marketing and Distribution of Aquaculture Products.

COs: Computer Science

First Year Semester I
Paper CSO1 Computer Fundamental

CO1: Understand the concept of computer with its Characteristics & features as well as different components of computer and organization of computer in detail.
CO2: How to write an algorithm and using that algorithm how to draw the flow chart as well as they know the different symbols used in flow chart.
CO3: The history of computer how the computer grown up with first to fifth generation. Understand the computer memory and memory organization.
CO4: To learn the concept of processor like structure of processor, features of processor and examples of processor.
CO5: Student will understand the concept of Operating system, why we use O.S., what are the functions of O.S. different types of O.S. in detail.

Semester I
Paper CSO2 Digital Electronics

CO1: Students learn number system with different types of conversions.
CO2: They learn the basic logic operations of NOT, AND, OR, NAND, NOR, and XOR, interpret logic functions, circuits, truth tables, and Boolean algebra expressions.
CO3: Learning the methods of systematic reduction of Boolean algebra expressions including Karnaugh maps.
CO4: Students will demonstrate understanding of flip-flops, one-shots, and oscillators.
CO5: Students will be able to analyze, build, and troubleshoot shift registers

Semester II
Paper I Operating System

CO1: Describe the basic components of an operating system and their role in implementations for general purCOe, real-time and embedded applications.
CO2: Define the concepts of processes, threads, asynchronous signals and competitive system resource allocation.
CO3: Explain what multi-tasking is and outline standard scheduling algorithms for Multi-tasking.
CO4: Discuss mutual exclusion principles and their use in concurrent programming including semaphore construction and resource allocation.

Semester II Paper II Programming in C

CO1: Explain about the basic concepts of program development statements and its syntax.
CO2: Explain the various types of arrays and its structure.
CO3: Discuss about the various types of Functions and String handling mechanisms.
CO4: Explain the Concepts of structures and Unions.

BSc II Year Semester III Paper I Advance C Programming

CO1: Students will be provided with advanced knowledge of C programming language. Features like functions.

CO2: Inscribe C programs that use Pointers to access arrays, strings and functions. Exercise user defined data types including structures and unions to solve problems.
CO3: A storage class defines the scope (visibility) and life-time of variables and/or functions within a C Program. They precede the type that they modify. We have four different storage classes in a C program.
CO4: Preprocessor directives are lines included in a program that begin with the character #, which make them different from a typical source code text. They are invoked by the compiler to process some programs before compilation.
CO5: Able to open a file for reading or writing.

Semester III Paper II Data Structure

CO1: Students develop knowledge of basic data structures for storage and retrieval of ordered or unordered data. Data structures include: arrays, linked lists, Stack, Queue.
CO2: Student will be able to choose appropriate data structure as applied to specified problem definition.
CO3: Students will be able to apply concepts learned in various domains like DBMS, compiler construction etc.
CO4: Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.
CO5: Students learn to analyze and compare algorithms for efficiency using Big-O notation. Students implement projects requiring the implementation of the above data structures.

Semester IV Paper III Programming in C++

CO1: Explain the top-down and bottom-up programming approach and apply bottom up approach to solve real world problems.
CO2: Explain the difference between static and dynamic binding. Apply both techniques to solve problems.
CO3: Describe the concept of inheritance and apply real world problems.
CO4: Discuss the generic data type for the data type independent programming which relate it to reusability.
CO5: Explain to design of handling large data set using File I/O.

Semester IV Paper III DBMS using SQL

CO1: Describe the fundamentals of File processing and database processing system.
CO2: Explain the various data model and its application.
CO3: Explain the various normal forms and its role in DBMS.
CO4: Explain the fundamental concepts of SQL programs.
CO5: Describe the concepts of function, procedure, package, trigger and exception handling.

Semester V Paper I VB.net (VISUAL BASIC)

CO1: Explain the basic Concepts of Program building block control statements and the basic concepts of function and procedure.
CO2: Describe the functionality and properties of GUI based ActiveX Control with example programs.
CO3: Discuss about graphics handling related control and properties.

CO4: Discuss about the fundamental functions and properties of Advanced ActiveX Control.
CO5: Describe the concepts of database handling using DAO, ADO and RDO control with data report concepts.

Semester V Paper II Software Engineering

CO1: Explain the fundamental knowledge in science, mathematics, fundamentals of computer science, software engineering and multidisciplinary engineering to begin in practice as a software engineer.
CO2: Explain to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, manufacturability, sustainability, ethical, health and safety.
CO3: Describe the techniques, skills, and modern engineering tools necessary for engineering practice.
CO4: Explain the early careers will be capable of team and organizational leadership in computing project settings, and have a broad understanding of ethical application of computing-based solutions to societal and organizational problems.
CO5: Discuss about analyze, design and manage the development of a computing- based system, component or process to meet desired needs within realistic constraints in one or more application domains.

Semester VI Paper I Ethics and Cyber Law

CO1: Students identify and analyze statutory, regulatory, constitutional, and organizational laws that affect the information technology professional.
CO2: Students locate and apply case law and common law to current legal dilemmas in the technology field.
CO3: Students apply diverse viewpoints to ethical dilemmas in the information technology field and recommend appropriate actions.
CO4: Students distinguish enforceable contracts from non-enforceable contracts.
CO5: Students demonstrate leadership and teamwork.

Semester VI Paper II Data Communication Network

CO1: Learn the concepts of data communications as well as architectures, protocols and theoretical underpinnings of communication networks.
CO2: This emphasis on basic networking mechanisms, which often will be exemplified by the Internet and its protocols.
CO3: Understanding the concept of different transmission media like guided and wireless media and there uses and implementation.
CO4: Show clear and unambiguous understanding of analog transmission of digital and analog data , methods, and the procedures involved in converting digital data and analog low-pass to band-pass analog signals (Modulation – ASK, FSK, PSK, AM, FM, PM).
CO5: Student can understand the different generations of mobile as well as different improvements in generations and can understand the mechanism used in different generations.

हिंदी विभाग

COURSE OUTCOMES - HINDI

1. बी.ए.

सामान्य हिंदी (S.L. I & II Sem) बी.ए. / बी.एस्सी., बी.कॉम

Co1 हिंदी कहानी साहित्य का परिचय प्राप्त होता है।

Co2 छात्राओं में भाषा कौशल का विकास होता है।

Co3 कहानियों के अध्ययन द्वारा नैतिक मूल्यों को आत्मसात करना।

Co4 कहानी की संरचना को पहचानना और उसे वर्तमान संदर्भ से जोडना।

Co5 छात्र कहानी को मातृभाषा से जोडकर समझता है।

पेपर - 1 उपन्यास साहित्य

Co1 हिंदी उपन्यास साहित्य की पहचान करना।

Co2 लेखन और भाषा कौशल का विकास करना।

Co3 उपन्यास के तत्त्वों का परिचय प्राप्त कर उसे समझना।

Co4 उपन्यास की समस्याओं की चर्चा करना। प्रमुख पात्र के कार्य का विश्लेषण करना।

Co5 उपन्यास की कथा का सारांश बताना।

पेपर - 2 नाटक साहित्य

Co1 हिंदी नाटक, रंगमंच तथा व्यावसायिक नाटकों से परिचित करना।

Co2 विजयपर्व नाटक से सम्राट अशोक के जीवन का संघर्ष, फिर राजगद्दी से निर्वाण के सफर का परिचय प्राप्त कर छात्र समझते हैं कि लढ़ाई से शांति भलि है।

Co3 होरी नाटक से किसानों की दयनीयता तथा पारिवारिक संघर्ष का परिचय मिला। छात्र उसका वर्तमान से मूल्यांकन करते है।

Co4 अलख आजादी की नाटक स्वतंत्रता के महत्त्व को दर्शाता है। छात्र उसे वर्तमान के संदर्भ में समझने का प्रयास करते है।

Co5 नाटक के मानदंडों के आधारपर नाटक का मूल्यांकन करना।

पेपर - 3 हिंदी गद्य साहित्य

Co1 हिंदी साहित्य की गद्य विधाओं का परिचय करवाना।

Co2 साहित्य आस्वादन और मूल्यांकन क्षमता का विकास करना।

Co3 हिंदी के प्रमुख रचनाकारों के व्यक्तित्त्व एवं कृतित्त्व की चर्चा करना।

Co4 प्रतिनिधी लेखकों की रचना और विविध आयामों का विश्लेषण करना।

Co5 साहित्य के पठन से नया सृजन करने की क्षमता का विकास करना।

पेपर - 4 एकांकी साहित्य

Co1 हिंदी एकांकी के उद्‌भव और विकास से छात्र परिचित होता है।

Co2 प्रतिनिधिक महिला एकांकी - महिलाओं की समस्या का बयान करता है जिससे छात्राओं को अपने घर-परिवार की महिलाओं की समस्याओं का आकलन होता हैं।

Co3 रंगमंच से संबंधित जानकारी छात्रों को देना।

Co4 अभिनय के प्रति आकर्षण निर्माण करना।

सामान्य हिंदी (S.L. III & IV) बी.ए. बी.कॉम. बी.एस्सी.

Co1 जीवन मूल्यों के प्रति आस्था निर्माण करना।

Co2 अत्याधुनिक इलेक्ट्रॉनिक माध्यमों का परिचय करना।

Co3 हिंदी द्वितीय भाषा के रूप में साहित्य का सामान्य परिचय देना।

Co4 छात्रों को हिंदी विधाओं से परिचित कराना।

Co5 छात्रों की वैचारिक एवं ग्रहणशिलता को बढ़ाना।

Co6 पत्रलेखन के सारे प्रकार, आवेदन पत्र तथा सरकारी कार्यालयों की प्रयोजनमूलक भाषा से छात्र परिचित होता है।

पेपर - 5 कथेत्तर गद्य साहित्य

Co1 भारतीय त्यौहारों का परिचय देना।

Co2 अपने संस्कृति के प्रति अभिरूची का निर्माण करना।

Co3 कथेत्तर गद्य के साहित्यकारों का परिचय देना।

Co4 निबंधों के माध्यम से छात्रों में नैतिक मूल्यों को बढावा देना।

Co5 छात्रों देशभक्ती की भावना का निर्माण करना।

पेपर - 6 प्रयोजनमूलक हिंदी

Co1 हिंदी भाषा के प्रयोजनमूलक रूप का परिचय करना।

Co2 भाषा के प्रयोजनमूलक स्वरूप को समझना।

Co3 प्रोद्योगिकी के युग में हिंदी भाषा की उपयोगिता को समझना।

Co4 प्रयोजनमूलक हिंदी में रोजगार के अवसर बताना।

Co5 अलग-अलग ॲप से रोजगार ढुँढना।

पेपर - 7 आधुनिक हिंदी कविता

Co1 कविता विधा का परिचय छात्रों को देना।

Co2 कविताओं से छात्रों में प्रकृति प्रेम, देशप्रेम जागृत करना।

Co3 आधुनिक कविता के महत्त्व को समझाना।

Co4 सामाजिक वास्तविकता से परिचित करना।

Co5 महान साहित्यकारों से छात्रों को प्रेरणा देना।

Co6 छात्रों की तर्क शक्ति को बढ़ाना।

पेपर - 8 प्रयोजनमूलक हिंदी - 2

Co1 भाषा के स्वरूप के समझना।

Co2 संप्रेषण कौशल्य में बढोत्तरी करना।

Co3 छात्रों को हिंदी के व्यावहारिक ज्ञान से अवगत कराना।

Co4 छात्र अनुवाद के अर्थ और स्वरूप को समझता है।

Co5 विज्ञान के विविध प्रकारों की तुलना करना।

Co6 बैंको आदि अनेक संस्थाओं में अधिकारी के रूप में नियुक्तियाँ हासिल कर सकते हैं।

