Don Bosco College, Tura

Program Outcome

Program Specific Outcome

Course Outcome

Contents

Program Outcome (PO) of BSc

PO1. Have critical thinking, scientific temperament, scientific attitude, aptitude and logical reasoning, enquiring mind, analytical skills and problem solving ability.

PO2. Engage in the scientific process of drawing inference based on observations and experimentation, hypotheses formulation, synthesize scientific information, gather and analyze data, apply statistical techniques and draw conclusions.

PO3. Should have good practical knowledge in the relevant subject and should have laboratory oriented skills.

PO4. Should be able to use Information Technology.

PO5. Should possess effective communication skills, soft skills and presentation skills.

Program Specific Outcome (PSO) of BSc Botany

PSO1. Botany is a scientific study of plant life. It ignites a passion in the students to love an outdoor environment and stimulates their interest in exploring a variety of landscape and terrains to interact with plants.

PSO2. The basic knowledge of Botany will help the students in areas of Agriculture by making them aware of the planting and cultivation techniques to improve efficiency and effectiveness of growing crops.

PSO3. Botany plays a critical role in many areas of life. The scientific study of medicinal plants called Ethnobotany contributes to development of new medicines and treatment of major diseases.

PSO4. Botany also provides employment opportunities for the students in Agriculture, Horticulture, Forestry and Genetic Engineering.

PSO5. The experimental techniques in Botany helps the students to develop a deep sense of curiosity, critical observation, keenness to reach to the root of the problem and discover the truth which is a basic foundation of scientific temper and train them to become future scientists.

COURSE OUTCOME (CO) OF BSC BOTANY

COURSE NAME: ALGAE

CO1. Study of Algae will boost the knowledge of undiscovered algal importance of the ocean and rivers.

COURSE NAME: BRYOPHYTES

CO1. The study will enhance the basic knowledge of Bryophytes and its importance in succession and ecological development.

COURSE NAME: PTERIDOPHYTES

CO1. It enhances the basic knowledge of pteridophytes and its utility.

COURSE NAME: GYMNOSPERMS

CO1. It imparts the knowledge of Gymnospermic plants and its significance in plant kingdom.

COURSE NAME: PALEOBOTANY

CO1. The study of fossils shows the history of plants and its evolution.

COURSE NAME: MORPHOLOGY AND ANATOMY

CO1. The morphology and anatomical study of plants give the basic knowledge of the external and internal structures of plants.

COURSE NAME: ANGIOSPERM TAXANOMY

CO1. The flowering kingdoms of plants have been studied which will give a basic foundation in identifying the unidentified majority of plants.

COURSE NAME: ECONOMIC BOTANY

CO1. It gives direct boost to the cultivation methods and usages of plants in the line of food, beverages, drugs & medicines and various industrial usage.

COURSE NAME: ETHNOBOTANY

CO1. It enhances the knowledge of students to understand the traditional usage of plants used traditionally by local people.

COURSE NAME: PHYTOGEOGRAPHY

CO1. This study gives an overall knowledge of distribution of plants based on the conditions of types of soil, rainfall, temperature, topography and other climatic conditions.

COURSE NAME: MICROBIOLOGY

CO1. It gives the knowledge of microorganisms and its economic importance.

CO2. This will have scope for research and development.

COURSE NAME: MYCOLOGY

CO1. The study of fungi and its importance as in food, medicine and health care can be achieved.

COURSE NAME: PLANT PATHOLOGY

CO1. The study of various disease of plants i.e., casual organisms, pathogens, life cycles, control measures will give knowledge for agriculture and horticulture and entrepreneurship development.

COURSE NAME: PLANT PHYSIOLOGY

CO1. The anatomy and functions of different organs of plants have been studied which will enhance basic knowledge of the growth and development of the plants.

COURSE NAME: BIOCHEMISTRY

CO1. The study of chemical processes within and relating to living organisms in the fields of molecular genetics, protein science and metabolism will boost research scope in higher studies.

COURSE NAME: ECOLOGY AND CONSERVATION BIOLOGY

CO1. The branch of biology that deals with the relation of the organisms to one another and to their physical surroundings which will increase the knowledge of strategy of conservation biology to fight against global warming and shortage of food, medicines etc.

COURSE NAME: GENETICS

CO1. The study of hereditary and variations of inherited characteristics and genetic properties & features of plants, characteristics etc. have been carried out.

CO2. It has scope for research and higher studies.

COURSE NAME: PLANT BREEDING

CO1. The basic techniques of plant breeding and enhancements of quality and quantity of plants have been studied, which will have direct impact for the production of food values.

COURSE NAME: MOLECULAR BIOLOGY

CO1. The branch of biology that deals with the structure and function of the macromolecules essential to life has been studied.

CO2. This will give the foundation for research and higher studies.

COURSE NAME: PLANT REPRODUCTIVE BIOLOGY

CO1. The study of both sexual and asexual reproduction of plants has been carried out which will help in agriculture, gardening, entrepreneurship development and conservation biology.

COURSE NAME: PLANT BIOTECHNOLOGY

CO1. The exploitation of biological processes for industrial and other purposes for manipulation of genetic organisms, mass propagation of plants, disease free plants, haploid plants etc. for the various agricultural and industrial productions.

CO2. Cryopreservation and conservations of plants has been studied.

Program Specific Outcome (PSO) of BSc Chemistry

PO1. The chemistry faculty will strive to maintain a quality program in which faculty are knowledgeable in the subject matter being taught, including current research areas, and are enthusiastic about working with students at the undergraduate levels.

PO2. The chemistry faculty continues to review the curriculum to ensure that it is rigorous, logically sequenced, and reflective of the current state of the field.

PO3. Students graduating with a B.Sc. degree in chemistry should be proficient in the basic skills of chemistry. They should

a. have a functional knowledge of all basic areas of chemistry (analytical, organic, physical, inorganic, and biochemistry).

b. be able to integrate their knowledge from each of these areas with critical thinking skills in order to become problem solvers.

c. be proficient in the chemistry laboratory, especially with respect to the abilities to

- follow and understand general laboratory practice guidelines, including safety.
- perform qualitative chemical analyses.
- perform chemical synthesis.
- understand and use modern chemical instrumentation.

d. be able to clearly articulate scientific information, both orally and in writing.

e. be able to effectively use the scientific literature.

f. have gained research experience via participation in a capstone research project.

PO4. Students graduating with a B.Sc. degree in chemistry will be prepared for entry into professional schools, graduate programs, or the job market.

PO5. B.Sc. students graduating with a chemistry certification will have a chemistry background that will allow them to be highly effective teachers at the secondary level.

COURSE OUTCOME (CO) OF BSC CHEMISTRY

COURSE NAME: CHEM EH 101: PART - A INORGANIC-I, ORGANIC-I & PHYSICAL-I THEORY

CO1. Inorganic Theory (Section-A): Comprises Fundamental atomic structure and the periodicity of elements in the periodic table, Simple quantum mechanical treatments of atoms and molecules, Fundamental ideas of nucleus and radioactivity, how to predict the molecular geometries, shape and structures of molecules using VSEPR theory, Basic ideas of covalent bonding, ionic bonding, bonding in metals, semiconductors and hydrogen bond with specific examples and applications.

CO2. Organic Theory (Section-B): Students are to learn basics of Organic Chemistry which deals with structure, bonding and properties and also basics of Organic Stereochemistry. In chemistry of Alkanes, cycloalkanes, Alkenes, Alkynes and Aromatic Hydrocarbons, students get basic ideas on the various aspects and versatility of these componds.

CO3. Physical Theory (Section-C): comprises of gaseous state-I, liquid sate-I, solid state-I and Chemical Kinetics which gives basic ideas on the various properties of gases, liquid, solids and reaction kinetics, thus helping the students develop a critical thinking on the various topics included in these units. It also helps students to develop numerical problem solving skill.

COURSE NAME: CHEM E 101: PART - B PRACTICAL (ORGANIC LC-I)

CO1. Comprises of Organic qualitative analysis-which gives basic idea about the composition of an Organic compound and the functional group present in it.

COURSE NAME: CHEM H 101: PART - B PRACTICAL (ORGANIC LC-I)

CO1. Comprises of Organic qualitative analysis and it gives basic idea about the composition of an organic compound and the functional group present in the compound.

CO2. Students further authenticate it by making a derivative and comparing with the melting point chart of various organic compounds.

COURSE NAME: CHEM EH 201: PART - A INORGANIC-II, ORGANIC-II & PHYSICAL-II THEORY

CO1. Inorganic Theory (Section-A): Deals with basic concepts of qualitative and quantitative analysis, redox reactions, theory of indicators and thus making student aware of defination of oxidation, reduction, oxidising agents and reducing agents according to classsical electronic concept and oxidation number concept. Students also get to know about some concepts of metallurgy and industrial chemistry of fertilizers and cement.

CO2. Organic Theory (Section-B): Here students get to learn about substitution reactions, elimination reactions, alkyl halides and aromatic halogen compounds and also alcohols, phenols, aldehydes and ketones which give basic ideas about the properties of these Organic compouds and their reactions.

CO3. Physical Theory (Section-C): comprises of Thermodynamics-I, macrmolecules, thermochemistry, adsorption and surface phenomenon. These topics help students to understand the meaning of various terms and processes of thermodynamics, characteristics and properties of polymers, along with basic concepts on thermochemisty and adsortion.

COURSE NAME: CHEM EH 201: PART - B PRACTICAL (PHYSICAL LC-I)

CO1. Comprises of experiments based on thermochemistry, solubility of a given salt and to find out molecular weight of a given substance. These topics help students to develop a better understanding on the theory of thermochemistry.

COURSE NAME: CHEM EH 301: PART - A INORGANIC-III, ORGANIC-III & PHYSICAL-III THEORY

CO1. Inorganic Theory (Section-A): Comprises of s-, p-, d- & f- Block elements, which stand as the backbone in understanding chemistry and periodic properties like Atomic and Ionic size, Ionization Energy, Electron Affinity, Electronegativity. Also make the student understand some of the most important preparation with reaction and structure of some of the important inorganic compounds belonging to s, p, d & f Block.

CO2. Organic Theory (Section-B): Students to learn various aspects of carboxylic acids and their derivatives, organometallic compounds and active methylene compounds here with their applicaions in synthetic organic chemistry and also comprises of Nitro Compounds, Amines and Diazo Compounds which gives basic ideas about the qualitative aspects of Organic compouds with various functional groups and their reactivity.

CO3. Physical Theory (Section-C): Comprises of Thermodynamics-II, chemical equilibrium, dilute solutions and colloids which provides knowledge on various equations of thermodynamics; equilibrium constants; to understand laws and properties of dilute solutions and colloids. Also learn problem solving approach to the above topics.

COURSE NAME: CHEM EH 301: PART - B PRACTICAL (INORGANIC LC-I)

CO1. In this paper students learn analytic techniques of inorganic salts and find their individual components.