पेपर - 9 प्रादेशिक साहित्य

Co1 प्रादेशिक भाषा के साहित्य से परिचय करवाना।

Co2 भारतीय साहित्य का अध्ययन करना।

Co3 आत्मकथा साहित्य सें प्रेरणा लेना।

Co4 अन्य भाषा के साहित्य का अवलोकन करना।

Co5 मातृभाषा के साहित्य में समझदारी बढ़ती है।

पेपर - 10 आदि तथा मध्यकालीन हिंदी साहित्य का इतिहास

Co1 हिंदी साहित्य के इतिहास का परिचय देना।

Co2 हिंदी साहित्य के सृजन की पृष्ठभूमी को समझना।

Co3 भक्तिकाल तथा आदिकाल की प्रवृत्तियों से छात्रों को अवगत कराना।

Co4 मध्ययुग के काव्य प्रकार दोहे, पद आदि के काव्य सौंदर्य का मूल्यांकन करना।

Co5 काव्य के विभिन्न रूपों की आलोचना करना।

Co6 प्राचीन काव्य की प्रासंगिकता पर दृष्टिक्षेप डालना।

पेपर - 11 साहित्यशास्त्र

Co1 काव्य की संस्कृत, हिंदी, पाश्चात्य परिभाषाओं को बताना।

Co2 रस के स्थायी भाव-विभाव-अनुभाव आदि भेदों का वर्गीकरण करना।

Co3 साहित्य सृजन के संस्कार करना।

Co4 आलोचना की सहज प्रवृत्तिका साहित्यिक विश्लेषण देना।

Co5 साहित्य का शास्त्रीय पद्धति से अध्ययन करना।

पेपर - 12 और 16 प्रकल्प कार्य

Co1 पठन-पाठन और लेखन कौशल का विकास करना।

Co2 आलोचनात्मक क्षमता का विकास करना।

Co3 अनुसंधानात्मक दृष्टि का विकास करना।

Co4 लेखन कला को आत्मसात करना।

पेपर - 13 मध्यकालिन काव्य

Co1 काव्य के माध्यम से मध्यकालीन सांस्कृतिक संवेदना का अध्ययन करना।

Co2 मध्यकालीन संत कवियों की रचना का पाठ करना।

Co3 मध्ययुग के काव्य प्रकार दोहे, पद आदि के काव्य सौंदर्य का मूल्यांकन करना।

Co4 भक्ति तथा रितिकालीन पृष्ठभूमी और प्रवृत्तियों से छात्रों को परिचित करना।

Co5 साहित्य का चिंतन, आकलन और मूल्याकन करना।

पेपर - 14 आधुनिक हिंदी साहित्य का इतिहास

Co1 हिंदी साहित्य के आधुनिक काल का परिचय करना।

Co2 हिंदी साहित्य के सामाजिक और आधुनिक पहलुओं पर प्रकाश डालना।

Co3 आधुनिक काव्य के महत्त्व को समझाना।

Co4 महान साहित्यकारों से छात्रों को प्रेरणा देना।

पेपर - 15 साहित्यशास्त्र 2

Co1 साहित्य के रस, अलंकार आदि अंगो का परिचय छात्रों को कराना।

Co2 समिक्षात्मक दृष्टि का विकास करना।

Co3 छात्रों में साहित्य के प्रति शास्त्रीय दृष्टिकोन विकसित करना।

Co4 आलोचना का दृष्टिकोन विकसित करना।

COs: ENGLISH

BA/ BSc First Year (COMPULSORY ENGLISH)

Semester I Paper I Learning language Skills

CO1: To help students to understand English languages in appropriate way through units of grammar, prose and poetry.
CO2: To enhances the basic abilities of speaking reading and writing in English.
CO3: To introduce students to the grammatical properties in order to enable them to write and speak English Consciously.
CO4: To introduce sentence arrangements, direct indirect speech, Para completion, usage of articles which is always a part of MPSC syllabus, (group B) written exams.
CO5: To inculcates the interest in creative writing in English among students.

Semester-II Paper-II Learning language Skills

CO1: To create the interest for short stories and poem.
CO2: To cultivate and enhance the ability of using English in daily life.
CO3: To develop comprehension and logical connections of thoughts.
CO4: To train students in precision and appropriate use of language through prose reading.
CO5: To acquaint students with a keen and subtle way in which the English language is used.

BA/ BSc First Year S.L Semester-I Additional English I

CO1: To develop the ability to understand the different writing structures in English.
CO2: To acquaint students with writing strategies.
CO3: To expands vocabulary and knowledge of language.
CO4: To introduce Fable, political texts and its relevance in English Literature.
CO5: To make students aware about the world politics during world war through novel Animal Farm**.**

BA/ BSc First Year S.L Semester-II Additional English II

CO1: To introduce different types of Letters.
CO2: To helps students to enhance their writing abilities.
CO3: To inculcate the interest in writing essay and expressing themselves.
CO4: To help students to learn to write formal and informal letter and applications. It will also help them in their future prospects for jobs.
CO5: To develop the interest in Indian Mythological stories through Naga Mandala.

B.A Semester I BA first Year optional Paper-I structure of English.

CO1: They will gain knowledge of speech sounds - the vowels and consonants prescribed by International Phonetic Association.
CO2: To understand the speech mechanism and articulation of sounds.
CO3: Learn the different phonetic symbols and transcription of words.
CO4: Understand the correct pronunciation of words through phonetic symbols.
CO5: Introduced to grammar of an advanced level.
CO6: Learn various types of sentences and word catagories.
CO7: Students will be able to impart accent and voice training.

Paper II: READING LITERATURE

CO1: To introduce students to poetical forms.
CO2: To offer appropriate literary strategies to read literature.
CO3: To pinpoint how far literary language deviates from ordinary language.
CO4: To unravel many meanings in a literary text.
CO5: To elaborate on the novel and the other forms, its structure, purpose and meaning.

Semester II B A I YEAR OPTIONAL PAPER III Structure of English

CO1: Develop an understanding of accent and rhythm.
CO2: Use correct pronunciation and accent in speech.
CO3: Apply the rules of intonation in speaking.
CO4: Develop the skills of understanding the nuances of the elements of phrases and clauses.

Paper IV: READING LITERATURE

CO1: To introduce students to odes, dramatic types-tragedy and comedy.
CO2: To offer appropriate literary strategies to the famous odes in English literature.
CO3: To understand the techniques of reading and teaching dramas.
CO4: To develop critical thinking of the students in analysing the literary characters.
CO5: To analyse the dramatic forms and performance.

BA/BSc Second Year Semester III Paper II COMPULSORY ENGLISH

CO1: To develop a taste for short stories and novel through prose.
CO2: Gain comprehension ability to understand and appreciate poetry.
CO3: Know and understand the different English writers and poets.
CO4: To converse in English and construct dialogues in English.
CO5: They will acquire an understanding of basic grammar.

Semester III Paper II COMPULSORY ENGLISH

CO1: Students will be acquainted with the use of various types of sentences.
CO2: To cultivate a love for language and literature.
CO3: To improve their writing skills.
CO4: Develop an interest in Communication Skills.
CO5: Improve their spoken English

Semester III Paper II B.A/ Bsc II Additional English

CO1: To understand the difference between general literature and world classics.
CO2: Through stories of James Joyce they will understand modernism and its features.
CO3: Develop an insight into life in Dublin in early 20 century and establish its contemporaneity with the present.
CO4: To understand the various narrative techniques, especially the stream of consciousness narrative.
CO5: Acquire the skill of writing formal and informal letters.
CO6: Master the technique of writing resume.
CO7: Improve their understanding of situational English.
CO8:

B.A/B.Sc II year Additional English IV SEM

CO1: Students are introduced to one act play.
CO2: Develop an insight into Irish society and life in the Aran Islands
CO3: Understand the life of people who live on the margins of the society.
CO4: Develop an understanding of tragic drama in literature.
CO5: Developing comprehension and the ability of writing skills.
CO6: Constructing dialogue and speaking English in various imaginary situations.

BA II Sem III Paper V: LITERATURE IN ENGLISH 1550-1750

CO1: To enable students to read various forms of literature.
CO2: To critically interact with the literary forms of literature from different perspectives.
CO3: To appreciate the essay as one of the literary forms of literature.
CO4: To acquaint students with styles of writing the essays.
CO5: To develop critical insight of the students in order to understand mock-epic.

B A II Paper VI (Literature in English 1750-1900)

CO1: Introducing the different ages of English literature to the learners as well as the literary aspects of the language they have been studying.
CO2: The learners will understand the origin and approach of the development of English language and literature better through this course.
CO3: The introduction of classic British writers will enhance their mastery on literature.
CO4: The course aims to improve the proficiency of language of the learner up to the standard.

BA II Semester IV Paper VII: LITERATURE IN ENGLISH 1550-1750

CO1: To focus on the features of Shakespearean tragedy.
CO2: To reveal the characteristics of Restoration Literature.
CO3: To develop a critical insight in order to understand tragedy.
CO4: To know the various ways of evaluating the drama as literary genre.
CO5: To analyse the beginning and development of picaresque novel

B A II Paper VIII (Literature in English 1750-1900)

CO1: The background study of poetry and literary ages give learners an edge to learn about the basic genres in English literature.
CO2: The learners will be acquainted with the comprehensive literary outcome of the Victorian period.
CO3: The introduction to the genre of novel and avant-garde novelist Thomas Hardy will further advance social perception of the learners.
CO4: Introduction of British writers will further enhance the knowledge of the land where the language originated.

B.A.III Semester V Paper IX: Twentieth Century English Literature

CO1: To make the students understand how the literature of modern period relates to the important trends of the contemporary period.
CO2: To evaluate T.S. Eliot as a modern poet and his poetry.
CO3: To understand the writing styles and techniques of G.B. Shaw as a dramatist.
CO4: To introduce the students to the thematic concerns in the writings of D.H. Lawrence.

CO5: To lead the students to see how texts are affected by the context.

B A III Paper X (Introduction to Literary Criticism and Terms)

CO1: The introduction of critics like Aristotle, Philip Sydney who are authorities in classical criticism will create the strong ideas of what literary criticism entitles in learners.
CO2: The students will get exposed to new terminology through literary terms.
CO3: Students will be informed regarding multidimensional aspects of literary criticism.
CO4: As the learners learn the literary terms, they will be able to critically analyze any text they come across.

Main English Paper XI Indian Writing in English

CO1: Exposure to Indian writers who write in English and an understanding of the popularity of the Indian literature in English since last century.
CO2: Awareness of the importance of the Indian brand of English across the world.
CO3: Understanding the history of colonialism and resistance of Indians.
CO4: Learn to appreciate Indian prose and poetry penned by Indian creative artists.
CO5: Get a glimpse into Indian political and cultural history through the texts

Paper XII Project Work on History of English Literature (From Renaissance Age to the Age of T.S. Eliot

CO1: How to read the writers and texts of the past ages.
CO2: Develop a taste for a genre of their interest.
CO3: Gain an insight into the historical and cultural background of the various literary ages.
CO4: Develop a critical ability to understand the requisites of good research.
CO5: Encouraged to do research in English literature.

B.A.III Semester VI Paper XIII Twentieth Century English Literature

CO1: To analyse the poetic convention of W.B. Yeats.
CO2: To familiarize students with the term angry young man with reference to the writings of John Osborne.
CO3: To reveal the conventions of campus novel with specific reference to Lucky Jim.
CO4: To develop critical thinking of the students through analysing the texts.
CO5: To offer an insight on new genres and trends in literature.

B A III Paper XIV (Introduction to Literary Criticism and Terms)

CO1: The learners will gain ground in their efforts to cognize literary criticism as they acquire the theories of William Wordsworth and F.R. Leavis.
CO2: The new literary terms will further assist the learner's proficiency in critical analysis of text.
CO3: The multidisciplinary aspect of the subject will advance the students for further studies.
CO4: The design of the course is such as to help students in preparing for competitive examinations like NET/SET and to develop their critical thinking.

Semester VI Paper XV Indian writing in English

CO1: Develop an insight into the caste and class hierarchy in India through the prescribed texts.
CO2: Exposure to stalwart writers like Ananthmurty and Girish Karnad.
CO3: Develop an understanding of Indian drama.
CO4: Appreciate the charm and beauty of the Indian English employed by the Indian writers.
CO5: Critical ability to understand the various modes of narration.
CO6: To discuss issues concerning Indian Writing in English such as representation of culture, identity, history, constructions of nation, hybridity, gender politics, etc

Paper XVI project work on history of English literature

CO1: Learn the literary trends in vogue during the different literary ages.
CO2: Exposure to a variety of British writers, poets and novelists.
CO3: Develop critical thinking and the ability to analyse, interpret and express.
CO4: Acquire a sharp critical and research aptitude.
CO5: Acquire the necessary skills of writing a research paper.
CO6: The beginning and development of picaresque novel.

COs: URDU

B. A. / B. Sc. I Year: Semester-I Paper-I (SL) Nasar aur Tarjuma Nigari

CO1: Understand and write short stories, essay, drama etc.
CO2: Understand the various Techniques and Language skills.
CO3: Understand the importance of translation for the dissemination of knowledge.

B. A. I Year: Semester-I Paper-I (Optional) Ghazal aur ilme bayaan

CO1: Understand and write Urdu Ghazals.
CO2: Gain knowledge about the Poets and their life and contributions.
CO3: Gain about the history and development of Urdu language.

B. A. I Year: Semester-I Paper-II (Optional) Dastaan

By end of this course, the students will be able to:

CO1: Gain knowledge about ancient literature, trade and culture.
CO2: Gain knowledge about the cultures through literature in other languages.
CO3: Learn about Arabic and Persian ancient culture and literary styles.

B. A. I Year: Semester-II Paper-III (Optional) Nazm aur Qitta

CO1: Learn about asnafe nazm and jaded nazm ki ibtedaa.
CO2: Learn about maghribi literature se aai hui nazm, free and blank verse.
CO3: Learn about Urdu Poets and get inspired to write their poetry.
CO4: Learn about Qitta nigari.
CO5: Learn about patriotic poetry.

B. A. I Year: Semester-II Paper-IV (Optional) Novel

CO1: Learn about beginning of novel writing in Urdu.
CO2: Learn about novelists like Deputy Nazeer, Premchand Hadi Ruswa.

CO3: Learn about translated novels from other languages.

B. A. / B. Sc. II Year: Semester-III Paper-III (SL) Masnavi Ghazal aur ilme bayan

CO1: Learn about Masnavi, Ghazal and Ilm e Bayaan.
CO2: Learn about most important Masnavi Sahrul Bayaan, Gulzare Naseem written by Mir Hassan Dehelvi and Daya Shankar Naseem.
CO3: Learn about Tashbi, Mushba, Mustarla in Ilm e Bayaan.

B. A. II Year: Semester-III Paper-V (Optional) Qasida aur Marsiya

CO1: Learn about Qasida and Marsiya.
CO2: Learn about Sauda and Zauq Qasaid and Anees and Dabir ke Marsiye.
CO3: Learn about Qaside ke zawal ke asbab.

B. A. II Year: Semester-III Paper-VI (Optional) Masnavi aur Rubai

CO1: Learn about Shumali Hind and Daccan mein Masnavi ki riwayat se waqfiyat.
CO2: Learn about technique of Rubai and writers of Rubai.
CO3: Learn about Hali, Amjad Hyderabadi and Anees.

B. A. / B. Sc. II Year: Semester-IV Paper-IV (SL) Nazm Marsiya Qasida o Rubai

CO1: Learn about Nazm, Marsiya, Qasida and Rubai.
CO2: Learn about poetry of Iqbal and Hali.
CO3: Learn about Jadeed Nazm nigaron ki Nazmon mein nain qayalaat se waqfiyat.

B. A. II Year: Semester-IV Paper-VII (Optional) Afsana

CO1: Learn about Afsane ki asnaf and afsane ki ajzai tarkeeb.
CO2: Get motivated to become short story writers.
CO3: Learn about short stories after taraqqi pasand tehreek.

B. A. II Year: Semester-IV Paper-VIII (Optional) Drama

CO1: Learn about Drama and their different forms.
CO2: Get motivated to become Drama and dialogue writers.
CO3: Learn about Imtiaz Ali Taj and his drama Anarkalee.

B. A. III Year: Semester-V Paper-IX (Optional) Maktoob

CO1: Learn about Maktoob – the techniques of letter writing.
CO2: Learn about various types of letters.
CO3: Learn about Maktoob nigari of Ghalib and Maulana Abul Kalam Azad.

B. A. III Year: Semester-V Paper-X (Optional) Inshaiya

CO1: Perform Inshaiya nigari.
CO2: Learn about essay writing techniques.
CO3: Learn about Inshiyaion ka tajzitee mutaala.

B. A. III Year: Semester-V Paper-XI (Main) Adabi Tanqeed

CO1: Know the importance of Criticism in Urdu literature and its different kinds.
CO2: Learn how to become a good critic.
CO3: Learn about Socrates and Aristotle and their criticism.

B. A. III Year: Semester-V Paper-XII (Optional) Mansoob e amal (Project work)

CO1: Learn choice of topics of Project, its planning and execution.
CO2: Learn to do literature survey for the Project.
CO3: Learn about organization and presentation of Project.

B. A. III Year: Semester-VI Paper-XIII (Optional) Qakah aur Savanneh

CO1: Learn about Qakah and Savanneh.
CO2: Become good autobiography writers.
CO3: Learn about Maulvi Abdul Haq, Rasheed Ahmed Siddiq.

B. A. III Year: Semester-VI Paper-XIV (Optional) Safarnaama aur reportaj

CO1: Learn about techniques of writing travelogue.
CO2: Become good journalists.
CO3: Learn about travelogues written by Mujtaba Hussain, Sir Syed.

B. A. III Year: Semester-VI Paper-XV (Optional) Jadeed zaraiiblagh aur tarjuma nigari

CO1: Learn about techniques of communication and translation.
CO2: Become good article writers for magazines and journals.
CO3: Learn about recent developments in publishing.

B. A. III Year: Semester-VI Paper-XVI (Main) Mansoob e amal (Project work)

CO1: Learn choice of topics of Project, its planning and execution.
CO2: Learn to do literature survey for the Project.
CO3: Learn about organization and presentation of Project.

COs: POLITICAL SCIENCE

B.A I Year

Semester I BASIC CONCEPTS OF POLITICAL SCIENCE

CO1: Analysing what is Political theory and explaining the Meaning nature and scope of political theory.
CO2: Explaining the meaning and definition of Government, it's organs, legislature, Executive and Judiciary.
CO3: Describing the meaning, types of citizenship and method of acquisitions.
CO4: Understanding the meaning and features of Democracy, it's merits and demerits.
CO5: Assessing the theories of State (Origin, Nature, Functions)
CO6: Explaining the Concept of State Sovereignty: Monistic and Pluralistic Theories.
CO7: Analysing the changing concept of Sovereignty in the context of Globalization.
CO8: Understanding basic concepts of Liberty, Equality, Rights and justice

Semester II GOVENMENT AND POLITICS OFMAHARASHTRA

CO1: Introducing the historical and political background of Maharashtra.
CO2: Examining Sanyukt Maharashtra Movement and state Reorganization Commission.
CO3: Studying the role of cooperative movement, peasant Movement, Dalit Movement and Feminist movement.
CO4: Assessing the historical background of Pancreatic Raj System with reference to Maharashtra.
CO5: Studying the Ideology and programme of political parties and their role in Democracy.

B.A. II Year

Semester-III INDIAN GOVERNMENT AND POLITICS

CO1: Introduction of the Indian Constitution it's sources and features and Preamble.
CO2: Examining the Fundamental Rights and Duties of Indian citizens and its significance. Also to study status of Directive Principles of state policy.
CO3: Looking at the Constitutional Institutions with focus on the functions of Attorney General and Comptroller and Auditor General of India.
CO4: Critically analyzing the important institutions of the Indian Union: the Executive: President; Prime Minister, Council of Ministers. The legislature: Rajya Sabha and Lok Sabha.
CO5: Analysing budgetary process and explaining parliamentary committees public Accounts committee and Estimate committee.
CO6: Evaluating the role of various forces on Indian politics: religion; language; caste; tribe; regionalism; business; working class and peasants.
CO7: Evaluating the Electoral Process in India with focus on the Election Commission.

Semester-IV INTERNATIONLRELATIONS

CO1: To understand the meaning nature and evolution of International Relations, studying its scope and significance.
CO2: To analyze the Idealist and Realist approaches for the study of international relations.
CO3: Examining Indian Foreign Policy: Basic Principles, Evolution and Bilateral Relations.
CO4: Evaluating the Determinants of National power and national interest.
CO5: Studying the developments in third world countries in post world war II era like NAM, ASEAN, SAFTA and SAARC, OPEC, OAU, West Asia-Palestine
CO6: To acquaint with the international organizations and their member nations.
CO7: To identify various issues and challenges in international relations.
CO8: To analyze the international security Arms Race. Arms control and Disarmament.
CO9: To understand the emerging area in international relations.

B.A. III

Semester-V WESTERN POLITICAL THOUGHT

CO1: Introducing Western Political Thought with focus on Aristotle and Plato's Political ideas and their contributions.
CO2: Critically examining Machiavelli’s political thoughts, Hobbes as the founder of the science of materialist politics; Locke as the founder of Liberalism with focus on his views

on natural rights, property and consent.

CO3: Rousseau's views on Freedom and Democracy.

CO4: Bentham's Utilitarianism; and John Start Mill's views on liberty and representative government.

CO5: Explaining Dialectical Materialism and Historical Materialism with special reference to relationship between base and superstructure.

CO6: Analysing the concept of class struggle and surplus value.

CO7: Discussing Marx's views on State and Revolution.

CO8: Describing Laski's views on Pluralism, Sovereignty and Liberty.

Semester-VI MODERN POLITICAL THOUGHT

CO1: Tracing the evolution of Indian political thought in modern India.

CO2: To understand the nature, methods and significance of political thought.

CO3: To acquire knowledge about modern political thinkers and theirs view on state craft.

CO4: Analysing the nationalist thought of Raja Rammohun Roy and also as an Architect of Indian Renaissance, along with his social, political and religious views.

CO5: To understand the political religious and social views of Dayanand Saraswati.

CO6: Describing the Social, Liberal and Nationalist ideas of Gopal Krishna Gokhale.

CO7: Lokmanya Tilak's views on Nationalism, Politics and Social reform.

CO8: Analysing the Gandhian views on religion, satya, ahimsa, satyagraha and concept of ramrajya.

CO9: Estimating the contribution of Maulana Abulkalam Azad's views on Religion, politics, Hindu-Muslim unity and synthesis of Nationalism.

Semester-VI POLITICAL IDEOLOGIES

CO1: The study of political ideologies gives the student a window through which to view complex political phenomena.

CO2: This course examines the origins and impact of ideologies on the development of societies.

CO3: To study the meaning ,development, features and the criticism of the Major ideologies such as Nationalism, Liberalism, Conservatism, Anarchism, Marxist theory, Socialism, Marxism, Fascism, Nazism, Feminism and Environmentalism.

CO4: Explain the philosophical and intellectual roots of contemporary political ideologies.

CO5: To Examine and analyze the conditions that create the rise of ideologies.

CO6: To interpret and analyze political ideologies as they apply to modern political problems.

CO7: To apply their knowledge of ideologies to current political issues.

COs: HISTORY

Semester I BA I Year Paper I Shivaji and his times (A.D 1630-A.D 1707)

CO1: Understanding and remember the nature and development of Maratha power.

CO2: Understanding and remember the concept of History, socio-religious, political and geographical conditions of Maharashtra.

CO3: Knowledge of Marathas struggle for swaraj, their wars, peace treaty, sacks etc.

CO4: Analyzing of Social, Political, Economic and Religious Condition.
CO5: Evaluation of Historical Knowledge or Information.
CO6: History Knowledge is useful to build their today and future. Apply and interpret.
CO7: Develop Interest to visit places of Historical Interest, Archaeological sites.
CO8: Development to read local document, maps, and chart etc.
CO9: The study of Maratha history helps to impart moral education.
CO10: Maratha history installs the feeling of patriotism in the hearts of the students.

Paper II History of Modern Maharashtra (A.D 1818 to A.D 1905)

CO1: Understanding the socio-religious and economic conditions of Maharashtra.
CO2: Analyzing the early phase of British Rule, Administration, Education, and Press activities of Christian missions.
CO3: Knowledge of early socio-religious reformers. Apply and interpret.
CO4: Knowledge of ear early resistance to colonial rule. Apply and interpret.
CO5: Remember the information about national movement in Maharashtra.
CO6: Evaluating the work of Different political organisation, Association oar Sabhas in freedom movement.
CO7: Able to play active roles in different originations and Association.
CO8: History installs the feeling of patriotism, idealism, and morals in hearts of the students.
CO9: Prepare for various types of competitive examinations. Properly remember and use the information in evaluation.

Semester II Paper III History of Marathas (A.D 1707 To A.D 1818)

CO1: Understanding and remember the foundation of expansion and transfer of Maratha Power.
CO2: Knowledge about the Transfer of Maratha power, and achievement of Peshwas.
CO3: Analyzing the third Battle of Panipat, Causes and Consequences.
CO4: Evaluating the role of Different Peshawar.
CO5: Evaluating the causes of declined of Maratha power.
CO6: Criticize the Peshwas administration, social structure religion and judicial systems of Peshwas.
CO7: Prepare for various types of competitive examinations. Properly remember and use the information in evaluation.
CO8: History installs the feeling of patriotism, idealism, and morals in the hearts of students.

Paper IV Twentieth Century Maharashtra (A.D 1905 to A.D 1960)

CO1: Understanding the National Movement and Revolutionary movements and remember historical knowledge.
CO2: Analyzing the National Movement from 1920-1947 AD.
CO3: Knowledge of Social Movement i.e. Non-Brahmin Movement, Dalit Movements and Education.
CO4: Analyzing the Hyderabad Freedom Struggle.
CO5: Knowledge of "Making of Maharashtra State", and Independent Bombay State.
CO6: Knowledge about the Samyukta Maharashtra Movement.

CO7: History installs the feeling of Patriotism in the hearts of pupils.
CO8: Students develop the ability to think critically and historically when discussing the past.
CO9: Prepare for various types of competitive examinations. Properly remember and use the information in evaluation.