COURSE NAME: CHEM EH 401: PART - A INORGANIC-IV, ORGANIC-IV & PHYSICAL-IV THEORY

CO1. Inorganic Theory (Section-A): Students learn to 1) define and classify organometallic compounds, its synthesis, properties, nature of bonds, structure, and application of organometallic compounds of lithium and magnesium. 2) General properties of inorganic polymers and its distinction from organic polymers and synthesis of some important inorganic polymers. 3) Interhalogens and their reactivity with examples and 4) Co-ordination Chemistry which is the main research area of present day inorganic chemistry.

CO2. Organic Theory (Section-B): Here the chapters carbohydrates, amino acids, urea and drugs help students to learn their detailed chemistry, properties and applications in organic synthesis. Also the chapters comprising Heterocyclic

Compounds-I, Fats, Oils, Soap, Detergents and dyes give basic ideas about the chemistry and utility of many compounds of everyday use to students.

CO3. Physical Theory (Section-C): It includes ionic equilibrium, Electrochemistry and phase equilibria which help students in understanding various theories and laws of ionic equilibrium, electrochemistry and phase equilibria.

COURSE NAME: CHEM EH 401: PART - B (INORGANIC LC-II)

CO1. This practical paper helps students to learn inorganic quantitative analysis skills of estimating ions present in a salt.

COURSE NAME: CHEM H 501: INORGANIC-V THEORY

CO1. Students are able to identify the symmetry elements and symmetry operations in molecules and also their point group.

CO2. In Complexometric titrations, students are to understand the theory and perform practicals; learn to analyse error, accuracy and precision in a chemical analysis and to reject data by using various tests. Students also learn the chemistry of using organic reagents in inorganic synthesis with reference to some of the very basic reagents used in inorganic analysis.

CO3. In Nucleus and Radioactivity-II chapter, students to learn about radioactive decay and their causes, application of radioisotopes and also about nuclear reactors.

CO4. In Crystal Field Theory students learn about d-orbital splitting by electrostatic field and adjusted CFT and Molecular Orbital Theory.

CO5. In Magnetochemistry students learn about the magnetic properties of different elements and some of their compounds.

COURSE NAME: CHEM H 502: ORGANIC-V THEORY

CO1. In Polynuclear Aromatic Hydrocarbons students learn about structures and properties of these compounds and in chapter Peptides, Proteins and Vitamins students get to know about structures, synthesis and properties of these compounds.

CO2. In the chapter Organic Stereochemistry-II students learn about modern day nomenclature of organic stereo isomers and also about the conformations and stability of cyclohexane and substituted cyclohexane molecules. Students also get to know the basics of dienes and polymers in the respective chapters.

CO3. In the chapters Introduction to Organic Synthesis and Rearrangements, students learn about the basics of synthesis of carbon-carbon bonds and many Name Reactions.

CO4. Chapter Heterocyclic compounds-II, students get to know about structures, synthesis and properties of some polynuclear heterocyclic compounds, Green Chemistry delivers basic knowledge of green chemistry, its techniques and usefulness. In Inorganic reagents in Organic Synthesis students develop idea of using some inorganic reagents in synthesizing various organic compounds.

COURSE NAME: CHEM H 503: PHYSICAL-V THEORY

CO1. The paper Comprises of gaseous state-II, physical properties and molecular structure, solid state-II, chemical kinetics-II and molecular spectroscopy.

CO2. These topics helps students to further develop a greater understanding on various laws, properties and equation of gaseous, liquid and solid states.

CO3. Students are introduced to complex equations and thereby develop better problem solving capability on various topics of chemical kinetics.

COURSE NAME: CHEM H 504: PART - A PRACTICAL (ORGANIC LC-II)

CO1. In this practical paper students are to learn skills of organic synthesis and organic mixture separation techniques.

COURSE NAME: CHEM H 504: PART - B PRACTICAL (PHYSICAL LC-II)

CO1. It comprises of experiments to determine surface tension and viscosity of given liquids, to determine the partition coefficient and critical solution temperature of liquid mixtures and verification of Beer-Lambert's law.

CO2. These topics are directly related to the topics in theory portion and thus help students to develop greater understanding of these topics.

COURSE NAME: CHEM H 601: INORGANIC-VI THEORY

CO1. In Organometallic Chemistry-II, students are made to understand the synthesis, properties, nature of bonds, structure and application of organometallic compounds.

CO2. The aim of the Bioinorganic Chemistry course is to enable students to rationalize the essential roles of the inorganic elements in biology.

CO3. The chapters Spectroscopic Methods in Inorganic Chemistry and Reactivity of Coordination Compounds, enables the students to learn the theory and applications of some techniques for inorganic and coordination compounds using UV-Visible and IR spectroscopy.

CO4. The purpose of the course Nanomaterials is to introduce the students to the concept of nanotechnology and also provide an overview about the wide applications of nanotechnology in various technological fields.

COURSE NAME: CHEM H 602: ORGANIC-VI THEORY

CO1. In the final semester chapters of Natural Products, Topics in Biological Chemistry and Organic Photochemistry Students learn chemistry of terpenoids, alkaloids, enzymes and nucleic acids and also about organic photochemical reactions.

CO2. Chapters comprising of Pericyclic Reactions and Spectroscopy for Structural Analysis give basic ideas about electrocyclic reactions, cycloaddition reactions and also about identification of synthesized organic molecules by various spectroscopic methods.

COURSE NAME: CHEM H 603: PHYSICAL-VI THEORY

CO1. In Chapters Thermodynamics-III and Electrochemistry-III, introduce students to the idea of mathematical and thermodynamic probability and greater knowledge on electrochemistry is imparted resulting in critical thinking and better problem solving approach

CO2. The chapters Elementary Quantum Mechanics and Boltzmann Distribution enable students to gain basic concepts on these topics and also help in understanding various laws, theories and postulates of quantum mechanics and Boltzmann distribution.

COURSE NAME: CHEM H 604: PART - A PRACTICAL (INORGANIC LC-III)

CO1. This practical paper deals with inorganic quantitative analysis of inorganic mixtures and students develop skills to find their exact compositions.

COURSE NAME: CHEM H 604: PART - B DISSERTATION

CO1. Here students learn to prepare themselves with detailed information on various relevant topics of Chemistry and present seminar on the selectedtopic.

Program Specific Outcome (PSO) of BSc Mathematics

PSO1. To develop advanced knowledge and understanding relevant to Mathematics.

PSO2. To provide students with a broad understanding of calculations and their knowledge of formulae.

PSO3. To introduce students to the wide range of Mathematical concepts both abstract and applied.

PSO4. To demonstrate to students the wide range of solutions that mathematics has to deal with their problems, both analytic and brief.

PSO5. To provide students with the intellectual skills of thinking “what”, “why” and “how” when they face a problem.

PSO6. To enable students to undertake a quantitative and qualitative approach to acquiring, analyzing and interpreting data.

PSO7. To foster the development of students as critical, mature and independent individuals.

PSO8. To enhance students’ employability particularly for a career in Mathematical Science and for relevant post-graduate study.

PSO9. Demonstrated a broad understanding of mathematical diversity, including knowledge of the scientific classification and relationships/link of different units of mathematics.

PSO10. Recognized the relationships between structure and functions at different levels of courses.

PSO11. Characterized the numerical, geometrical, and intellectual features of mathematics.

PSO12. Understood the applied mathematics or pure mathematics such as statics, dynamics, coordinate geometry and calculus for their career opportunities.

COURSE OUTCOME (CO) OF BSC MATHEMATICS

COURSE NAME: PAPER – I ALGEBRA-I & CALCULUS – I

Students will be able to learn

CO1. Set operations, empty set, disjoint sets, De Morgan's laws, Venn diagrams; power sets, cartesian products, cardinality results.

CO2. Relation as a subset of cartesian product (notation: xRy if (x,y) Є R); relation on a set: reflexive, symmetric, anti-symmetric, transitive; examples from geometry and number systems; equivalence relation and equivalence classes; partitions.

CO3. Functions and graphs: real valued functions such as polynomials, rational functions, logarithmic functions, exponential functions, hyperbolic functions.

CO4. Limits, e - δ definition, standard theorems on limits, standard limits; continuity : Intuitive idea, e - δ definition, theorems on sum, difference, product, quotient and composite of continuous functions; discussion of continuity of the functions mentioned earlier and their composites.

CO5. Brief review of functions/mappings, inclusion map; restriction of a map; composition of maps; associativity; onto, one-one, bijective maps; inverse images of sets, inverse of a bijective map; finite and infinite sets; Proof of " if A is a finite set then f : A ® A is one-one if and only if f is onto"; examples where this assertion does not hold.

CO6. A brief review of m x n matrix over R/C as a rectangular array of numbers (motivation through systems of linear equations); transpose, conjugate transpose; definition of inverse of a matrix; special type of matrices: diagonal, scalar, upper/lower triangular, nilpotent, idempotent, symmetric, skew symmetric, hermitian, skew hermitian matrices; trace of a square matrix; row vectors and column vectors of a matrix; row rank/column rank of an m x n matrix (in terms of linear independence of row/column vectors of the matrix).

CO7. Adjoint of a matrix; inverse in terms of adjoints; determinantal rank of matrix; equality of rank and determinantal rank; Elementary operations; elementary matrices; row/column reduced echelon form of a matrix; determination of the inverse of a matrix by elementary operations.

CO8. Determination of the rank by elementary operations.

CO9. Systems of linear equations: homogeneous and non-homogeneous.

CO10. Properties of continuous functions defined on closed and bounded intervals: (statements with illustrations only for the following) boundedness, intermediate value theorem, uniform continuity.

CO11. Derivatives of real valued functions on intervals: definition; Derivative as a rate measurer, derivative as the gradient of tangent (geometrical interpretation only); Theorems on sum, difference, product, quotient and composite of differentiable functions.

CO12. Review of methods of differentiation; successive differentiation; Liebnitz's theorem; L'Hospital's Rule (statements only with applications).

CO13. Anti-derivative: review of the standard methods; integration by parts and by partial fractions.

CO14. Integral of a continuous function as the limit of Riemann sum (including sums arising out of unequal distribution of interval); examples of evaluation of integrals from the definition.

CO15. Definite Integrals, fundamental theorem of integral calculus and differentiability of integrals of continuous functions (statements with illustrations only) properties of definite integral, evaluation of integrals using these properties.

CO16. Reduction formulas for ∫sinnxdx, ∫cosnxdx, ∫tannxdx, ∫eaxsin(mx)dx, ∫eaxxndx, ∫e^{ax}(logx)ndx, ∫sinnxcosmxdx and their combinations.

CO17. Improper integrals, convergence and evaluation from definition.

CO18. Formation of differential equations; equations of first order and first degree; solutions by separation of variables, by substitution; homogeneous equations; linear equations; Bernoulli's equation; exact equations; reduction to exact form by integrating factors.

CO19. Differential equations of first order but higher degrees; Clairut's equation and singular solution.