BA II Year

Semester III Paper V History of Early India V (up to B.C 300)

CO1: Understanding of Religions and Secular Literature, Foreign Accounts, Archaeology, Numismatic Sources.
CO2: Knowledge of Stone Culture, Harappa, Civilization and Town Planning.
CO3: Information of Socio-Religious and Economic Life of Harappa Civilization.
CO4: Analyzing the Vedic Culture of early and later phase.
CO5: Understanding the religious movement in India.
CO6: Evaluating the Janapadas and Mahajanpadas.
CO7: Criticize the Economy, Administration, Art and Architecture of Mahajampadas.
CO8: Prepare the students for various types of competitive examinations. Properly remember and use the information in evaluation.

Semester III Paper VI British Rule in India (A.D 1757- 1857)

CO1: Understanding of advent and foundation of British rule in India.
CO2: Understanding the Political Condition of India during 18^{th} Century.
CO3: Knowledge about the review of administrative polices of colonial rules.
CO4: Evaluating economic policy of the colonial rule.
CO5: Criticize the expansion and consolidation of British rules.
CO6: Analyzing the uprising of 1857 and interpret.
CO7: Students applies relevant historical fats and context.
CO8: History installs the feeling of patriotism in the heart of the students.
CO9: Prepare for various types of competitive examination. Properly remember and use the information in evaluation.

Semester III Paper VII History of Mughal India (AD 1526- AD 1757) VII

CO1: Understanding and remember distinguish between primary and secondary sources.
CO2: Students identify and Evaluate Evidences.
CO3: Knowledge of a brief survey of political History of Mughal Period.
CO4: Knowledge of Mughal Administration.
CO5: Evaluating the civil, Military, Judiciary administration.
CO6: Knowledge of Economic Development in Mughal Period.
CO7: Understanding and remember Social and Religious life in Mughal period.
CO8: Knowledge of Art and Architecture of Mughals and interpret.
CO9: Prepare for various types of Competitive Examination.

Semester IV Paper VIII History of India (BC 300- AC 650) VIII

CO1: Students will understand and remember distinguish between primary and secondary sources, and identify and evaluate evidence.
CO2: Knowledge of the brief survey of political changes in mention period.

CO3: Studying in invasions of Sungas, Kanvas, and Alexander's and about other rulers.
CO4: Understand and remember the Socio-Economic life of people.
CO5: Students understand and remember the teaching and ideologies of different religions and interpretive differences.
CO6: Critically examining the development of Arts, and Architecture.
CO7: Knowledge and introduction of languages and literature i.e. Sanskrit, Prakrit, Kannad and Sangam and interpret.
CO8: Prepare for various types of competitive examinations. Properly remember and use the information in evaluation.

Semester IV Paper IX Histography IX

CO1: Understanding and remember the definitions, nature, scope and kinds of History.
CO2: Critically examining History as a Sciences and History as an Art.
CO3: Knowledge of History and its different branches of History.
CO4: Evaluation and Classification of sources, Authenticity and Credibility.
CO5: Discussing the modern thinkers of History and their ideology and properly remember the information.
CO6: Critically examining the uses and abuses of History.
CO7: Studying history research method.
CO8: Students apply interpretation based on different categories on analysis.
CO9: Students will distinguish between primary and secondary sources.
CO10: Prepare for various types of competitive examination. Properly remember and use the information in evaluation.

BA III Year

Semester V Paper X History of Indian National Movement (AD 1855-AD 1947)

CO1: Understanding and remember background, nature, policies and administration of British Rules in India.
CO2: Knowledge about the rise, causes and development of Nationalism in India.
CO3: Analysing the Indian National Congress and National Movement.
CO4: Evaluating the revolutionary movements rise, nature and importance of the movement.
CO5: Describing the National movement under the leadership of Mahatma Gandhi.
CO6: Assessing the historical background of the rise of communalism leading partition.
CO7: Discussing and revise the independences of India.
CO8: History installs the feeling of patriotism, idealism and morals in the hearts of students.
CO9: Students able to participate for various types of Competitive examination. Properly remember and use the information in evaluation.

Semester V Paper XI History of India (AD 1757- AD 1857)

CO1: Understanding and remember the advent of European Powers in India.
CO2: Knowledge about the expansion and consolidation of British power.
CO3: Knowledge of British rules in early phase.
CO4: Remember and analyzing the economic policies of British in India.
CO5: Critically examining the land revenue polices commercialization of agriculture, railways, post and Telegraphs etc. and interpret.
CO6: Discussing the socio-religious reform movement.

CO7: Assessing the resistance to colonial rule.
CO8: Remember information about the rise and growth of Indian nationalism.
CO9: Studying the foundation of Indian National Congress.
CO10: History installs the feeling of patriotism and devotion.

Semester VI Paper XIII Fields of History, (Archaeology, Museology & Tourism)

CO1: Understanding and remember the meaning and objectives of Archaeology and Anthropology.
CO2: Students able to collect and classified the archaeological material or remains and remember it.
CO3: Students get the knowledge of Museology i.e. definition, aims and function remember it.
CO4: Students took interest in documentation, identification, classification, and indexing the materials of museums nd interpret.
CO5: Student analyzing the historical sources of Museum.
CO6: Students able to get the knowledge of Tourist places and interpret.
CO7: Students able to distinguish between travellers and visitors, excursion and business tour.
CO8: Students gets the knowledge of types and forms of tourism.
CO9: Students analyzing the types of tourist places.
CO10: Prepare for various types of competitive examination. Properly remember and use the information in evaluation.

Semester V & VI Paper XII & XVI Project Work (Main Paper)

CO1: Students able to understand research. They remember the research methods and do it.
CO2: Knowledge of primary and secondary sources and interpret.
CO3: Students took interest in historical sources. They identify and evaluate evidences.
CO4: Students will produce their own historical analysis of documents and develop the ability to think critically when discussing the past.
CO5: Students remember and follow five steps of project: Initiating, Planning, Executing, Controlling and Closing.
CO6: Producing a high quality research and project.
CO7: The present is in fact the child of the past.
CO8: To state the overall purposes of project.
CO9: It must be submitted on a date to be fixed by the department.

Semester VI Paper XIV LANDMARKS IN THE HISTORY OF MODERN WORLD

CO1: Students able to understand and remember the Renaissance and Reformation in Europe.
CO2: Student able to analyzing the renaissance and Reformation period and remember it.
CO3: Knowledge of American war of Independence.
CO4: Students took interest in the world of History, wars, revolutions. They criticised and interpret.
CO5: Knowledge of French Revolution.
CO6: Knowledge of Industrial Revolution, Background, Development and Significance.
CO7: Students took interest in Russian Revolution.
CO8: Students took Interest in World History evaluate and Criticised and interpret.

Semester VI Paper XV GLIMPSES OF THE HISTORY OF MARATHWADA (Up to AD 1948)

CO1: Students understand and remember the political History of Marathwada.
CO2: Students will be able to get the knowledge of religious movement in Maharashtra.
CO3: Students will be able to demonstrate broad knowledge of different religious i.e. Brahmanism, Buddhism, Jainism, Mahanbhav, Veershiva, Varkari Movement, and Suffisim.
CO4: Student able to revise and evaluating the political History of Marathwada.
CO5: Student will be able to understand and revise the Art and Architecture of Religious Places and Forts.
CO6: Students understand and revise the knowledge of social, economic and cultural history under the Nizam State.
CO7: Students able to analyse and revise Hyderabad Freedom Struggle (1937 to 1948).
CO8: Students able to evaluating the political conditions of Marathwada in the Nizam State.
CO9: Prepare for various types of Competitive Examination. Properly remember and use the information in evaluation.

COs: ECONOMICS

B.A. I Year Semester I
Paper 101 MICRO ECONOMICS

CO1: Develop the ideas of the basic characteristics of Indian economy, its potential on natural resources.
CO2: Analyze the impact of population growth and its distribution, translate and relate them with economic development.
CO3: Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.
CO4: Analyze the progress and changing nature of agricultural sector and its contribution to economy as a whole.
CO5: Examine the causes of scarcity.
CO6: Demonstrate marginal productivity theory of distribution, theory of wages, identify different types of rent, illustrate different theories of interest and profits.
CO7: Analyze the various decisions taken by the firms and household due to scarcity of resources.
CO8: Calculate the elasticity of demand and supply.
CO9: Describe the laws and various concepts in production and cost.
CO10: Evaluate the various microeconomic theories.

B.A. I Year Semester I
Paper 102 INDIAN ECONOMY

CO1: Understand the characteristics of the Indian Economy as a less developed economy.

CO2: Explain the difference between HDI, GDI, HPI.
CO3: Examine the reforms of the government through which economic development could be achieved.
CO4: Analyze the relationship between population growth and economic development.
CO5: Describe the theories of population.
CO6: Evaluate the planning undertaken by the government of India.
CO7: Compare population data with different countries.

B.A. I Year Semester II
Paper 103 PRICE THEORY
CO1: Understand the meaning, concept of production function.
CO2: Explain the laws of variable proportions.
CO3: Analyze the cost and revenue, and study modern approach to short run and long run cost curves.
CO4: Examine the relationship between marginal cost, average cost and total cost.
CO5: Describe the concept and characteristics of Oligopoly and Duopoly.
CO6: Evaluate monopoly and monopolistic competition.

B.A. I Year Semester II
Paper 104 MONEY AND BANKING
CO1: Understand the meaning, definition and functions of money.
CO2: Explain various methods of note issue.
CO3: Assess Gresham's law.
CO4: Evaluate he money market and capital market in India.
CO5: Analyze the monetary policy of India.
CO6: Differentiate the quantitative and qualitative methods of credit control.

B.A. II Year Semester III
Paper 105 MACRO ECONOMICS
CO1: Explain the process of calculation national income.
CO2: Demonstrate circular flow of income, analyze various income identities with government and international trade.
CO3: Illustrate the meaning of interest, analyze the various theories of interest.
CO4: Assess various versions of quantity theory of money.
CO5: Differentiate between investment and saving, demonstrate investment multiplier and understand the meaning of MEC and MEI.
CO6: Evaluate Harrod-Domar and Solow growth model.

B.A. II Year Semester III

Paper 106 ECONOMICS OF DEVELOPMENT

CO1: Explain the concept of economic development and economic growth.

CO2: Classify the growth model of Ragnar Nurkse, W.W. Rostow, Rosestein Rodan.

CO3: Identify the development process like natural resources, population, saving and investment.

CO4: Examine the role of agriculture in economic development.

CO5: Analyze the role of industries in economic development.

CO6: Evaluate the role of service sector in the economic development.

B.A. II Year Semester IV

Paper 107 PUBLIC FINANCE

CO1: Explain the role of government to correct market failures and possible advantages of public financing.

CO2: Classify the causes of growing public expenditures for various programs and policies within and outside the country.

CO3: Identify the general trend and impact of taxes on general welfare and arouse them to suggest good and bad tax system.

CO4: Examine the need to meet necessary public investment expenditures.

CO5: Analyze the benefits of various types of taxes among various classes of people.

CO6: Evaluate the need of public borrowing from all possible sources.

B.A. II Year Semester IV

Paper 108 STATISTICAL METHOD

CO1: Understand the meaning and nature of statistics.

CO2: Explain the characteristics of different discrete and continuous distribution.

CO3: Identify the normal probability distribution including standard normal calculations of appropriate areas.

CO4: Differentiate between primary data and secondary data.

CO5: Analyze statistical data graphically, using frequency distribution and cumulative frequency distribution.

CO6: Evaluate the index numbers given by pasche's , Fischer's and Laspeyeres.

B.A. III Year Semester V

Paper 109 INTERNATIONAL ECONOMICS

CO1: Explain the importance of international economics.

CO2: Compare between inter- regional and international trade.

CO3: Assess the theories of trade and its impact in partial equilibrium analysis.

CO4: Illustrate free trade policy in relation to economic growth with special reference to India.

CO5: Analyze the various measures to correct the deficit in the balance of payment.

CO6: Evaluate the concept of terms of trade and its importance.

B.A. III Year Semester V

Paper 110 AGRICULTURAL ECONOMICS

CO1: Explain the features of rural and urban economy on agricultural and non- agricultural which can influence the whole of economy.

CO2: Identify the opportunities available in those sectors such as forestry, find new investment opportunities to add income and employment.

CO3: Analyze the problems of unemployment, inequality, shortage of food production, poverty.

CO4: Create awareness of the rich natural resources available for sustainable agricultural development.

CO5: Differentiate between agriculture sector and industrial sector and their interdependence.

CO6: Evaluate the role of agriculture in the Indian economy.

B.A. III Year Semester VI

Paper 113 RESEARCH METHODOLOGY

CO1: Understand the meaning, importance of social science research.

CO2: Frame research hypothesis.