CO20. Geometrical interpretation applications of first order differential equations to geometric and physical problems (simple cases only) including orthogonal trajectories'.

COURSE NAME: PAPER – II GEOMETRY & VECTOR CALCULUS

Students will be able to learn

CO1. Change of axes – invariants.

CO2. Pairs of straight lines; general equation of second degree; the standard form; reduction of the general equation to standard form.

CO3. Conditions for different conics; General conics : equations of tangents, normals, pairs of tangents, chord of contact, chord in terms of middle points, pole, polar, conjugate lines, diameter , asymptotes.

CO4. Polar equation, equation of a conic, directrix, chord, tangent and normal; parabola, ellipse, hyperbola; conjugate diameters of ellipse and hyperbola; rectangular hyperbola; conjugate hyperbola.

CO5. Space co-ordinates: rectangular, cartesian, cylindrical, spherical, and polar; equation of planes; angle between two planes; perpendicular distance of a point from a plane.

CO6. Equations of straight lines in space; co-planarity of two straight lines; perpendicular distance of a point from a straight line; shortest distance between two straight lines in space.

CO7. Sphere – plane section and its equation; sphere through a given circle; tangent plane; pole and polar plane; intersection of two spheres.

CO8. Equation of a cone with a conic as a guiding curve; enveloping cone; mutually perpendicular generators; tangent planes; reciprocal cone; right circular cone.

CO9. Equation of a cylinder with a conic as a guiding curve; right circular cylinder.

CO10. Products (scalar and vector products) of two, three and four vectors – properties, geometrical significance and applications.

CO11. Vector valued functions (up to 3 variables); derivatives of such a function of a single variable; properties and geometrical applications; arc length, unit tangent vector; curvature, normal vector; derivatives of scalar and vector products.

CO12. Velocity and acceleration in cartesian co-ordinates, radial and transverse accelerations on smooth curves (simple problems only), tangential and normal components of velocity and acceleration.

CO13. Directional derivatives, gradient of a scalar- valued function, tangent planes; vector fields, curl and divergence of a vector field, Physical and geometrical interpretation and elementary properties.

COURSE NAME: PAPER – III ALGEBRA II & CALCULUS – II

Students will be able to learn

CO1. Binary operations as maps from A x A ® A,commutative and associative binary operations; identities and inverses (one-sided as well as two sided); examples; groups: definition; examples of groups such as Z, Q, R, C, Q*, R*, C*, Zn, Sn, M2(R), GL2(R), R2, R3, nth roots of unity etc; laws of indices in both additive and multiplicative notation; right and left cancellation laws; uniqueness of identity and inverses; group tables of groups of low order (up to 8).

CO2. Subgroups: examples; cyclic subgroup generated by an element; cyclic group; abelian group; subgroups of cyclic groups. Determination of all subgroups of Z.

CO3. Order of an element; examples of elements of coset with finite order; of infinite order; coset with respect to a subgroup in a group; cosets as equivalence classes; Zn as cosets; Lagrange's theorem and its applications; groups of prime order; Fermat's (little) theorem; Euler's generalizations; application to simple number theoretic problems.

CO4. Polynomials over Z / Q / R / C ; addition and multiplication; degree of a polynomial; degree of sum and product of polynomials; the division algorithm; remainder theorem; gcd; the Euclidean algorithm; irreducible polynomials; application of Eisenstein’s theorem; unique factorisation theorem; roots of a polynomial; factor theorem; fundamental theorem of algebra (statement only); its failure for polynomials over Z / Q / R ; simple tests of irreducibility of polynomials with rational / integer coefficients; detailed study of roots of a polynomial with real coefficients: immediate consequence of the fundamental theorem of algebra; multiple roots, common roots, complex roots, surd roots.

CO5. Relation between roots and coefficients of a polynomial; symmetric function of the roots of a polynomial equation with special reference to cubic and biquadratic

equations; transformation of equation; Descartes' rule of signs – simple applications; location of roots using Rolle's theorem; solution of a cubic by Cardan's method; De Moivre's theorem – application to solution of equation.

CO6. Sequences of real numbers: definitions of bounded sequence, convergent sequence, limit of a sequence, monotonic sequence; examples; proof of the fact that monotonic and bounded sequences are convergent (using completeness of R as an axiom); Cauchy sequence; Cauchy's general principle of convergence.

CO7. Infinite series of real numbers: partial sums, convergent series, comparison test, ratio test, Raabe's test, root test; absolute convergence; Leibnitz's theorem for alternating series; power series; radius of convergence (without the notion of limit superior), standard examples of power series.

CO8. Application of differential calculus: Sign of the derivatives of a real valued function of a real variable, vanishing of f¢(x); Rolle's theorem; geometric interpretation, mean value theorems; applications of the mean value theorems: (i) increasing and decreasing functions, (ii) concavity upwards and downwards, (iii) points of inflections, multiple roots. use of differentials in approximation and error estimates; maxima and minima; asymptotes; curvature of plane curves (cartesian and parametric equations only).

CO9. Real-valued functions of two or three variables: limits; continuity; partial derivatives of first and second orders; Schwarz's theorem (statement only); differentials; chain rules; Euler's theorem on homogeneous functions, proof upto three variable case.

CO10. Location of roots of f¢(x), proof of the fundamental theorem of integral calculus; Taylor's and Maclaurin's theorem with Cauchy's form of remainders; Taylor's and Maclaurin's series; expansion of standard functions such as ex, sin x, cos x, log (1+ x), $(1 + x)^n$.

CO11. Applications of integral calculus: determination of (i) areas under simple plane curves, (ii) lengths of simple plane curves, (iii) volume and surface areas of solids of revolution in standard cases. Evaluation of line integrals (in a plane); double integrals; change of order of integration; application in determination of area, volume (simple cases only).

COURSE NAME: PAPER – IV STATICS & DYNAMICS

Students will be able to learn

CO1. Composition and resolution of forces; parallelogram of forces, Components and resolved parts, Coplanar forces: Equilibrium of concurrent forces.

CO2. Triangle of forces, Lami's Theorem and its converse.

CO3. Parallel forces.

CO4. Moment of a force; Definition, geometrical representation of Moments, Varignon's Theorem.

CO5. Couples; definition, equilibrium of Couples, Equivalence of two Couples, Resultant of Couples, Resultant of a couple and a force.

CO6. Reduction of coplanar forces, equilibrium of coplanar forces.

CO7. Friction: laws of statical friction, laws of limiting friction, solution of problems on equilibrium of heavy bodies (such as uniform rods) resting on plane surfaces.

CO8. Centre of gravity: c.g. of thin uniform rod, uniform lamina, triangular lamina and lamina in the form of a parallelogram and trapezium.

CO9. Rectilinear motion with variable Laws of forces; Force of repulsion varying as displacement, Motion under inverse square Law, Motion of a particle attracted towards the centre of the Earth. Motion under other laws of forces, simple harmonic motion; velocity and acceleration, Amplitude, Time-period.

CO10. Collision of elastic bodies; direct and oblique impact, Loss of Energy due to collision, impulsive action between colliding spheres.

CO11. Projectiles; Horizontal Range, Time of flight, Greatest height, position and velocity at any time, path of a projectile is a parabola.

CO12. Rectilinear motion in resisting media on a horizontal plane where resistance varies as (i) velocity, (ii) square of velocity, (iii) displacement; vertical motion under gravity where resistance varies as (i) velocity, (ii) square of velocity.

CO13. Tangential and normal acceleration on smooth curves, radial & transversal acceleration, motion on a smooth plane curve such as vertical circles and cycloids.

CO14. Impulse and Impulsive force, conservation of linear momentum. Work done by a force; work energy equation; potential function; conservative forces.

COURSE NAME: PAPER – V ELEMENTARY NUMBER THEORY & ADVANCED ALGEBRA

Students will be able to learn

CO1. Divisibility in the set of integers; basic properties; the division algorithm; gcd; elementary properties; the Euclidean algorithm; lcm; primes (in the set of natural numbers); fundamental theorem of arithmetic; Euclid's proof of the infinitude of primes; arbitrary gaps in the distribution of primes; Congruences in the set of integers modulo a positive integer; basic properties; complete residue system; reduced residue system; Euler's φ - function; Fermat's theorem; Euler's generalization of Fermat's theorem; applications, Wilson's theorem.

CO2. Solution of congruences; linear congruences; Chinese remainder theorem; congruences of higher degree modulo a prime. Some functions of Number Theory-- Greatest integer function; elementary properties; Arithmetic functions; multiplicative functions; functions such as $\varphi(n)$, $\mu(n)$, $t(n)$, $s(n)$, $sk(n)$.

CO3. Normal subgroups, examples; conditions for a subgroup to be normal; center of a group; examples; quotient group; homomorphism, kernel and image of homomorphism, isomorphism of groups – examples and elementary properties. Fundamental theorem of group homomorphism; isomorphism theorems; automorphisms; inner automorphisms; examples; rings (motivation through Z) : definitions and examples of (i) rings with identity, (ii) commutative rings, (iii) rings with and without zerodivisors, integral domains, (iv) division rings (v) fields (examples to include Zp, integers mod p , fields Q, R, C, polynomial rings

R[x], matrix rings Mn(R)); basic properties of rings; characteristic of rings; finite integral domains; (Zp as an example); Subrings; ideals: right, left and two-sided; generated by a subset, more specifically by a finite number of elements in a commutative ring with 1; principal ideals; examples of ideals in Z, Zn Mn(R); prime ideals, maximal ideals in a commutative ring with 1; examples; quotient ring, Zn as a quotient ring.

CO4. Principal ideals; examples of ideals in Z, Zn Mn(R); prime ideals, maximal ideals in a commutative ring with 1; examples; quotient ring, Zn as a quotient ring. Ring homomorphisms; kernels; isomorphism; homomorphisms and isomorphism theorems including the correspondence theorem; determination of ideals in Zp ; divisibility in integral domains (with 1); units, associates, prime elements, irreducible elements, gcd, Euclidean domain, principal ideal domain, unique factorization domains – definition, examples and basic results.

CO5. Vector spaces (motivation through R2, R3) – examples, basic properties; subspaces; homomorphisms or linear maps between vector spaces; isomorphisms; standard homomorphism and isomorphism theorems; direct sum (internal and external); linear dependence and independence; basis, dimension; vector space axioms for the set L (V, W) of linear maps from V to W; rank and nullity of a linear transformation; "rank + nullity = dimension" theorem. Matrix-representation of linear transformations; similar matrices, change of basis theorem (without proof, statement only and its application); equality of rank of a linear transformation and rank of the associated matrix.

COURSE NAME: PAPER – VI DIFFERENTIAL EQUATIONS & ADVANCED DYNAMICS

Students will be able to learn

CO1. Linear equations of second and third order with constant coefficients – complementary functons and particular integrals for xneax, eaxsin(mx), eaxcos(mx), xnsin(mx), xncos(mx); equations of type a1 x2 y″ + a2 x y′ + a3 y = f (x).

CO2. Linear differential equations of second order with variable coefficients; homogeneous equations; exact equations; transformation of the equation by changing the dependent variable/the independent variable, Normal form Method of variation of parameters.

CO3. Simultaneous equations; total differential equation Pdx + Qdy + Rdz = 0.

CO4. Partial differential equation. Formation of equation, solutions of linear equations of first order, Lagrange's methods.

CO5. Non linear partial differential equations of first order- Standard forms I, II, III & IV. Integral surfaces passing through a given curve, orthogonal surfaces, non-linear equations of first order, Charpit's method.

CO6. Motion on a rough curve; the cycloid and its dynamical properties: cycloidal motion with resistance.

CO7. Central forces, Central orbit; Centre of force; motion of a particle under a central force; description of a central conic under a central force; use of reciprocal polar coordinates; stability of a nearly circular orbit.

CO8. Use of pedal coordinates and pedal equations; apse; apsidal distance; apsidal angle; perihelion and aphelion; Kepler's laws of planetary motion and its deductions; a more accurate form of the third law.

CO9. Moments and products of inertia; uniform rod, a rectangular lamina, a parallelepiped, a circular ring and disc; theorems of parallel and perpendicular axes about a fixed axis; principal axes (only definition), vector angular velocity of a rigid body; vector angular momentum of a rigid body about a fixed point, principal axes; kinetic energy of a rigid body rotating about a fixed point; momental ellipsoid; equimomental systems; coplanar distributions; general motion of a rigid body.

CO10. Motion of a rigid body in two-dimensions; Problems illustrating the laws of motion, mtion of a uniform solid circular cylinder down a rough inclined plane; motion of a circular hoop on a rough inclined plane; laws of conservation of angular momentum; problems illustrating the laws of conservation of angular momentum.

CO11. The law of conservation of energy; problems illustrating the law of conservation of energy; Impulse of a force; problems illustrating impulsive.

COURSE NAME: PAPER – VII ADVANCED CALCULUS

Students will be able to learn

CO1. Riemann integral of functions of one variable; Darboux's theorem (statement and application); conditions for integrability; classes of bounded and integrable functions; properties of integrable functions; inequalities for integrals; functions defined by integrals; their continuity and differentiability; Mean value theorems for integrals. Improper integrals; test for convergence when the integrand is non-negative; absolute convergence; tests for absolute and conditional convergence, beta and gamma functions; Abel's theorem, Dirichlet's theorem; Frullani's integral.

CO2. Integrals as functions of parameters; continuity, differentiability and integrability of such a function; applications to evaluation of integrals, Improper integrals as functions of a parameter; uniform convergence and tests for uniform convergence; continuity, differentiability and integrability of uniformly convergent improper integrals of continuous functions involving parameters; evaluation of integrals.

CO3. Line integral in R2; Riemann integral of real valued functions of two variables; evaluation of double integrals – change of order of integration; change of variable and simple problems; Green's theorem in R2, Surface Integral and Stokes Theorem, Volume integral and Gauss's divergence theorem (statements and applications only).

CO4. Basic properties of Euclidean distance function in Rn; neighbourhoods, open sets, closed sets, limit points, interior points in Rn (n = 1, 2, 3); Bolzano-Weierstrass theorem; Cantor intersection theorem (nested interval); Lindelof covering theorem. Compact sets; Heine-Borel theorem; equivalent statements; study of maps from subsets of Rn ® Rm (m, n = 1, 2, 3): continuity, in terms of Є-δ notation; in terms of inverse images of open and closed sets; elementary

properties of continuous functions; continuous functions on compact sets; special cases of continuous real valued functions on closed, bounded intervals of R: bounds.

CO5. Intermediate value theorem; uniform continuity; discontinuities of real valued functions; monotonic functions; continuity of the inverse of a strictly monotonic function. Rm -valued functions of two or three variables (m = 1, 2, 3); partial derivatives; directional derivatives; total derivative, Jacobian; change in the order of partial derivatives, statements of Young's Theorem, Schwarz's Theorem and their applications, differentiation of composite functions; chain rule.

Program Specific Outcome (PSO) of BSc Physics

PSO1. At the conclusion of the program, the students will have a basic knowledge of the different branches of Physics and will be able to apply appropriate theories to solve simple problems of physical nature.

PSO2. The broad branches of Physics in which the students will have elementary understanding are Mechanics, Optics, Waves and Acoustics, Electromagnetism, Electrodynamics, Electronics, Thermal physics, Atomic and Nuclear Physics, Solid State Physics, Mathematical Physics, Quantum Mechanics and a few other specialized fields like Lasers, Cosmic Ray Physics, Digital electronics and Communications, etc.

COURSE OUTCOME (CO) OF BSC PHYSICS (SYLLABUS 2015)

COURSE NAME: PAPER – I MECHANICS, OPTICS, ACOUSTICS

CO1. Basic concepts of inertial and non-inertial frames, central forces, system of many particles and relativity; intermediate level concepts in rigid body mechanics and fluid mechanics.

CO2. Intermediate level concepts in optics which consist of topics like Fermat's principle, general theory of image formation, aberration in images and optical instruments from geometrical optics and interference of light, diffraction of light, polarization and dispersion of light from physical optics.

CO3. Basic concepts of sound and acoustics.

COURSE NAME: PAPER – II ELECTROMAGNETISM, ELECTRONICS – I

CO1. Basic concepts of Electromagnetism including calculation of electric field and potential, Gauss' law, Biot-Savart law and magnetostatics.

CO2. Application of concepts like Kirchhoff's laws and Thevenin's theorem in electric circuits.

Concepts of alternating current circuits like LR, CR and LCR.

CO3. Concepts of current rectification, Faraday's law and Maxwell's equation.

CO4. Concepts in electronics like working of diodes, transistor, amplifier, oscillators and logic gates.

COURSE NAME: PAPER - II PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of mechanics, optics, electric current and earth's magnetism.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – III THERMAL PHYSICS, WAVES

CO1. Introductory concepts kinetic theory of gases and transport phenomenon and the laws of thermodynamics, basic ideas of liquefaction of gases, black body radiation and phase space.

CO2. Elementary concepts of simple harmonic motion, damped and forced oscillations, waves in different media, vibrating strings and Fourier analysis.

CO3. Introductory ideas of quantum mechanics including uncertainty principle and Schrodinger equation.

COURSE NAME: PAPER - III PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of mechanics, thermal physics and optics.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – IV ATOMIC, NUCLEAR AND SOLID STATE PHYSICS

CO1. Fundamentals of the atomic theory including atomic structure, various types of mass spectrograph, x-rays and laser.

CO2. Fundamentals of the nuclear theory including radioactivity, nuclear fission and fusion and introductory topics on Cosmic rays and elementary particles.

CO3. Basic concepts of solid-state physics viz. crystal structure and diffraction through them, free electron theory of solids, magnetic properties of materials and superconductivity.

COURSE NAME: PAPER - IV PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of electric current, electronics and magnetism.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – V MATHEMATICAL PHYSICS, QUANTUM MECHANICS

CO1. Elementary topics in mathematical physics viz. matrices, curvilinear co-ordinates, vectors, tensors, complex analysis, transcendental functions like the gamma, beta, Legendre and Hermite polynomials and partial differential equations.

CO2. Introductory concepts in quantum mechanics like wave packets, postulates, Schrodinger equation, various quantum mechanical operators and their expectation values, solution to Schrodinger equation and quantum mechanical treatment of angular momentum.

COURSE NAME: PAPER - V PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of thermal physics, mechanics and optics.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – VI ELECTRODYNAMICS, ELECTRONICS-II

CO1. Slightly more advanced topics in electrodynamics like differential form of Gauss'law, Poisson and Laplace's equations, Maxwell's equations, polarization and polarization vector electromagnetic Potentials and electromagnetic waves.

CO2. Concepts in electronics in continuation to their earlier knowledge like different types of transistors viz. FET, BJT, JFET and MOSFET; operational amplifiers and their applications; various types of oscillators;

CO3. Digital signals, Boolean algebra and Logic families and basic ideas of communication systems.

CO4. Introduction to FORTRAN-77 programming: data types, executable and non-executable statements, loops and conditionals.

COURSE NAME: PAPER - VI PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of optics, atomic physics and electronics.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – VII CONDENSED MATTER PHYSICS

CO1. Slightly more advanced topics in thermodynamics including Maxwell's relations and Joule- Thomson cooling; statistical mechanics and probability including Gaussian, normal and Poisson's distribution and also Liouville's theorem, probability distribution, microcanonical, canonical and grand canonical ensembles.

CO2. Maxwell-Boltzmann statistics and quantum statistics of Bose-Einstein and Fermi-Dirac CO3. Advanced topics of solid state physics including lattice vibrations.

CO4. Free electrons in metals, Hall effect and continuation of theoretical treatment of band theory, magnetism and type I and type-II superconductivity and BCS theory.

COURSE NAME: PAPER - VII PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of electronics.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PAPER – VIII ATOMIC AND MOLECULAR SPECTROSCOPY, NUCLEAR PHYSICS

CO1. Slightly advanced topics in atomic physics like the vector atom model, its application in two electrons system, the Stern Gerlach experiment, Zeeman effects and their explanation.

CO2. Elementary concepts in molecular spectroscopy like rotational, vibrational and electronic spectra and an introduction to Raman, UV and IR spectroscopy.

CO3. Slightly advanced topics in nuclear physics like B-E curve and its explanation, theories of alpha, beta and gamma decay, nuclear reactions and artificial radioactivity.

CO4. Higher concepts of cosmic rays and elementary particles.

COURSE NAME: PAPER - VIII PRACTICAL

CO1. The students will be able to learn experimentation in physics in areas of electronics, solid state physics and programming in FORTRAN-77 language.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE OUTCOME (CO) OF BSC PHYSICS (SYLLABUS 2020)

COURSE NAME: PHY01 (T): MATHEMATICAL PHYSICS-I, MECHANICS, WAVES AND ACOUSTICS

The students will be able to learn

CO1. Elementary topics in mathematical physics viz. vectors, vector calculus and ordinary differential equations in one variable.

CO2. Basic concepts of inertial and non-inertial frames, central forces, system of many particles and relativity; intermediate level concepts in rigid body mechanics and fluid mechanics.

CO3. Elementary concepts of simple harmonic motion, damped and forced oscillations, waves in different media, vibrating strings and Fourier analysis.

CO4. Basic concepts of sound and acoustics.

COURSE NAME: PHY02 (T): ELECTROMAGNETISM, ELECTRONICS – I

The students will be able to learn

CO1. Basic concepts of Electromagnetism including calculation of electric field and potential, Gauss' law, Biot-Savart law and magnetostatics.

CO2. Application of concepts like Kirchhoff's laws and Thevenin's theorem in electric circuits. Concepts of alternating current circuits like LR, CR and LCR.

CO3. Concepts of current rectification, Faraday's law and Maxwell's equation.