CO3: Differentiate between types of research design.

CO4: Analyze the collection of data.

CO5: Draw graphs of frequency distribution.

CO6: Evaluate data presentation and analysis.

B.A. III Year Semester VI

Paper 114 INDUSTRIAL ECONOMICS

CO1: Examine the role of industries the economic and social development.

CO2: Differentiate between the private, public, join-sector companies and multinational companies.

CO3: Identify the location and diversification of industries.

CO4: Analyze the role of multinational companies and classify industries based on the data provided.

CO5: Evaluate the integration and merger of industrial units.

CO6: Assess the problem of regional imbalance.

COs: PSYCHOLOGY

B.A. I Year

Semester I Paper I General Psychology

CO1: Discuss basic Concepts related to foundation of of psychological various branches methods.
CO2: Acquaintance physiological bows of behavior brain its functions and association with behaviors glands and hormonal impact.
CO3: Explain personality, intelligence motivation and learning process.
CO4: Developed ability to relate the psychological concepts to everyday life events.

Semester I Paper II Social Psychology

CO1: Discuss behavior in social context.
CO2: Describe people think interact and influence each other.
CO3: Explain process of attitude, Conformity and group influence.
CO4: Describe aggression process, prejudice & helping behavior, how to promote altruism in Society and reduce the aggression.

Semester II paper I Basic Concepts in general psychology

CO1: Explain the use and purpose of Common personality test.
CO2: Explain learning and the process of classical conditioning.
CO3: Discuss process of memory.
CO4: Describe language acquisition and the role language plays in Communication thoughts.

Semester II paper II Basic Concepts in Social Psychology

CO1: Describe individual behavior is influenced by Social and cultural Contexts.
CO2: Explain unique features of the Indian Socio - cultural contexts.
CO3: Discuss social problems that can be. analyzed in terms theories. of various Social Psychological theories.

B. A. II year

Semester III Paper I Psychology of Adjustment

CO1: Discuss relation between psychology and its application in daily life.
CO2: Discuss process of Communication, Components, problems, and interpersonal conflict, verbal and non-verbal communication.
CO3: Elaborate friendship perspectives and its development.
CO4: Explain process of Choosing Career and various Psychological models.
CO5: Discuss challenges in traditional models of marriage, marital adjustment, divorce and domestic violence etc.....
CO6: Discuss nature of stress effects, type, with stress and its relation with physical healing.

Semester III Paper II Psychological Testing

CO1: Discus psychological assessment techniques.
CO2: Explain various Statistical methods their applications and interpretation.

CO3: Describe nature of personality, intelligence aptitude test and there scoring & interpretation et work.
CO4: Enhance, Skills necessary for selecting and applying different test for different purpose such as evaluation and Training & rehabilitation.

Semester IV Paper I Psychology for Living

CO1: Describe Connection between psychology and its applications in everyday life.
CO2: Discuss Stress it's impact on the body, and identity common stressors.
CO3: Elaborate process of choosing career & various psychological models.
CO4: Describe coping with Stress.
CO5: Explain Stress effects, types coping with "Stress. psychology" and its relation with Physical health.

Semester IV Paper II Psychological statistics

CO1: Understand the basic concepts of statistics in Psychology.
CO2: Knowledge about hypothesis testing.
CO3: Leven categorization and presentation of data graphical representation used to Communicant data.
CO4: Describe the strengths and weaknesses of descriptive experimental and correlation Research.
CO5: Define basic elements of statistical investigation.

B.A. III. Year

Semester V Paper I Abnormal Psychology

CO1: Explain various types of disorders, their Causes treatments and prognosis.
CO2: Describe responsible factors for Creating Abnormal behavior on the basis of Various models in psychopathology.
CO3: Discuss clinical picture of various disorder.

Semester V Paper II Organization Behavior

CO1: Discuss behaviors of individual in Organizational setup.
CO2: Explain theoretical aspects of organizational behaviors and familiarise themselves with Skill, techniques and their applications.
CO3: Discuss importance of values types, attitude and job satisfaction.
CO4: Explain major personality factors afflicting on organization.

Semester V Main Paper I Counseling

CO1: Describe goals, importance and scope of counselling.
CO2: Discuss Counselling Process, Counselling Process.
CO3: Discuss Comprehending Counseller's Skills Counselling relationship.

Semester V Main Paper II Psychology Practicum's

CO1: Discuss Method of Testing and interpretation of the various tests.
CO2: Identify critically analyze an individual's personality and behavior Patterns.

CO3: Explain Ethics in Psychological assessment.
CO4: Give Importance of psychological assessment in the field of psychology.

Semester VI Paper I Psychopathology
CO1: Define psychological disorders and explain how they are classified.
CO2: Describe the features and characteristic Symptoms of anxiety disorders.
CO3: Describe the characteristic Symptoms and risk factors of mood disorders including major depressive and disorder.
CO4: Explain System and potential causes of Schizophrenia and dissociative disorders.

Semester VI Paper II Organizational Behavior
CO1: Explain purpose of industrial organizational Psychology and examine its application to the workforce.
CO2: Describe how industrial organizational Psychologists assess leadership and de organization.
CO3: Explain Human Relations perspective socio lectical approach in organizational behavior.

COs: SOCIOLOGY

B.A. I Year Semester I Paper I Introduction to sociology
CO1: Discuss basic concepts related sociological.
CO2: Explain various sociology methods to understand the subject of sociology.
CO3: Discuss the importance of sociology and its branches.
CO4: Explain the various definitions of sociology.

Paper II Individual and society
CO1: To understand the importance of culture its definition and characteristics.
CO2: Explain the definition of social structure.
CO3: Discuss the status, its types, norms and values in society.
CO4: To understand the definition of socialization and agencies of socialization.

Semester II Paper III Introduction to subfields of sociology
CO1: Define urban sociology and demonstrate nature, scope and significance of urban sociology.
CO2: To understand the nature and scope and subject matter of political sociology.
CO3: Discuss meaning, scope of social anthropology.
CO4: To learn and know about development of social anthropology in India.
CO5: To understand the process and trends of industrialization in India and its impact of the Indian society.

Semester II Paper IV Indian social composition
CO1: Define Bonds of unity in India geographical, religious, traditions bonds in India.
CO2: Explain Forms of diversity in India such as language diversity, religions, tribes etc.
CO3: Understand Indian population its characteristics, problem and planning.

CO4: Discuss democracy and secularism its definition, concept and characteristics.
CO5: Explain rural and agrarian structure, Baluta system, and agrarian transformation.

BA II Year

Semester III Paper V introduction to research methodology

CO1: Explain Basic concepts in research methodology its meaning and scope.
CO2: Understand the importance of social research, theory, fact and objectivity.
CO3: Define types of research such as pure research, Qualitative and quantitative research.
CO4: Understand scientific process, formulation of problem.
CO5: Define the concept of hypothesis sampling and data collection.

Semester III Paper VI Contemporary urban issue

CO1: Explain the definition, nature and scope of urbanization.
CO2: Discuss the problems of unemployment and poverty.
CO3: Understand the urban planning, horsing and sauna.
CO4: Explain the urban issues like crime, Prostitution and juvenile delinquency.

Semester IV Paper VII population in India

CO1: Explain Basic Concept of population, fertility, density of population.
CO2: Discuss human population dynamics, age structure and problem of aging.
CO3: Understand the demographic transition.
CO4: Discuss the population policy new population policy of India.
CO5: Explain family welfare programmed, world scenario and China experience of population.

Semester IV Paper VIII Sociology of Development

CO1: Explain the development and under development and under development definition.
CO2: Discuss the nature of sustainable development and social audit.
CO3: Define the various stages of development, developments of socio-economics disparities gender development.
CO4: Discuss problem of weaker section its problem and consequences.
CO5: Explain development approaches in the view of capitalist view, socialist view.

Semester V Paper IX Sociological traditions

CO1: Explain the emergence of sociological thought, French revolution.
CO2: Define August compels Positivism, Law of Three stages spencers theory of organisms.
CO3: Understand max webers theory of authority, analysis of spirit of capitalism and protestant ethics.
CO4: Explain theory of suicide and social fact theory of emile Durkheim

Semester VI Paper XIII Sociological Theories

CO1: Explain Talcott parsons' theory of social action.
CO2: Understand Talcott parsons' theory of pre- requisites of social system.
CO3: Define theory of Robert mertons Role set and reference group.
CO4: Discuss Lewis cosers theory on conflict, function of social conflict, violence.
CO5: Explain C.S Cooley's Looking glass self, Primary group theory

Semester VI Paper XIV Social Research Methods

CO1: Explain techniques of Sociological investigation such as observation, owestionaise, interview.
CO2: Understand the importance and uses of computer in social research, internet, data analysis.
CO3: Define introduction of statical measures and intro duction of spss method.
CO4: Explain the utility of social research.
CO5: Understand to analyze social problems, to study society and social structure.
CO6: Discuss the evaluation of welfare schemes and policy advocacy.

COs: HOME SCIENCE

B.A I Year

Semester I Paper I Family Resource Management

CO1: To Unable student to understand the family Resources.
CO2: To acquire knowledge about the management process.
CO3: To develop the ability to improve the work within less time and fatigue.
CO4: To understand the ability how to make household budget to each income group.

Paper II Food and Nutrition

CO1: Student will acquire knowledge in the field.
CO2: Role of food and function of nutrients.
CO3: Different sources and deficiencies of nutrients.
CO4: Students can improve the nutritional quality of food and nutrition.

Paper III Human Development

CO1: To study the meaning and scope of Human Development.
CO2: To understand the importance of prenatal development.
CO3: To know the adjust mental problems of Infancy.
CO4: To develop and understand the need and importance of early childhood education to gain insight into the organization and management of preschool centre.

Paper IV Textile and Clothing Construction

CO1: To enable students for proper choice of fabrics.
CO2: To impart knowledge regarding textile and clothing.
CO3: To impart creative and technical skills in clothing construction.
CO4: To enable students to develop skills in embroidery.
CO5: To encourage entrepreneurship
CO6: To acquire knowledge of various embroideries done in India with the historical background of each.

B.A II year

Semester V Paper Extension Education

CO1: To understand the meaning importance and need of Home Extension Education.
CO2: To impart knowledge of extension education.

CO3: To understand the process of communication in development work.
CO4: To get acquainted with the terms in extension approaches and models.
CO5: Understand the importance and process of programe planning and management in extension.
CO6: Develop and ability to plan, implements, monitors and evaluate extension programme.

Paper VI Textile and Clothing (Garment Designing and Painting)
CO1: To impart knowledge about basic principles of design and painting.
CO2: To enable students to know about important aspects of clothing.
CO3: To impart knowledge about wardrobe planning.
CO4: To impart knowledge about selection of cloth for different age group, texture and fabric to encourage entrepreneurship to impart creative and technical skills in textile.

Paper VII Human Development (Late Childhood and Adolescence)
CO1: To appreciate the sequential stages of development during late childhood.
CO2: To implement the techniques for disciplining the child.
CO3: To understand behavioral problems during late childhood.
CO4: To aware the need and skills to developed for self-improvement.
CO5: To know the development and behavior during Adolescence.

Paper VIII Food Nutrition
CO1: To gain acquaintance with human gastro intestinal tract.
CO2: To understand the concept of an adequate diet and importance of meal planning.
CO3: To know the different method of food preservation.
CO4: To be aware of the effect of food poisoning and food adulteration.
CO5: To gain the knowledge about the nutrient need for various age group
CO6: Learn various preservation technique and their applications

B.A III Year
Paper XI Nutritional Management in Health & Diseases
CO1: To know the principles of diet.
CO2: Therapy and effect of food habits.
CO3: To understand the role of dietician.
CO4: To understand the modification of normal for therapeutic purpose.

Paper XV Communication Process in Home Science
CO1: To understand the role of communication in development.
CO2: To know the process of communication and effects of media.
CO3: To enable the qualities of leadership in the students.
CO4: To know the importance of programme planning, implementation of programme and evaluation.

Paper Home Science Project Work
CO1: To improve the interest of research works in students.
CO2: Student involves the co-curricular activity.

COs: BCS

BCS I Year

Semester I Paper CS101-T Computer Fundamentals

CO1: Understand the concept of computer with its Characteristics & features as well as different components of computer and organization of computer in detail.

CO2: How to write an algorithm and using that algorithm how to draw the flow chart as well as they know the different symbols used in flow chart.

CO3: The history of computer how the computer grown up with first to fifth generation. Understand the computer memory and memory organization.

CO4: To learn the concept of processor like structure of processor, features of processor and examples of processor.

CO5: Student will understand the concept of Operating system, why we use O.S., what are the functions of O.S. different types of O.S. in detail.

Semester I Paper CS102-T Digital Electronics

CO1: Students learn number system with different types of conversions.