CO4. Concepts in electronics like working of diodes, transistor, amplifier, oscillators and logic gates.

COURSE NAME: PHY02 (P): EXPERIMENTAL PHYSICS-I

CO1. The students will be able to learn experimentation in physics in areas of basic mechanics, electricity and magnetism.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PHY03 (T): THERMAL PHYSICS, OPTICS

The students will be able to learn

CO1. Introductory concepts kinetic theory of gases and transport phenomenon and the laws of thermodynamics, basic ideas of liquefaction of gases, black body radiation and phase space.

CO2. Intermediate level concepts in optics which consist of topics like Fermat's principle, general theory of image formation, aberration in images and optical instruments from geometrical optics and interference of light, diffraction of light, polarization and dispersion of light from physical optics.

CO3. Introductory ideas of quantum mechanics including uncertainty principle and Schrodinger equation.

COURSE NAME: PHY03 (P): EXPERIMENTAL PHYSICS-II

CO1. The students will be able to learn experimentation in physics in areas of thermal physics, optics and electricity.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PHY04 (T): ATOMIC, NUCLEAR AND SOLID STATE PHYSICS

The students will be able to learn

CO1. Fundamentals of the atomic theory including atomic structure, various types of mass spectrograph, x-rays and laser.

CO2. Fundamentals of the nuclear theory including radioactivity, nuclear fission and fusion and introductory topics on Cosmic rays and elementary particles.

CO3. Basic concepts of solid-state physics viz. crystal structure and diffraction through them, free electron theory of solids, magnetic properties of materials and superconductivity.

COURSE NAME: PHY04 (P): EXPERIMENTAL PHYSICS-III

CO1. The students will be able to learn experimentation in physics in areas of electricity, atomic physics and quantum mechanics.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PHY05 (T-A): MATHEMATICAL PHYSICS-II, QUANTUM MECHANICS-II

The students will be able to learn

CO1. Elementary topics in mathematical physics viz. matrices, curvilinear co-ordinates, vectors, tensors, complex analysis, transcendental functions like the gamma, beta, Legendre and Hermite polynomials and partial differential equations.

CO2. Introductory concepts in quantum mechanics like wave packets, postulates, Schrodinger equation, various quantum mechanical operators and their expectation values, solution to Schrodinger equation and quantum mechanical treatment of angular momentum.

COURSE NAME: PHY05 (T-B): CLASSICAL MECHANICS, ELECTRODYNAMICS, STATISTICAL PHYSICS, ENERGY SOURCES

The students will be able to learn

CO1. Slightly more advanced topics in electrodynamics like differential form of Gauss' law, Poisson and Laplace's equations, Maxwell's equations, polarization and polarization vector electromagnetic Potentials and electromagnetic waves.

CO2. Maxwell-Boltzmann statistics and quantum statistics of Bose-Einstein and Fermi-Dirac

COURSE NAME: PHY05 (P): EXPERIMENTAL PHYSICS-IV

CO1. The students will be able to learn experimentation in physics in areas of optics, thermal physics and electromagnetism.

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest.

COURSE NAME: PHY06 (T-A): SOLID STATE PHYSICS-II, ELECTRONICS-II AND FORTRAN PROGRAMMING

CO1. Advanced topics of solid state physics including lattice vibrations.

CO2. Concepts in electronics in continuation to their earlier knowledge like different types of transistors viz. FET, BJT, JFET and MOSFET; operational amplifiers and their applications; various types of oscillators;

CO3. Digital signals, Boolean algebra and Logic families and basic ideas of communication systems.

CO4. Introduction to FORTRAN-77 programming: data types, executable and non-executable statements, loops and conditionals.

COURSE NAME: PHY06 (T-B): ATOMIC PHYSICS-II, MOLECULAR SPECTROSCOPY, NUCLEAR PHYSICS-II, ASTROPHYSICS

CO1. Slightly advanced topics in atomic physics like the vector atom model, its application in two electrons system, the Stern Gerlach experiment, Zeeman effects and their explanation.

CO2. Elementary concepts in molecular spectroscopy like rotational, vibrational and electronic spectra and an introduction to Raman, UV and IR spectroscopy.

CO3. Slightly advanced topics in nuclear physics like B-E curve and its explanation, theories of alpha, beta and gamma decay, nuclear reactions and artificial radioactivity.

CO4. Higher concepts of cosmic rays and elementary particles.

COURSE NAME: PHY06 (P): EXPERIMENTAL PHYSICS-V

CO1. The students will be able to learn experimentation in physics in areas of electronics and computational physics (simple FORTRAN programs).

CO2. The students will be trained to handle various instruments and equipment to measure physical quantities of interest and learn computational skills.

Program Specific Outcome (PSO) of BSc Zoology

PSO1. To develop advanced knowledge and understanding relevant to Zoology

PSO2. To provide students with a broad understanding of animals and their interactions with the environment

PSO3. To introduce students to the wide range of animal groups both extant and extinct

PSO4. To demonstrate to students the wide range of solutions that animals have evolved to deal with their environment, both a-biotic and biotic

PSO5. To provide students with the practical skills of conducting research in the laboratory and the field

PSO6. To enable students to undertake a quantitative and qualitative approach to acquiring, analyzing and interpreting data

PSO7. To foster the development of students as critical, mature and independent individuals PSO8. To enhance students' employability particularly for a career in Zoology and for relevant post-graduate study.

PSO9. Demonstrated a broad understood of animal diversity, including knowledge of the scientific classification and evolutionary relationships of major groups of animals.

PSO10. Recognized the relationships between structure and functions at different levels of biological organization (e.g., molecules, cells, organs, organisms, populations, and species) for the major groups of animals.

PSO11. Characterized the biological, chemical, and physical features of environments (e.g., terrestrial, freshwater, marine, host) that animals inhabit. Explained how animals function and interact with respect to biological, chemical and physical processes in natural and impacted environments.

PSO12. Explained how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system. Drawing upon this knowledge, they are able to give specific examples of the physiological adaptations, development, reproduction and behavior of different forms of life.

PSO13. Understood the applied biological sciences or economic Zoology such as sericulture, Apiculture, aquaculture, Industrial microbiology, rDNA technology and medicine for their career opportunities.

COURSE OUTCOME (CO) OF BSC ZOOLOGY

COURSE NAME: SYSTEMATICS, ANIMAL DIVERSITY AND EVOLUTION

CO1. Comes to know about the diversity of animal world and their classification and nomenclature.

CO2. Some relevant examples of vertebrates and invertebrates give input to the understanding of the morpholical and anatomical aspects of the animal world.

CO3. Origin of life pertains to the understanding of evolution learns the morphology and anatomy of specimens of vertebrates and invertebrates in the laboratory.

CO4. Learns to preserve the specimens.

COURSE NAME: CELL BIOLOGY AND GENETICS

CO1. Gains knowledge on the structure and function of cell and its components.

CO2. Gets information about the aspects of classical genetics learns to handle the chromosomes and use microscopes to study them.

COURSE NAME: ANIMAL PHYSIOLOGY, ENDOCRINOLOGY AND BIOCHEMISTRY

CO1. Learns about the physiology in animals specifically in mammals.

CO2. Come to know the biochemical aspects of living organisms get acquainted with some physiological experiments and tests of biochemicals.

COURSE NAME: DEVELOPMENTAL BIOLOGY, ECOLOGY AND ECONOMIC ZOOLOGY

CO1. The students acquire knowledge on the development/embryology of organisms.

CO2. Gets information on the ecological interactions in nature and pollution.

CO3. The students are trained on the economic aspect of zoological studies.

CO4. Practical learning of the developmental processes takes place along with ecological and economic zoological aspects.

COURSE NAME: FUNCTIONAL ANATOMY, ZOOGEOGRAPHY AND ADAPTATION

CO1. Acquires knowledge on the functional aspect of animal forms and their distribution and adaptation in different habitats of the earth.

CO2. The students get the training of dissection and mounting different specimens to gather knowledge about their anatomical features.

CO3. The processes of preservation are learnt in detail.

COURSE NAME: CELL AND MOLECULAR BIOLOGY GENETICS

CO1. Gains in depth knowledge on the cellular components and their interactions at the molecular level.

CO2. Also acquires advanced information on the newer genetical studies.

CO3. Learns advanced chromosomal studies from suitable materials.

CO4. Acquires understanding of the analytical techniques for bio-molecules.

COURSE NAME: BIOCHEMISTRY, ANIMAL PHYSIOLOGY AND ENDOCRINOLOGY

CO1. Higher learning of physiology, endocrinology and biochemistry is acquired in this paper students get exposed to techniques used for estimations of biomolecules, counting of blood cells and also learn the technique of microtomy.

COURSE NAME: DEVELOPMENTAL BIOLOGY, ENVIRONMENTAL BIOLOGY AND BIOTECHNOLOGY

CO1. Advanced learning of development and environment biology is acquired.

CO2. The students get exposed to biotechnology - its various aspects and ramifications.

CO3. Students gathered information on analysis of aquatic communities and their interactions.

Program Outcome (PO) of BCom

PO1. The three year B.Com program enables the students to gain a thorough knowledge in the fundamentals of Commerce and Finance.

PO2. **Problem Analysis:** The all inclusiveness of the course ensures that students are turned upo to date in advanced accountancy. Courses from the introductory level, effective development will also progress to the valuing and organizational levels.

PO3. **Commerce Students and Society:** This equips the students to face the modern day challenges in commerce and Industry. Also enable them to meet the requirements of corporate sector.

PO4. **Ethics:** Apply ethical principles and commit to the professional ethics and norms.

PO5. **Environment and Sustainability:** To understand the impact of responsibility of pursuing the environment and demonstrate the need for sustainable development.

PO6. **Individual and Team Work:** Function effectively as an individual and as member or leader in diverse teams in multi – disciplinary settings.

PO7. **Communication:** Speak, read, write and listen clearly in person and through electronic media in English and Commerce: the six semesters B.Com program enables the students to gain a thorough knowledge in the fundamentals of commerce and Finance.

Program Specific Outcome (PSO) of BCom

PSO1. Able to apply the knowledge gaining during the course of the program from Mathematics, Basic computer, First Basic: language-English, Second Basic: Any one of the following Modern Indian Languages: Garo/Bengali/Hindi.

PSO2. Basic management, Basic Accounting, Basic Income tax, Business Statistics, (A) Finance and Accounting (Hons), (B) Management (Hons), (C) Banking and Insurance (Hons) and Marketing Management (Hons) and Core subjects. Formulate and solve real life problems faced in industries and/or during research work.

PSO3. Able to provide socially acceptable technical solutions accounting and income tax problems with the application of modern and appropriate techniques for sustainable development.

PSO4. Able to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team.

PSO5. Outcome based education emphasizes on: Stating what we have syllabus in B.Com (Honours COURSE) Annual format and semester pattern.

COURSE OUTCOME (CO) OF BCOM

COURSE NAME: BUSINESS ENVIRONMENT BC-101

CO1. To enable the students to have an overview of business environment - political, social and global.

CO2. To impart knowledge on Political Environment –and Government and Business relationship in India.

CO3. To gain knowledge on Social environment, Cultural heritage, social attitudes and impact of foreign culture.

CO4. To know about Economical Environment and planning system with focus on urbanization and Fiscal deficit.

CO5. To understand about Financial and technological Environment, Financial system, Commercial banks, RBI and stock exchange.

COURSE NAME: PRINCIPLES AND PRACTICE OF MANAGEMENT BC-102

CO1. Students learn the fundamentals of management and its extent of application. Scientific management theories are being covered.

CO2. To learn the management function of planning, its importance, forms and different types like policies, procedures, methods etc. Also, the function of decision making is learnt.

CO3. Function of organizing is taught with focus on organization structure, both formal and informal.

CO4. Students learn about the importance of Authority in an organization and requirement of delegation and difference between the two. Importance of coordination with focus on the techniques for effective coordination.

COURSE NAME: FINANCIAL ACCOUNTING BC-103

CO1. Students learn the basics of accounting concepts and preparation of final accounts for Sole proprietorship concern.

CO2. To inculcate the ability to rectify the errors arising at different stages of the Accounting Process.

CO3. Enable the students to prepare Bank reconciliation statements to identify and understand the timing difference between cash book accounting and pass book.

CO4. Students learn the types of depreciation and method of calculating depreciation and accounting treatment for the same.

CO5. Preparation of accounts on Single entry system in small organization along with difference between single and double entry system is covered.

COURSE NAME: BUSINESS ECONOMICS BC-202

CO1. Students learn the fundamentals of business economics and meaning of technical terms associated with economics.

CO2. To know the two key determinates – demand and supply of micro economics.

CO3. To know the meaning of consumer behaviour theory and interpretation of different economists about the theory.

CO4. To understand about theory of production and law of variable proportion.

CO5. To analyze about market structure and role of time elements in price determination.

COURSE NAME: INFORMATION TECHNOLOGY IN BUSINESS BC-203

CO1. Gain familiarity with the concepts and terminology used in the development, implementation and operation of business computer applications.

CO2. Explore various methods where Information Technology can be used to support existing businesses and strategies.

CO3. Investigate emerging technology in shaping new processes, strategies and business models.

CO4. Achieve hands-on experience with productivity/application software to enhance business activities.

CO5. Accomplish projects utilizing business theories, teamwork, Internet resources and computer technology.

CO6. Work with simple design and development tasks for the main types of business systems.

CO7. To introduce the students about basics of MS-Office and to provide practical knowledge exposure to MS-Word.

CO8. To provide practical knowledge exposure to MS-Excel.

CO9. To provide practical knowledge exposure to MS-Power Point.

COURSE NAME: INDIAN FINANCIAL SYSTEM BC-204

CO1. Students are introduced to the basics of banking and the provisions of Banking Regulation Act for opening, closing and functioning of branches.

CO2. Meaning of central bank and the functions of Reserve bank of India along with the qualitative and quantitative techniques used for credit control.

CO3. Primary and secondary functions of commercial banks, process of credit creation and Modern day banking methods – Internet banking, credit cards, debit cards, ECS, RTGS are dealt with.

CO4. Students learn how to open bank accounts and the requirements for the same. Also, importance of customer relations and need for a banking ombudsman in case of dispute are dealt.

CO5. Students learn about negotiable instruments and kinds like Cheques, bills of exchange.

CO6. Structure of Indian Financial System, Its constituents -Investors, market, instruments, services, institutions and regulators, efficiently indicators of financial system.

COURSE NAME: CORPORATE ACCOUNTING (HONOURS GROUP-A) BC-303

CO1. To provide fundamental knowledge about types of shares and methods of issuing shares on par, premium and discount.

CO2. To enhance student learning about accounting treatment adopted for raising funds and redeeming them.

CO3. Fundamentals of redemption of shares and debentures are covered.

CO4. Students will learn the preparation of company final accounts and computation of managerial remuneration.

CO5. To know about valuation of Goodwill and shares and different kinds of valuation of the same.

CO6. Meaning of internal reconstruction and ways of alteration and reduction of share capital are covered.

COURSE NAME: MARKETING MANAGEMENT BC-304

CO1. Students are introduced to the basics of marketing management, market orientation, marketing mix, and functions of marketing management.

CO2. Emerging issues in marketing like business ethics in marketing, cyber marketing, green marketing are covered.

CO3. Students learn about Product mix, product life cycle, its importance, pricing policies and methods to fix pricing.

CO4. The students exhibit strong understanding of the need for segmentation in business and factors influencing the same. Also, niche marketing is introduced as a concept.

CO5. Methods of sales promotion like advertising, salesmanship and ethics in this area are covered.

COURSE NAME: FINANCIAL MANAGEMENT BC-402

CO1. Students are introduced to the concept financial management, its functions and role of finance manager.

CO2. The concept of capital structure planning and factors influencing capital structure are learnt.

Also, various theories of capital structure and leverage concept are dealt with.

CO3. Students learn about the cost of capital and equity and also about preference capital cost and cost of debt. Retained earnings are also introduced to the students.

CO4. Students learn about the dividend policies and factors affecting dividend payment. Also, provision of company law on dividend payment and concepts of bonus issue and rights share are demonstrated.

CO5. The concept of working capital is learnt along with the factors influencing working capital and the determinants to calculate working capital.

COURSE NAME: AUDITING BC-403

CO1. Students learn the importance and kinds of auditing and its application.

CO2. Terminologies like internal control, internal check and audit working paper and audit program and its requirement are being dealt.

CO3. Students understand the process of vouching and its implication in business.

CO4. Students learn the qualification for a company auditor and procedure for his appointment and removal including standard of audit and documentation of various organisations.

CO5. Auditing in computerized environment and its utility in practical business is covered.

COURSE NAME: HUMAN RESOURCE MANAGEMENT BC-404

CO1. To know the fundamentals of Human resource management – functions, scope, challenges, role of HRM.

CO2. Students learn about HR planning – objectives, tools and techniques and terms like Job evaluation, description, and specification and Job analysis.

CO3. Methods of recruitment and selection and sources of recruitment and steps in recruitment are covered.

CO4. Meaning and principles of training, Evaluation and effectiveness of training program are learnt.

CO5. Meaning of performance appraisal, process and methods and latest trends in performance appraisal along with compensation and incentives for employees are covered.

COURSE NAME: ENGLISH (COMPULSORY) BC-501

CO1. The students with a comprehensive knowledge of literature in the form of prose and poetry and also give them hands on training in composition and business communication segment is divided in to three components-the internal, the external and the electronic communications.

CO2. Done it consciously followed the principles and the different scriptures shown the means of attaining virtue.

CO3. Learnt to follow proper dress code and listened advices.

CO4. Students practiced reading skills in the class room. Created interest in reading.

CO5. Made to behave and followed the social expressions. They started using the form of greetings in their daily conversation.

CO6. Wrote the free composition.

COURSE NAME: COST ACCOUNTING BC-502

CO1. Students are introduced to Cost accounting, its objectives and scope, methods and techniques of cost accounting, difference between cost a/c and management a/c.

CO2. Basic elements of costs, classification of overheads, cost sheet, inventory classification are covered.

CO3. Students learn the purpose of material control, its importance and objectives, optimum order quantity, method of pricing – LIFO, FIFO, HIFO etc.

CO4. Meaning of overheads and method of distribution of primary and secondary overhead are covered. Also, machine hour rate calculations are covered.

CO5. Students understand about the concept of process costing along with basics of normal and abnormal loss and methods to ascertain inter process profit.

COURSE NAME: FINANCIAL SERVICES BC-503

CO1. Students are introduced to the concept of financial services, its importance and types of services available.

CO2. Students learn about merchant banking concept and are introduced to capital market. Students learn about stock exchange, its functions and about regulating authority SEBI.

CO3. Students are introduced to diverse forms of financing namely leasing and hire purchase systems. Different types of lease that are practiced are learnt.

CO4. To introduce the students to concepts like factoring, consumer finance, venture capital. Purpose of credit rating and requirement in today scenario are learnt.

CO5. Students learn about insurance and their types like life, marine, fire, motor, health insurance. Also, rules governing the same and the regulating authority IRDA are being covered in this topic.

COURSE NAME: SERVICE MANAGEMENT BC-504

CO1. This unit gives the introductory idea of various service management of various organisations including their types and ethics of services in the content of present scenario.

CO2. This unit gives the knowledge of various services as per the operation and jobs and work management of various organisations and companies.

CO3. This unit gives idea about the marketing services for various organisations and companies including various techniques of marketing strategies in the present marketing promotional activities and branding.

CO4. This unit gives idea about the delivery of various services, their quality, process scopes and including various intermediaries involved in the marketing activities.

CO5. This unit places the upcoming contemporary issues, technology, process, methods and social media emerging in India and abroad.

COURSE NAME: ENVIRONMENTAL STUDIES BC-601

CO1. To learn about the basic of environment and its composition.

CO2. To understand the value of our natural systems and to know how our ecosystems work in the order of nature.

CO3. Students learn what is biodiversity and how to protect and preserve the same.

CO4. Factors causing environmental pollution are being taught to the students.

CO5. Current issues in the society in the environmental context are covered and the effects of human population on environment are being taught.

COURSE NAME: ENTREPRENEURSHIP DEVELOPMENT BC-602

CO1. Basics of entrepreneurship and qualities of entrepreneur and factors influencing entrepreneurship are taught.

CO2. To learn the ways entrepreneurial development can be implemented through various agencies like DIC, NSIC, SIDBI, SIDO, IDBI, IFCI.

CO3. Techniques of business idea generation and business opportunities and preparation of project report are learnt.

CO4. Meaning of entrepreneurial development programs, their role and relevance with achievements and role of government in organizing EDP are dealt.

CO5. Students' gain knowledge on the role of entrepreneur in economic growth and changing approaches in economic scenario for small scale entrepreneurs.

COURSE NAME: DIRECT TAX LAWS & PRACTICE BC-603

CO1. Students learn to calculate short term and long term capital gains and their related deductions.

CO2. To understand the concept of income from other sources like gift, dividend etc and their computation.

CO3. Students' gain knowledge on clubbing of income under 5 heads, transfer of income and calculating remuneration of family members and procedure for set off and carry forward.

CO4. To learn about the permissible deductions from gross total income as per sec 80C to 80 U.

CO5. Basic knowledge on income assessment of individuals, association of persons, and partnership firms as prescribed by IT Act is demonstrated by the students.

COURSE NAME: SMALL ENTERPRISE MANAGEMENT BC-604

CO1. Methods of recruitment and selection and sources of recruitment and steps in recruitment are covered.

CO2. Meaning and principles of training, Evaluation and effectiveness of training program are learnt.

CO3. Students should learn about production concept, production process analysis, production planning and control, plant location and layout, plant maintenance, methods improvement and work specification etc.