CO2: They learn the basic logic operations of NOT, AND, OR, NAND, NOR, and XOR, interpret logic functions, circuits, truth tables, and Boolean algebra expressions.

CO3: Learning the methods of systematic reduction of Boolean algebra expressions including Karnaugh maps.

CO4: Students will demonstrate understanding of flip-flops, one-shots, and oscillators.

CO5: Students will be able to analyze, build, and troubleshoot shift registers

Semester I Paper CS103-T Microprocessor - I

CO1: One can learn how the personal computers are developed and there architecture on the bases of microprocessor and even how the memory is addressed.

CO2: Here they learn how the memory addresses stores the data and in which data structure the data is scheduled.

CO3: low-level programming language the instructions are given by Op-code to data to perform operations and the same concept is also used in high-level programming language .

CO4: The basic calculation which we do on calculator is seems very easy here.

CO5: The data/ content is shift from one place/ register to another to calculate on memory system.

Semester I Paper CS104-T C Programming – I

CO1: Explain about the basic concepts of program development statements and its syntax.

CO2: Explain the various types of arrays and its structure.

CO3: Discuss about the various types of Functions and String handling mechanisms.

CO4: Explain the Concepts of structures and Unions.

Semester I Paper CS105-T Communication Skill – I

CO1: Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts, e.g., interpersonal, intrapersonal, small group, organizational, media, gender, family, intercultural communication, technologically mediated communication, etc. from multiple perspectives.

CO2: Students will be able to understand and evaluate key theoretical approaches used in the interdisciplinary field of communication. I.e., students will be able to explain major theoretical frameworks, constructs, and concepts for the study of communication and language, summarize the work of central thinkers associated with particular approaches, and begin to evaluate the strengths and weaknesses of their approaches.

CO3: Students will be able to understand the research methods associated with the study of human communication, and apply at least one of those approaches to the analysis and evaluation of human communication. Students will be able to find, use, and evaluate primary academic writing associated with the communication discipline.

CO4: Students will develop knowledge, skills, and judgment around human communication that facilitate their ability to work collaboratively with others. Such skills could include communication competencies such as managing conflict, understanding small group processes, active listening, appropriate self-disclosure, etc.

CO5: Students will be able to communicate effectively orally and in writing.

Semester I Paper CS106-T Mathematical Foundation

CO1: It introduces the concepts of mathematical logic. It introduces the concepts of sets, relations, and functions. To perform the operations associated with sets, functions, and relations.

CO2: It introduces the concepts of mathematical logic. It introduces the concepts of sets, relations, and functions. To perform the operations associated with sets, functions, and relations.

CO3: To introduce generating functions and recurrence relations. To relate practical examples to the appropriate set, function, or relation model, and interpret the associated operations and terminology in context. To use Graph Theory for solving problems. An ability to design, implements, and evaluate a computational system to meet desired needs within realistic constraints.

CO4: An ability to function effectively on teams to accomplish shared computing design, evaluation, or implementation goals.

CO5: An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computational systems in a way that demonstrates comprehension of the tradeoffs involved in design choices. An ability to apply design and development principles in the construction of software systems of varying complex.

BCS I Year Semester II Paper CS201-T Data Structure

CO1: How the working behind the computer screen is done specially how the logical operations is done is shown here and how to control the working of certain programs with the help of instructions.

CO2: In computer science everything has a systematic procedure. Here one can learn the concepts of link list and their operation which is good for theoretical knowledge.

CO3: Here we learn about the basic topics of data structure like stacks, queues, recursion etc. And all the operation which can be performed in these concepts. Students can get basic knowledge of data structure.

Semester II Paper CS202-T Operating System

CO1: There are several types of operating systems, each with its own advantages. Here one can learn about how actually an operating system is composed of. All of its mechanism likes deadlock, prevention over deadlock, then how to schedule it.

CO2: Everyone knows a computer is used to reduce the manual work but one can learn how to handle the memory and working on it. And working on the virtual memory, Partition and using it for memory allocation and even how to access it.

CO3: Device management is responsible for managing all the hardware devices of the computer system. It may also include the management of the storage device as well asthe management of all the input and output devices of the computer system. It is the responsibility of the operating system to keep track of the status of all the devices in the computer system. The status of any computing devices, internal or external may be either free or busy. If a device requested by a process is free at a specific instant of time, the operating system allocates it to the process.

Semester II Paper CS203-T Microprocessor – II

CO1: How the working behind the computer screen is done specially how the logical operations is done is shown here and how to control the working of certain programs with the help of instructions.

CO2: In computer science everything has a systematic procedure. Here one can learn operations perform on registers, memory locations with the help of registers and flag registers.

CO3: Here we learn about the basic Interruptions of hardware and software and how they can be done. We also learn how the controllers work and the mechanism of shared bus system and memory system and working of video display.

Semester II Paper CS204-T C Programming – II

CO1: Students will be provided with advanced knowledge of C programming language. Features like functions.

CO2: Inscribe C programs that use Pointers to access arrays, strings and functions. Exercise user defined data types including structures and unions to solve problems.

CO3: A storage class defines the scope (visibility) and life-time of variables and/or functions within a C Program. They precede the type that they modify. We have four different storage classes in a C program.

CO4: To study different functions from stdlib.h.

CO5: Preprocessor directives are lines included in a program that begin with the character #, which make them different from a typical source code text. They are invoked by the compiler to **process** some programs before compilation.

Semester II Paper CS205-T Communication Skill – II

CO1: First Student should go through the Theory Paper of C Programming Language and Then Perform the above Practical's.
CO2: Students can be a Software Developer or Software engineer.
CO3: These Practical's Improve the Programming Skills of a Student.

Semester II Paper CS206-T Numerical Computation Methods

CO1: Students will **summarize** different types of Errors with the methods.
CO2: Students will frame problems using methods of solutions for iterative and different methods such as Bisection and False method.
CO3: Students will clearly communicate with elimination method and try to perform computational effort.
CO4: Students will frame problems using Polynomial forms with linear Interpolation and newton forward and backward method.
CO5: Students will frame problems using fitting linear equations such as least square and Multiple Linear regression.

BCS II Year Semester III Paper CS301-T Advance Data Structures

CO1: Argue the correctness of algorithms using inductive proofs and invariants.
CO2: Analyze worst-case running times of algorithms using asymptotic analysis.
CO3: Explain the major graph algorithms and their analyses. Employ graphs to model engineering problems, when appropriate. Synthesize new graph algorithms and algorithms that employ graph computations as key components, and analyze them.
CO4: Explain the different ways to analyze randomized algorithms (expected running time, probability of error). Recite algorithms that employ randomization. Explain the difference between a randomized algorithm and an algorithm with probabilistic inputs.
CO5: Analyze randomized algorithms. Employ indicator random variables and linearity of expectation to perform the analyses. Recite analyses of algorithms that employ this method of analysis.
CO6: Explain what amortized running time is and what it is good for. Describe the different methods of amortized analysis (aggregate analysis, accounting, potential method). Perform amortized analysis.
CO7: Explain what competitive analysis is and to which situations it applies. Perform competitive analysis.

Semester III Paper CS302-T Unix Operating System

CO1: Students will be able to Understand the Basic Concepts of Unix Operating System They can Understand Memory Management, CPU Scheduling and How Computer Operation Actually Processed inside. If Student Choose Teaching Field They Easily Explain what is Unix Operating System Through this Topic.
CO2: Students Can Easily Understand and Learn the Basic Commands of Unix O.S. Because Unix O.S is a Command Based O.S and by Learning These Command Student can Easily Handle Unix O.S and Perform Multiple Operations. Students can Choose Administrative Field Where Unix O.S Need to Manage.
CO3: In This Topic Students Learn Some Major Command Which can be use to Development Programs at Unix O.s by Using Shell Script. Students can Write Programs in Unix for Implementation New Features.

CO4: This Paper is having Scope in Administrative Field Where UNIX O.S Operator is Required.

Semester III Paper CS303-T PC Maintenance

CO1: Here the basic hardware knowledge is given and how the assemblies are used and where they are placed in a computer system as well as precautions while working with electric components.

CO2: Here the assembling and disassembling of a computer system is shown and the compatibility of software and hardware is done.

CO3: Here one can be familiar with the installation of operation system like Windows 7, XP, Linux and Unix and how to protect your system and data from virus. Introduction to Laptop and its hardware is given.

Semester III Paper CS304-T Programming in CPP

CO1: Shows difference between POP and OOPs. The basic concept of C++ programming and its features with enhance its programming in comparison of c programming. Class property and inheritance C++ gave more impotence to OOP.

CO2: The drawback of c language is overcome by the C++ by proving more security of data and memory allocation of program in memory system as well as free up the space which is not required.

CO3: Overloading with operators, copy concept, providing friendly behavior of program and concatenation of string. This also allows you to work with high-level programming languages further in future.

Semester III Paper CS305-T Database Management System

CO1: Students will be able to introduce with the Characteristics of databases, File system V/s Database system, Users of Database system, Concerns when using an enterprise database.

CO2: To describe data models and schem as in DBMS.

CO3: Students will Introduce, Benefits of Data Modeling, Types of Models, Phases of Database Modeling, The Entity-Relationship(ER)Model, Generalization, Specialization and relation, Extended Entity-Relationship(EER) model.

CO4: Students will be introduce with the Mapping the ER and EER Model to the Relational Model , Data Manipulation , Data Integrity, Advantages of the Relational Model.

CO5: Students will introduce with Relational Algebra, Relational Algebra Queries, and Relational Calculus.

CO6: Students will deal with issues. In Query Optimization, Steps. In Query Processing, System Catalog or Meta data, Query arsing, Query Optimization, Access Paths, Query Code.

CO7: Students will be able to introduce with the Characteristics of databases, File system V/s Database system, Users of Database system, Concerns when using an enterprise database. Students will be able to introduce with the Characteristics of databases, File system V/s Database system, Users of Database system, Concerns when using an enterprise database.

Semester III Paper CS306-T Statistical Method

CO1: Students will summarize data visually and numerically.

CO2: Students will build and assess data-based models.

CO3: Students will learn and apply the tools of formal inference.
CO4: Students will ... the mathematical and probabilistic foundations of statistical inference.
CO5: Students will execute statistical analyses with professional software.

BCS II Year

Semester IV Paper CS401 Software Engineering

CO1: Here we learn what is software and how the software's are developed which models the prefer to develop the software.
CO2: Here the process is shown which is used to develop the software and the life cycles of it.
CO3: Here the we learn about the Principles of the modeling software.

Semester IV Paper CS402 Fedora

CO1: In fedora operating system students can learn the basic concept of fedora. Students learn many basic and advanced commands for different purpose or operation.
CO2: In this unit student learn about administrative system. In which how user can install or remove software on fedora operating system and also many more things about how to manage accounts on fedora.
CO3: One can work in companies as administrator for fedora specialist.

Semester IV Paper CS403 Basic of Networking

CO1: Understand the basic concept of Communication system as well as computer network and types of computer Network. Understanding an detailed knowledge of data transmission technologies and local area network technologies and basic Network topologies.
CO2: Understanding the concept of different transmission media like guided and wireless media and there uses and implementation.
CO3: Show clear and unambiguous understanding of analog transmission of digital and analog data , methods, and the procedures involved in converting digital data and analog low-pass to band-pass analog signals (Modulation – ASK, FSK, PSK, AM, FM, PM). Recognize the advantages and limitations of modulation systems.
CO4: Can effectively discuss that bandwidth utilization is goal-oriented and involves tradeoffs by showing that multiplexing (TDM, FDM, WDM) efficiently use bandwidth while spread spectrum inefficiently use bandwidth to ensure privacy and anti jamming.
CO5: Student can understand the different generations of mobile as well as different improvements in generations. can understand the mechanism used in different generations.

Semester IV Paper CS404 Core Java

CO1: Students learn all the basic concept of core java. Which help to students in understand the basic concepts.
CO2: In the II unit student get all the technical knowledge about the core java which can be helpful when students work as a developer.
CO3: This is very important unit in this syllabus because students learn about packages and how to handle runtime errors etc.
CO4: This makes students knowledge more clear about coding make.

Semester IV Paper CS405 Adv. DBMS

CO1: Students will be able to introduce with DDL and DML Statements and will be able to restrict and store Data using different functions.
CO2: To describe overview of Data storage media.
CO3: Students will learn to know about the centralized and client server architecture.
CO4: Students will be introduce with the Concept and state and implementation of Atomicity.
CO5: Students will introduce with Different Protocols for the database.

Semester IV Paper CS406 Web Fundamental

CO1: One can be able to design web pages and embedding of web pages applying navigation bar, header, footer and all sorts of operations related to it which may lead to a structure of website.
CO2: Here you learn a programming language which is basically a default programming language used foe HTML and it handles all behavior of the website.
CO3: Here you can provide more features to HTML document which gives a dynamic look to your website.