CO4. Students to understand about marketing management concept, functions and significance, understanding market and consumer behaviour, demand and sales forecasting and market segmentation etc.

Program Outcome (PO) of BA

Arts stream is the stream of opportunities. It is one stream in which students have the opportunity to pick the domain that appeals most of them. Don Bosco College, Tura, offers some of the key sub-domains of the arts stream which include subjects like literature (English and Garo), History, Economics, Political Science, Sociology, Geography, Education, Philosophy etc. Every subject and sub-domain in the arts stream is vast in nature and covers a diverse array of topics and concepts.

Some of the Programs Outcomes of arts stream are given below:

PO1. To enable the students to understand the nature of the subject that he/she has selected to study.

PO2. A subject like literature (English and Garo being offered in the college) can introduce the students to the literary culture, poetry and its development, fiction, drama etc., with an understanding of the literary satire concerning social and moral issues.

PO3. Political science will enable the students to understand and be able to inter relate the leading theories, literature, approaches, political theory and methods, international relations and comparative politics.

PO4. A study of economics will enable students to understand the basic concepts of economics, analyze economic behavior in practice and the students will also be exposed to the alternative approaches to economic problems through exposure to course work in allied fields.

PO5. A subject like Geography will facilitate the students to know and understand the physical characteristics such as land, climate, oceans and ecosystem pertaining to the surface of the earth. The course will help the students to represent the various population data on maps from census data and learn to study and analyze human elements from topographical maps.

PO6. A subject like education will familiarize the students to understand the nature of educational psychology, educational technology, the role of philosophy and sociology in education, to have an understanding of the evolution of educational system in India, develop competency in solving various statistical problems etc.

PO7. Through History, students will learn the general course of human history in multiple areas of the world, they will learn to understand, analyze and evaluate both evidence and arguments. They will also learn to create knowledge and communicate it to others both orally and in writing.

PO8. A subject like philosophy will help students to explain philosophical texts and positions accurately to identify and apply philosophical research methods consistently. They will also be able to apply their philosophical learning to important public issues and develop their own philosophical areas of interest and investigate them from various perspective.

PO9. Sociology will help students to develop critical thinking through the ability to analyze and evaluate social, political and cultural arguments. They will also be able to demonstrate sociological understanding of phenomena, formulate effective and convincing written and oral arguments.

Program Specific Outcome (PSO) of BA Economics

On completion of BA Economics, students are able to

PSO1. Understand the basic concepts of economics.

PSO2. Analyse economic behaviour in practice.

PSO3. Understand the economic way of thinking.

PSO4. Analyse historical and current events from an economic perspective.

PSO5. Write clearly expressing an economic point of view.

PSO6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.

PSO7. Create students ability to suggest solutions of various economic problems.

PSO8. Provide a well founded education in economics.

PSO9. Provide structured curricula that prepare our graduates for employments and further study as economists.

PSO10. Provide the students with opportunity to pursue courses that emphasize quantitative and theoretical aspects of economics.

PSO11. Provide the students with opportunity to focus on applied and policy issues in economics.

PSO12. Provide programmers to choose from a wide range of economic specialization.

PSO13. Provide a well resourced learning environment for economics.

COURSE OUTCOME (CO) OF BA ECONOMICS

COURSE NAME: ECO ELH- 101: INTRODUCTORY ECONOMIC THEORY

On completion of the course students are able to

CO1. Analyse how buyers & sellers interact in a free & competitive market to determine prices & quantities of goods.

CO2. Use economic thinking to explain choice in a world of scarcity.

CO3. Measure how changes in price & income affect the behavior of buyers & sellers.

CO4. Analyse the relationship between inputs used in production & the resulting outputs & costs.

CO5. Analyse a firms profit maximizing decision under conditions of perfect competition.

CO6. Analyse a firms profit maximizing strategy under conditions of monopoly, oligopoly.

CO7. Explain Price determination of factors.

CO8. Explain National income and how to measure it.

CO9. Distinguish between Classical and Keynesian theories of output and employment and able to explain consumption and saving function, investment function and investment multiplier.

COURSE NAME: ECO ELH- 201: DEVELOPMENT AND ENVIRONMENTAL ECONOMICS

On completion of the course students are able to

CO1. Explain the factors affecting economic growth.

CO2. Understand the difference between growth and development.

CO3. Understand growth theories and apply them in the measurement of inequality.

CO4. Understand the environmental problems and contribute to the desirable social outcomes.

CO5. Explain the role of international trade in the growth of developing countries like India.

CO6. Understand why underdevelopment persists and what helps development succeed.

CO7. Analyse the growth of Chinese economy and compare their situation with the Indian economy.

COURSE NAME: ECO ELH -301: INDIAN ECONOMY

On completion of the course students are able to

CO1. Develop a perspective on the different problems and approaches to economic planning and development in India.

CO2. Analyse the role of the Indian economy in the global context and how different factors have affected this process.

CO3. Know the development process in India after independence.

CO4. Identify and analyse current issues.

CO5. Understand the nature of the Indian economy.

CO6. Know the problems of population and economic development.

CO7. Get exposure to economic data.

COURSE NAME: ECOH-401: MATHEMATICS FOR ECONOMISTS

On completion of the course students are able to

CO1. Learn these mathematical tools with applications in analysis of economic phenomena.

CO2. Solve economic problems using mathematical techniques.

CO3. Apply mathematical methods and techniques that are formulated in abstract settings to concrete economic application.

CO4. Solve simultaneous equation and able to determine when it is possible.

CO5. Use calculus method to calculate limits and graphically illustrate non linear functions.

CO6. Locate maxima and minima for functions of single and several variables and be able to distinguish between them.

COURSE NAME: ECOH-501: ADVANCED ECONOMIC THEORY

On completion of the course students are able to

CO1. Explain the behavior of the consumer in the real market situations.

CO2. Analyse the behavior of the producer and producer's surplus.

CO3. Explain the reasons behind the monopoly power of businessman and how social welfare can be maximized in the real world.

CO4. Describe contemporary banking & monetary system & analyse the role of money, credit & central bank's monetary policy.

CO5. Analyse fiscal & monetary policy decisions to counter business cycle swings by using macroeconomic models.

CO6. Analyse the behavior of the commercial banks and the central bank of the country.

COURSE NAME: ECOH-601: INTERNATIONAL ECONOMICS

On completion of the course students are able to

CO1. Explain the changes in the import-export policies of India.

CO2. Evaluate various types of exchange rates and its merits and demerits.

CO3. Judge the function, merits and demerits of Foreign Capital, and International Corporation (IMF, IBRD, WTO and SAARC).

CO4. Realize the volume, composition and direction of Balance of Trade and Balance of Payments.

CO5. Distinguish between tariffs and quotas and will be able to analyse which is better for a developing country like India.

CO6. Explain why international trade takes place, what are the reasons behind the success in international trade and whether international trade is an engine of economic growth.

COURSE NAME: ECOH-701: STATISTICS

On completion of the course students are able to

CO1. Make data collection and analyse the data according to the need.

CO2. Draw diagrams and graphs on different economic and market activities.

CO3. Analyse the average performance with the knowledge of central tendency, i.e.; mean, median and mode.

CO4. Measure different types of price index, cost of living index and explain the price changes in the economy.

CO5. Explain with the help of time series analysis, the changes in different variables with time.

CO6. Make economic forecasting.

COURSE NAME: ECOH-801: PUBLIC ECONOMICS

On completion of the course students are able to understand

CO1. Evaluate the consequences of Government policy in market.

CO2. Students can compare public & private goods & understand their role in the economy.

CO3. Evaluate the merits and demerits of demonetization in an economy.

CO4. Apply their knowledge to explain whether GST is better than the earlier forms of indirect taxes in an economy.

CO5. Identify the problems of public debt and explain why it is harmful to the economy beyond a certain limit.

CO6. Understand and analyse the budget of the Central and state government and understand the implication of fiscal deficit and budgetary deficit.

Program Specific Outcome (PSO) of BA Education

Students will be able to:

PSO1. Apply psychological theories, concepts and methods to the real life situations and practical problems.

PSO2. Develop a comprehensive knowledge about the theory and practice of education.

PSO3. Use the techniques of mnemonics to improve memory.

PSO4. Familiarize with the legal constitutional provisions of education.

PSO5. Develop knowledge of the structure and functions of the society and the process of social interaction for a change towards better human relationships.

PSO6. Identify, describe and classify the educational thought and practices of Western and Indian thinkers.

PSO7. Familiarize with the concepts of school management, educational planning, educational supervision and inspection.

PSO8. Understand and solve the key issues, problems and trends of areas of philosophy and sociology.

PSO9. Understand the concept of measurement and evaluation as applied to education.

PSO10. Familiarize the students with some quality issues in higher education.

PSO11. Understand the functions, principles and operations of teaching.

COURSE OUTCOME (CO) OF BA EDUCATION

COURSE NAME: PAPER I: EDUCATIONAL PSYCHOLOGY

Students will be able to:

CO1. Apply psychological principles.

CO2. Familiarise with different learning processes.

CO3. Develop knowledge about guidance & counseling.

COURSE NAME: PAPER II: FOUNDATIONS OF EDUCATION

Students will be able to

CO1. Acquaint themselves with the concepts of educational philosophy and educational sociology.

CO2. Identify the heritages sites in India.

CO3. Socialise themselves with various societal skills for a change towards better human relationships.

COURSE NAME: PAPER III: EDUCATIONAL SYSTEM IN INDIA

Students will be able to:

CO1. Understand the educational system from ancient to modern India.

CO2. Identify the problems, issues and challenges in different levels of education.

COURSE NAME: PAPER IV: EDUCATIONAL THOUGHT AND PRACTICES

Students will be able to:

CO1. Identify the major literary movements.

CO2. Know the implications of various innovative practices in education.

COURSE NAME: PAPER V: EDUCATIONAL EVALUATION &STATISTICS

Students will be able to:

CO1. Identify the advantages & limitations of different assessment methods.

CO2. Administer various psychological tests.

CO3. Appreciate & apply the statistical representations in their life.

COURSE NAME: PAPER VI: CONTEMPORARY INDIAN EDUCATION

Students will be able to:

CO1. Draw some knowledge that intervenes at various levels of education.

CO2. Understand the roles played by various bodies in bringing about quality and excellence in education.

CO3. Become aware with some recent trends & issues in education.

COURSE NAME: PAPER VII: EDUCATIONAL TECHNOLOGY

Students will be able to:

CO1. Gain knowledge about the various innovations which can be applied in the field of education.

CO2. Realise & understand the functions of teaching.

CO3. Adopt appropriate teaching skills

COURSE NAME: PAPER VIII: SCHOOL MANAGEMENT

Students will be able to:

CO1. Become aware with procedures of school management.

CO2. State or value the importance of planning in the educational process.

CO3. Acquire the knowledge about the functioning of a school.