BCS III Year

Semester V Paper CS501-T Software Cost Estimation

CO1: Shows the pre-planning of software and requirement analysis.
CO2: To develop a single software or application software the work is divided into parts complete in unit and then combine it into whole.
CO3: It also explains the cost, people, hardware estimations with designing and documentation.
CO4: Software is designed on the bases of models as per the customer's requirement.

Semester V Paper CS502-T Basic of Android O. S.

CO1: Students can Install or Create Android Environment Easily by Learning These Topic. They Create Their First Application this Topic. If Student Choose Development Field or Android Developer, They can Install Android Setup Easily.
CO2: This is the Second topic aim android O.S paper. If Student Learn it Properly so That they can be android developer and can create Different Types of application and can create attractive Layouts of Their Application.
CO3: Event Handling is One of the Important Topic by Which Students Learn How to Declare Event Listeners and How to Create Event.
CO4: This Subject is having scope in Android Application Development Field. Student and be an Android Developer.

Semester V Paper CS503-T Core Java-II

CO1: This Topic will provide the information regarding the streams.
CO2: The students want to be a Programmer or a developer. Student can Develop a software in java Language. So They can easily use Stream in their Program if they Learn it properly.
CO3: Student will able to create a website in java by this topic. They learn the difference between an applet and application as well as they get the information regarding graphics and colors also.

CO4: Database is a very important topic in development field. If a student learn it they can manage or create database in java by using JDBC and they can learn how to create connectivity of Database with Front End.

CO5: Java Language is a Programming Language which is used to develop a System Software Plus Android Application .Students have Scope in Development Field If they Learn Java Programming Language.

Semester V Paper CS504-T Basic of Computer Graphics

CO1: Students will able to list the basic concepts used in computer graphics. Types of graphics devices.

CO2: To introduce the use of the components of a graphics system and become familiar with building approach of graphics system components and algorithms related with them with graphic functions.

CO3: To learn the basic principles of 2 -dimensional computer graphics.

CO4: To implement various algorithms to scan, convert the basic geometrical primitives, transformations, Area filling, clipping.

CO5: To provide comprehensive introduction about computer graphics system, design algorithms and two dimensional transformations.

CO6: To make the students familiar with techniques of clipping, three dimensional graphics and three dimensional transformations.

CO7: The computer graphics course prepares students and gives the job opportunities for activities involving in design, development and testing of modeling, rendering, shading and animation.

Semester V Paper CS505-T Beginners Prog. with PHP

CO1: Understanding the basics of the PHP examine how web pages are developed using PHP Learn certain specific PHP variables and syntax Better understanding of how PHP, HTML and MYSQL work together to produce dynamic pages.

CO2: Understand the looping concept in detail. As well as concept of array in detail like implementation ,types of array etc.

CO3: Student will understand the concept of object oriented programming. Concept of string, in-build functions of string in php. Understand the concept of date and time functions in detail.

Semester V Paper CS507-T Data Mining

CO1: Here you get familiar with the data its types and techniques for retrieval of data. Also shows issues and challenges as well as current trends in data mining.

CO2: Recognition of similar patterns from the data warehouse. Applying different tools and techniques for the predictions and finding the hidden patterns from the data.

CO3: Verifying the best techniques among the two by techniques, which techniques results the best.

CO4: This course leads you in an IT company to manage “Big Data” at large scale.

BCS - III Year Semester VI Paper CS601-T Software Quality & Testing

CO1: Here one can learn about the quality concepts of software and on what basses the quality is being assured.

CO2: Here we use some techniques to maintain the quality and assurance.

CO3: After the development of particular software it is being processed under certain testing strategies so that it can deliver a better result according to the user.

CO4: Here both the internal and external testing is being done of the software by using some conventional applications from both the side client as well as server. As well as we can test web applications also.

CO5: After completion of this course one can be hire as Software developer or Software Tester in any company.

Semester VI Paper CS602-T Android Application Development

CO1: In this unit student gain knowledge about basic and theoretical of android concepts. This knowledge can helpful for the students if they choose teaching field.

CO2: This unit helps the students to gain knowledge about some technical points of android which helps them to design front end of the application. Also learn some theoretical points.

CO3: This unit gives network based application information if student decided to be a android developer so he can develop network based application easily.

CO4: After completion of this course one can be hire as android developer in companies.

Semester VI Paper CS603-T Theory of Computation

CO1: After completion of this students understand the concept of set theory regular expression.

CO2: Students are able to solve the problem related to finite automata and respective languages.

CO3: Students understand the formal language and chsk classification languages and their related automata.

Semester VI Paper CS604-T Advanced Computer Graphics

CO1: To provide comprehensive introduction about computer graphics system, design algorithms and two dimensional transformations.

CO2: To make the students familiar with techniques of clipping, three dimensional graphics and three dimensional transformations.

CO3: The computer graphics course prepares students and gives the job opportunities for activities involving in design, development and testing of modeling, rendering, shading and animation.

Semester VI Paper CS605-T Advanced Prog. With PHP

CO1: PHP is widely used and most demandable scripting language on the web. PHP is a very popular scripting language which is specially designed for skilled website development.

CO2: PHP’s extensions offer unmatched functionality in comparison to any other web scripting language available, which has been made available by countless developers bringing together a significant collection of open-source software from around the web.

CO3: Here both the internal and external testing is being done of the software by using some conventional applications from both the side client as well as server. As well as we can test web applications also.
CO4: After completion of this course one can be hire as web developer in companies.

Semester VI Paper CS608-T Ethics and Cyber Law

CO1: Students identify and analyze statutory, regulatory, constitutional, and organizational laws that affect the information technology professional.
Students locate and apply case law and common law to current legal dilemmas in the technology field.
CO2: Students apply diverse viewpoints to ethical dilemmas in the information technology field and recommend appropriate actions.
CO3: Students distinguish enforceable contracts from non-enforceable contracts.
CO4: Students demonstrate leadership and teamwork.
CO5: Students identify and analyze statutory, regulatory, constitutional, and organizational laws that affect the information technology professional.
Students locate and apply case law and common law to current legal dilemmas in the technology field.

COs: MA URDU

M. A. I Year Semester I Paper I (Code 401) Ghazal

CO1: Understand and write Urdu Ghazals.
CO2: Gain knowledge about the Poets and their life and contributions.
CO3: Gain about the history and development of Urdu language.

M. A. I Year Semester I Paper II (Code 402) Afsaana

CO1: Learn about Afsane ki asnaf and afsane ki ajzai tarkeeb.
CO2: Get motivated to become short story writers.
CO3: Learn about short stories after taraqqi pasand tehreek.

M. A. I Year Semester I Paper III (Code 403) Tanqeed

CO1: Know the importance of Criticism in Urdu literature and its different kinds.
CO2: Learn how to become a good critic.
CO3: Learn about Socrates and Aristotle and their criticism.

M. A. I Year Semester I Paper IV (Code 421) Daastan

CO1: Gain knowledge about ancient literature, trade and culture.
CO2: Gain knowledge about the cultures through literature in other languages.
CO3: Learn about Arabic and Persian ancient culture and literary styles.

M. A. I Year Semester II Paper V (Code 404) Nazm

CO1: Learn about asnafe nazm and jaded nazm ki ibtedaa.
CO2: Learn about maghribi literature se aai hui nazm, free and blank verse.
CO3: Learn about Urdu Poets and get inspired to write their poetry.

M. A. I Year Semester II Paper VI (Code 405) Novel

CO1: Learn about beginning of novel writing in Urdu.
CO2: Learn about novelists like Deputy Nazeer, Premchand, Hadi Ruswa.
CO3: Learn about translated novels from other languages.

M. A. I Year Semester II Paper VII (Code 406) Drama

CO1: Learn about Drama and their different forms.
CO2: Get motivated to become Drama and dialogue writers.
CO3: Learn about Imtiaz Ali Taj and his drama Anarkalee.

M. A. I Year Semester II Paper VIII (Code 426) Special study Iqbal

CO1: Learn about poetry of Iqbal.
CO2: Learn about Qitta nigari.
CO3: Learn about patriotic poetry.

M. A. II Year Semester III Paper IX (Code 501) Qaseeda

CO1: Learn about Qasida.
CO2: Learn about Mohammad Rafi Sauda aur Ibrahim Zauq ke Qasaid ka mutaala.
CO3: Learn about Qasida nigari ke zawaal ke asbab.

M. A. II Year Semester III Paper X (Code 502) Marsiya

CO1: Learn about Qasida and Marsiya.
CO2: Learn about Sauda and Zauq Qasaid and Anees and Dabir ke Marsiye.
CO3: Learn about Meer, Anees aur Mirza Dabeer ke marsiyon ka mutaala.

M. A. II Year Semester III Paper XI (Code 503) Maktoob aur Inshaiya

CO1: Learn about Maktoob – the techniques of letter writing.
CO2: Learn about various types of letters.
CO3: Learn about Inshaiye ka irteqa, Josh, Haali, Khaja Hasan Nizami ke inshaiyon ka mutaala.

M. A. II Year Semester III Paper XII (Code 522) Daccani Adab

CO1: Learn about Qutaub Shahi daur, Bahmani daur.
CO2: Learn about Wali, siraj, Mulla Wajih, Ghawaasi ke kalaam.
CO3: Learn about Qadeem Shora aur Nasr nigar ka tafseeli mutaala.

M. A. II Year Semester IV Paper XIII (Code 504) Masnavi

CO1: Learn about Masnavi, Ghazal and Ilm e Bayaan.
CO2: Learn about most important Masnavi Sahrul Bayaan, Gulzare Naseem written by Mir Hassan Dehelvi and Daya Shankar Naseem.
CO3: Learn about Sahrul Bayan aur Gulzare Naseem ka mawazana.

M. A. II Year Semester IV Paper XIV (Code 505) Khaka aur savane

CO1: Learn about Qakah and Savanneh.
CO2: Become good autobiography writers.
CO3: Learn about Maulvi Abdul Haq, Rasheed Ahmed Siddiq.

M. A. II Year Semester IV Paper XV (Code 506) Tanz o Meeza

CO1: Learn about Urdu adab mein tanz o meeza ki riwayat.
CO2: Learn about tanz o meeza mein (Awadh Panch ki khidmaat).
CO3: Learn about Pitras, Farhatullah Baig, Kanhaiyalal Kapoor.

M. A. II Year Semester IV Paper XVI (Code 527) Special study Sir Syed

CO1: Learn about Aligarh Tehreek.
CO2: Learn about Nasr e Jadeed.
CO3: Learn about Sir Syed and Haali ki Jadeed Nasr.

M. A. II Year Semester IV (Code 442) Service course

CO1: Know about Urdu adab ki tareeq.
CO2: Learn about afsaana ‘tuba teksingh’ (Monto).
CO3: Learn about Masnavi ‘Gulzare Naseem’ (Daya Shankar Naseem).

COs: MA ENGLISH

MA I Year Paper I Semester I (Literature in English 1550-1798)

CO1: The students will acquaint with the development of English literature during the Elizabethan Age.
CO2: Enlightened about different social, political and literary characteristics of this age.
CO3: They will be introduced to culture, thought, literary trends and movement of Elizabethan age through the prescribed texts.
CO4: This period was a time of peace in Great Britain and that is reflected in the dramas of Shakespeare and the metaphysical poetry of Donne and Sydney. The input of *Paradise Lost* will help the learner with enough knowledge so as to analyse the contemporary politics.

Paper I Semester II (Literature in English 1550-1798)

CO1: The students will understand the political and literary background of the Restoration Period.

CO2: They will be enlightened about literary trends of this age especially the reasons for closing down of theatres and the decline of drama.

CO3: To introduce and acquaint the learners with culture, thought, literary trends and movement of Restoration period through the prescribed texts.

CO4: This period saw a change in the leadership in England which was reflected in the literature. The learners will be able to discern a change in the texts of Goldsmith, Sheridan and Fielding. A connection will be developed in the learner regarding political thought through texts like *Absalom and Achitophel* and *Culture and Anarchy*.

Paper II Semester I (Literature in English 1800-2000)

CO1: The students will understand the literary works in English during the literary period of 1800-2000.

CO2: They will be exposed to the theories and the major genres of literature that emerged during this period.

CO3: They will understand the process of critically analysing the major genres in literature through exposure to poetry, prose, fiction and dramas of period.

CO4: They will be acquainted with the theory and characteristics of Romanticism. Influential writers and poets like Shelley, Keats, Ruskin, Austen and G. B. Shaw provide wealth of knowledge to learners.

Paper II Semester II (Literature in English 1800-2000)

CO1: The literature of Modern and Post-modern period will develop a brilliant understanding of contemporary culture in the students and bring a desirable change in their thought-process.

CO2: Students will be acquainted with the theories of Modernism and Post-modernism along with important features of the literature of this period.

CO3: The students will cultivate the ability to look beyond the common mundane and understand the chaos in the world through a study of post-war writers like T.S Eliot and Samuel Beckett.

CO4: They will learn Nativism and cultural aspects in literature through the literary texts of Chinua Achebe and R.K. Narayan.

Paper III Semester I (Structure of Modern English)

CO1: The students will be able to recognize their errors in speech and writing.

CO2: They will understand the ambiguous nature of English.

CO3: They will improve their speaking ability both in terms of fluency and comprehension.

CO4: Students will achieve a good vocabulary.

CO5: They will develop a love for language and its idiom.

Semester II (Structure of Modern English)

CO1: They will understand the etymology of English.

CO2: Attain thorough knowledge of suffix and prefix.

CO3: Trained in writing skills through writing exercises like drafting report and formal and informal letters.
CO4: Acquire the ability to make presentation and participate in group discussions.
CO5: Gain the ability to write short research papers and present them in class seminars.

Paper IV Semester I Colonial and postcolonial literature

CO1: The students will understand the process of colonisation and its impact on the colonised people.
CO2: They will be acquainted with the literature written in different parts of the world during the period of colonisation and post colonisation.
CO3: They will be introduced to the theory of colonial and postcolonial literature, resistance and representation.
CO4: They will understand the political, social and cultural ambivalence that resulted in the aftermath of colonialism.

Semester II Colonial and postcolonial literature

CO1: They will understand the consequences of colonialism on the culture, society and religion of colonised countries.
CO2: Gain an insight into the indigenous cultures and how they were influenced by colonialism.
CO3: They will be acquainted with major post colonial writers like Chinua Achebe, Naipaul and Thiongo.
CO4: They will understand how English language was introduced in colonised countries and the gradual waning of local languages as a consequence through writers like Achebe.
CO5: They will understand how the use of English by writers of colonised countries became a means of "answering nack" to the white masters.

MA II year Paper V Semester III (Critical Theory)

CO1: The learners are introduced to modern critical schools that influence literary productions.
CO2: To enhance the learners understanding of multi-dimensional and multidisciplinary nature of literary texts of recent time.
CO3: They will be acquainted with the intrinsic, extrinsic complexities and the sharp dichotomies in socio-political and cultural situations.
CO4: The expert guidance of literary theories of structuralism, post-structuralism, feminism and political theory of post-modernism will open to students to some critical elements in their chosen field of study.

Paper V Semester IV (Critical Theory)

CO1: The learners will be inculcated with the various facets involved in the multidisciplinary fields of literary and cultural studies.
CO2: The course also attempts to sharpen the intellectual sensibility of the learners with the confrontations of the multifaceted critical and intellectual positions of the theoreticians.

CO3: The learners will be acquainted with the corollaries of the various shifts in the literary and cultural relations and connotations in contemporary time.
CO4: A novel view of post-colonial, cultural and political theories around the world envision the learners not just as students of literatures but as citizens of a pluralist society.

Paper VI Semester III (Indian Writings in English)

CO1: The students will be introduced to the Indian Writers in English as the course deals with the literary forms of Indian Writing in English.
CO2: The learners will be familiarized with the texts and its nuances to study critically, analytically and logically.
CO3: Poet Mehrotra and writers like Manto, Ghosh and Elkunchwar give a unique perspective of India in their works which will shape the student's sensibility.
CO4: The theories put forth by Verma and Ahmed in their works greatly enhance the analytical prowess of the learners.

Paper VI Semester IV (Indian Writings in English)

CO1: The students are introduced to poets, dramatist, fiction and non-fiction prose and novel writers of Indian origin.
CO2: The students get acquainted with the history of Indian sub-continent, they get an awareness of perspective of Indian writers also of the current scenario of Indian writing.
CO3: Poetess Meena Alexander and writer Gigoo through their works enlighten the learners on the complex nature of the Indian society. *Asura,* a mythological text urges the learners to question the basic belief systems of Indian society.
CO4: The learners will be made aware of the political and social structure of the developing societies like India, through the texts of the writers such as Ramchandra Guha and Devy.

Paper VII Semester III English Language Teaching

CO1: Students will understand the development of history of English Language Teaching.
CO2: They will understand the various approaches and methods of English language Teaching.
CO3: Understand the importance of English and its status as an international language.
CO4: Develop an awareness of the problems of teaching English in India, the status of English as a second language and the practice of bilingualism.

Paper VII Semester IV English Language Teaching

CO1: They will understand what is remedial teaching.
CO2: Acquainted with ICT classrooms and the tools of ICT learning.
CO3: Gain knowledge about how to teach prose, poetry, drama and fiction.
CO4: Identify various teaching techniques and also the creative use of language.
CO5: The students will be trained in practical skills in reading, writing and reasoning

Paper VIII-E Semester III (Major Form- Fiction)

CO1: To familiarize the learners with various trends and movements in fiction.
CO2: Students will understand fiction and how it reflects the society and acts as the social barometer.

CO3: The novels of D.H. Lawrence and George Orwell will give an overview of how literature took gradually shifted towards Modernism.
CO4: The study of Richard Wright and Vladimir Nabokov will clarify any queries the learners might have in regard to the changes in literature and society as it entered the era of modernism.

Paper VIII-E Semester IV (Major Form- Fiction)
CO1: To help the learners develop the basic understanding of the genre's literary history, especially important shifts in styles and themes.
CO2: Reading Fiction from the other countries will help the students to see new things in life, the similarities and differences between day to day lives of the characters and themselves. Also sometimes these characters can be a source of inspiration for the learners.
CO3: The fictional works of Salman Rushdie and Angela Carter will apprise the learners about the elementary changes which took place in the post-modern literary texts.
CO4: The learners will also be introduced with new cultural aspects as they are taught writers such as Chinua Achebe and Toni Morrison.

COs: M.Sc. CHEMISTRY

M.Sc. I Year Semester I Paper CHE-101 Analytical Chemistry
CO1: Understand role of analytical chemistry in various fields.
CO2: Discuss basic separation techniques.
CO3: Explain different chromatographic techniques.
CO4: Explain the concept of HPLC.

Paper CHE-102 Inorganic Chemistry
CO1: Understand concept of symmetry operations and elements.
CO2: Apply the knowledge of symmetry concept for determining the point group of molecules.
CO3: Explain reaction mechanism of transition metal complexes.
CO4: Explain factors affecting stability constant.
CO5: Discuss the function of essential and trace element in biological system.

Paper CHE-103 Organic Chemistry
CO1: Explain the nature of bonding in organic molecules.
CO2: Explain the structure and reactivity of organic reaction.
CO3: Differentiate and identify isomers.
CO4: Explains effect of conformation on reactivity by studying stereochemistry.
CO5: Explain the SN^1, SN^2 and SE^1, SE^2 reaction mechanism.

Paper CHE-104 Physical Chemistry
CO1: Understand ionic equilibria and thermodynamics of biochemical reactions.
CO2: Understand collision theory and can determine rates of reactions.
CO3: Explain concept of fugacity and determination of fugacity.
CO4: Describe the concept of surface chemistry.
CO5: Explain the concept of Electrochemistry and polarography.

Semester II Paper CHE-205 Spectroscopic method of analysis

CO1: Understand interaction of radiation with matter.
CO2: Understand spectroscopic technique of analysis.
CO3: Explain concept and application of microwave spectroscopy.
CO4: Discuss the concept of Raman and Vibrational spectroscopy.
CO5: Distinguish between atomic and molecular spectroscopy.
CO6: Discuss photoelectron spectroscopy.
CO7: Explain the Principle and applications of UV-Vis, IR and NMR spectroscopy.

Paper CHE-206 Inorganic Chemistry

CO1: Students are able to determine spectroscopic term symbols.
CO2: Explain electronic spectra and magnetic properties of metal complexes.
CO3: Discuss preparation, properties, structure and bonding in metal carbonyls.
CO4: Explain the significance of metal nitrosyls for the life of living animals.
CO5: Describe the theory of metal-ligand bonding in complexes.

Paper CHE-207 Organic Chemistry

CO1: Explain the mechanism of organic substitution reactions.
CO2: Discuss the mechanism of addition reactions involving electrophile and nucleophile.
CO3: Explain mechanism of named organic reactions and elimination reactions.
CO4: Describe classification of solids on the basis of shapes and bonding.
CO5: Explain the mechanism of rearrangement reactions.

Paper: CHE-208 Physical Chemistry

CO1: Discuss the properties of quantum mechanical operators.
CO2: Explain the selection rule and spin orbital coupling.
CO3: Solve the numerical problems of phase rule.
CO4: Classify solids on the basis of shapes and bonding.
CO5: Explain the principle and mechanism photochemical reactions.

M.Sc. II Year Semester III Paper CHEO-313 Structural elucidation by spectral methods

CO1: Explain principles of ^{1}H NMR, ^{13}C NMR and Mass Spectroscopy.
CO2: Discuss elucidation of structure by Mass spectroscopy.
CO3: Define the principle of ESR and Mossbauer spectroscopy and its applications.
CO4: Solve the numerical problems of UV, NMR, IR and Mass spectroscopy.
CO5: Apply the knowledge of spectroscopy for structure elucidation.
CO6: Explain the different spectral methods for structure elucidations of newly synthesized compounds.

Paper CHEO-314 Organic Synthesis

CO1: Explain concept of oxidation and various oxidative reagents.
CO2: Describe the concept of reduction and various reductive reagents.
CO3: Identify the reagents that cause selective and complete reduction.
CO4: Describe the important stereochemical like chiral reagents and catalysts.

CO5: Suggest methods for selective synthesis of simple organic compounds.
CO6: Prepare organic compounds using advanced synthetic methodology.
CO7: Identify suitable reagents for selective transformations.
CO8: To describe the organometallic reaction mechanisms and its applications.

Paper CHEO-315 Asymmetric synthesis and Bio-organic chemistry

CO1: Explain the concept of bioorganic chemistry, molecular recognition.
CO2: Describe aspects of enzyme chemistry; enzyme models, chiral recognition.
CO3: Explain mechanism of reactions catalyzed by co-factors.
CO4: Explain asymmetric hydroxylation and asymmetric reactions.
CO5: Discuss the different aspects of supramolecular chemistry.

Paper CHEO-316 Photochemistry, Free radicals and Pericyclic reactions

CO1: Describe Pericyclic reactions and cycloaddition reactions.
CO2: Explain the mechanism of electrocyclic reactions.
CO3: Describe stereochemical problems in relation to chemical transformations.
CO4: Describe the Photochemical excitation and electrocyclization.
CO5: Discuss the mechanism of sigmatropic reactions by different methods.
CO6: Explain the study of photochemistry of ketone-photo reduction-photo cycloaddition.
CO7: Explain concept of Free radical reactions.

Semester IV Paper CHEO-417 Organic Synthesis: Retro-synthetic Approach

CO1: Explain retrosynthetic analysis with some examples.
CO2: Describe basic chemo-, regio- and stereochemical concepts.
CO3: Discuss the concept of one-, two-group C-C bond disconnections.
CO4: Discuss about protecting and deprotecting groups in organic synthesis.
CO5: Describe ring synthesis via retrosynthetic approach.
CO6: Explain the utility of retrosynthesis in complex molecules and natural products.

Paper CHEO-418 Advanced Organic and Heterocyclic Chemistry

CO1: Describe mechanism of rearrangements and name reactions.
CO2: Explain nomenclature of hetero-cycles.
CO3: Classify simple heterocyclic aromatic compounds as electron deficient or electron rich and explain their reactivity based on these properties.
CO4: Explain on a mechanistic level, reactions and synthesis of important electron deficient nitrogen containing heterocycles; pyridines, diazines and their benzo-condenced analogs.
CO5: Synthesize heterocyclic compound.

Paper CHEO-419 Chemistry of Natural Products

CO1: Describe the classification, nomenclature and structure elucidation of terpenoids and carotenoids.
CO2: Define and explain structure, stereochemistry and synthesis of alkaloids.
CO3: Explain isoprene rule.
CO4: Discuss the nomenclature and general methods of structure determination of flavones and anthocyanins.
CO5: Elucidate the structure of natural products.

CO6: Explain the chemistry of steroids.
CO7: Describe plant pigments and Biogenesis.

Paper CHEO-420 Medicinal Chemistry

CO1: Describe methods of drug development including design and discovery.
CO2: Design a chemical synthesis.
CO3: Describe the sources of drug compounds.
CO4: Explain the relationship between drug's chemical structure and its therapeutic properties.
CO5: Describe the factors that affect its absorption, distribution, metabolism, and excretion, and hence the considerations to be made in drug design.
CO6: Explain classification of drugs.
CO7: Predict drugs properties based on its structure.