Program Specific Outcome (PSO) of BA English

PSO1. To provide a comprehensive guide to English poetry, its development, to familiarise the students with the emergence of the Novel as an art form in the eighteenth century and its successive development throughout the nineteenth and twentieth centuries.

PSO2. To give the students an understanding of the major dramatic works and introduce the students the History of English Literature and to the language component in order to sensitise the student to the formal aspects of the English language.

PSO3. To orient the students with the study of significant texts on criticism and provide them with the necessary in the subject.

PSO4. To provide crucial insights into American literature.

COURSE OUTCOME (CO) OF BA ENGLISH

COURSE NAME: PAPER I: POETRY 1

CO1. The students received comprehensive guide to English poetry, its development, it forms throughout the course.

CO2. The students got familiarised with the most notable poet of the middle ages.

CO3. The students obtained broad understanding of the sonnet, the most popular literary form of the Elizabethan Age.

CO4. The students got acquainted with John Milton's famous pastoral elegy which displays his grand style.

CO5. The students became familiar with the quest motif exhibited by Henry Vaughan.

CO6. The students came to understand the literary satire concerning social and moral issues.

COURSE NAME: PAPER II – FICTION I

CO1. The students got acquainted with Daniel Defoe and the issues in his novels with particular reference to "Moll Flanders".

CO2. The students came to know about Mary Shelley and her novel "Frankenstein" and they got acquainted with the sense of macabre in the novel.

CO3. Students became familiar with Jane Austen's simplified and refined novels.

CO4. The study of the novel Hard Times helped the students acquire knowledge about Charles Dickens and the social conditions during his times.

CO5. By reading the novel "Wuthering Heights" the students got acquainted a Gothic novel.

COURSE NAME: PAPER III – DRAMA

CO1. The students came to know the development of drama from the Elizabethan age to the post war era of the twentieth century.

CO2. The students became familiar with the great comedies and chronicle plays of Shakespeare. The students were enabled to appreciate the artistic work, better plots, greater knowledge of the world and the human nature with which Shakespeare has written.

CO3. The students got acquainted with the revenge – horror tragedy which was popular in Elizabethan England.

CO4. The students came to know about the Restoration drama which is an integral part of the 18th century literature.

CO5. The students came to realize and appreciate Shaw as a prolific dramatist who came to the theatre with a moral purpose.

CO6. The students acquired knowledge about anti-conventional drama that developed in the middle of the twentieth century.

COURSE NAME: PAPER IV: LANGUAGE AND HISTORY OF ENGLISH LITERATURE

CO1. The students got acquainted with the formal aspects of the English language and learned to appreciate the English language, specifically sounds and pronunciations.

CO2. The students got introduced to the History of English Literature.

CO3. The students gained an insight about the contribution of Chaucer with reference the evolution of English poetry or literature which is much more significant than that of his contemporaries and predecessors.

CO4. The students gained basic knowledge of the Renaissance poetry and the characteristics of the Metaphysical poetry of the 17th Century.

CO5. The students got acquainted with the rise of the different genres of English novel.

CO6: The students were enabled to gain insight of modernist poetry and modernism in the Novel.

COURSE NAME: PAPER V: POETRY - II

CO1. The students were able to understand the complexity of the Victorian period, represented by its celebrated poets like Tennyson, Browning and Arnold.

CO2. The students got acquainted with Modern English poetry with special reference to the poems of Yeats, Eliot, Auden and Dylan Thomas.

CO3. The students got introduced to P. B. Shelley as a poet; and got familiarized with his “Ode to the West Wind” in particular.

CO4. The students got introduced to Mathew Arnold as a poet; and got familiarized with his poem “Dover Beach” in particular.

CO5. The students got familiarize d with the Welsh poet, Dylan Thomas, and his use of the autobiographical mode, combined with the registers of time and memory in his poem, “Poem in October”.

COURSE NAME: PAPER VI: FICTION - II

CO1. To acquaint the students with the important works of fiction in the second half of the nineteenth century, and the first half of the twentieth century.

CO2. To introduce the changes that came over the English novel, and to familiarize the students with the important trends in the first half of the twentieth century.

CO3. To acquaint the students with Hardy's philosophy of life as reflected in "The Mayor of Casterbridge".

CO4. To enable the students to gain insight of „romantic realism' in Conrad's "Lord Jim".

CO5. To familiarize the students with D.H Lawrence as a pioneer of the psycho – analytical novel.

CO6. To acquaint the students with Virginia Woolf's use of "The Stream of Consciousness" technique.

COURSE NAME: PAPER VII: LITERARY CRITICISM

CO1. The students gained basic understanding of tragedy as propounded by Aristotle.

CO2. The students learned the difference between ancient and modern drama as set down by Dryden.

CO3. The students became familiarised with the functions of criticism following the essay of Matthew Arnold.

CO4. The students came to understand about Romantic Poetry from the point of view of William Wordsworth.

CO5. The students came to understand the contributions of tradition and individual talents to the general body of art.

CO6. The students gained a better understanding of figures of speech and learned how to apply figures of speech in their writings and speech.

CO7. The students got familiarised with the basic tenets of prosody and learned to do scansion of poems.

COURSE NAME: PAPER VIII: AMERICAN LITERATURE

CO1. The students got introduced to American literature.

CO2. The student s got familiarised with the writing of Edgar Allan Poe.E.

CO3. The students became acquainted with the novel of Mark Twain-"Huckleberry Finn".

CO4. The students were introduced to Ernest Hemingway and got acquainted with his novel "For Whom the Bell Tolls".RA.

CO5. The students were introduced to Arthur Miller and studied his play "Death of a Salesman." TU.

CO6. The students were introduced to some of the most popular American poets like Walt Whitman, Robert Frost, Emily Dickenson and Sylvia Plath. The students got acquainted with some of the poems composed by the above mentioned poets.

Program Specific Outcome (PSO) of BA Garo

After the completion of BA Garo program, the student will be able to:

PSO1. Understand the types of orally transmitted Garo poetry, prose & their characteristics.

PSO2. Understand the themes & styles of modern Garo poets.

PSO3. Comprehend the traditional & modern drama & fiction.

PSO4. Develop knowledge about the proverbs & phrases of Garo language & literature.

PSO5. Apply the features of folklore, folktales & myths practically.

PSO6. Acquaint with the poetries of 20th & 21st century.

PSO7. Equip themselves with the origin & history of Garo language.

PSO8. Acquire in-depth knowledge about literary criticism, compositions & unseen passages.

COURSE OUTCOME (CO) OF BA GARO

COURSE NAME: ELECTIVE PAPER-I (PROSE, TRADITIONAL & MODERN POETRY, RHETORIC & PROSODY)

Students will be able to:

CO1. Learn the importance of various characteristics of Garo poetry and prose.

CO2. Learn the usage of various themes and styles of poetries.

CO3. Understand and apply the devices to be used in poetry.

COURSE NAME: ELECTIVE PAPER-II (TRADITIONAL & MODERN DRAMA)

Students will be able to:

CO1. Understand the difference between traditional and modern drama.

CO2. Apply the knowledge of drama practically.

COURSE NAME: HISTORY OF GARO LITERATURE, PROVERBS, PHRASES & ESSAY

Students will be able to:

CO1. Equip them with the historical background of Garo literature.

CO2. Understand the importance of the usage of proverbs and phrases.

COURSE NAME: MODERN INDIAN LANGUAGE (MIL)

CO1. After reading the prescribed pieces students will be able to understand critically.

COURSE NAME: HONOURS PAPER-IV: PROSE AND FICTION

CO1. Students will be able to understand literary criticism.

COURSE NAME: HONOURS PAPER-V: ORAL NARRATIVES

CO1. Students will be able to comprehend various oral narratives.

COURSE NAME: HONOURS PAPER-VI: POETRY

CO1. Students will be able to widen their knowledge in poetry.

COURSE NAME: HONOURS PAPER-VII: HISTORY OF GARO LANGUAGE & GRAMMAR

CO1. Students will be able to acquire in-depth knowledge of Garo Grammar.

COURSE NAME: HONOURS PAPER-VII: LITERARY CRITICISM & COMPOSITION

Students will be able to:

CO1. Attempt essay writing on unseen topics.

CO2. Use and apply Garo sayings as well as can transmit to the younger generation.

Program Specific Outcome (PSO) of BA Geography

On completion of BA Geography students will be able to

PSO1. Understand the basic concepts of Geography

PSO2. Learn and apply geographical knowledge in real life

PSO3. Learn the art and skill of drawing maps and analyse them.

PSO4. Understand the problems related to Man and Environment and provide solutions.

PSO5. Understand the distribution of various phenomena over the globe

COURSE OUTCOME (CO) OF BA GEOGRAPHY

COURSE NAME: GE 101 PAPER I HUMAN GEOGRAPHY

Part A- Theory:

On completion of the course students will be able to

CO1. know the meaning and nature of geography

CO2. understand the evolution of geographical thought

CO3. know about the distribution of social elements of human beings over the globe

CO4. have an understanding about the spatial distribution of population and its attributes

CO5. understand the different types and patterns of settlements

Part B Practical:

CO6. through practical approaches, the students will know how to use cartographic techniques to represent the various population and socio economic data on maps.

COURSE NAME: GE 201 PAPER II PHYSICAL GEOGRAPHY

Part A Theory: On completion of the course students will be able to

CO1. Understand the basic concept of Geomorphology such as theories and processes that build land forms.

CO2. Understand the mechanisms of climate and weather

CO3. Get information about oceans floor and ocean currents

CO4. know about the biosphere and distribution of life on earth

CO5. understand about the formation and layers of soil

Part B Practical:

CO6. Students will be able to map and analyze the physical characteristic of the earth by applying mapping techniques related to represent landforms, drainage and climate information obtained from topographical sheet and climatic data.

COURSE NAME: GE 301 PAPER III GEOGRAPHY OF INDIA

On completion of the course students will be able to

CO1. Identify the various physiographic, climatic, vegetation and soil of India

CO2. Know the growth and composition of the population of India and the problems associated with it.

CO3. Analyse the key resources of the country and their distribution and production

CO4. Identify and delineate different economic regions

CO5. understand regionalization and study a geographical region in detail

COURSE NAME: GE 401 PAPER IV ECONOMIC GEOGRAPHY

Part A Theory:- On completion of the course students will be able to

CO1. Understand the concept of Economic Geography

CO2. Identify the various human activities and relate them with the environment

CO3. Explain the different types of primary activities and know the distribution of these activities

CO4. know about the different industries and its characteristics

CO5. understand the different types of services and tertiary activities.

Part B Practical :

CO6. students will be exposed to various statistical techniques that are used for research purposes. The statistical techniques involving the measures of central tendency, time series, measures of dispersion and correlation and hypothesis testing will enable students to get a grasp of handling data for analytical purposes.

COURSE NAME: GE 501 PAPER V REGIONAL GEOGRAPHY OF NORTH EAST INDIA :-

After the completion of this course students will be able to

CO1. Identify the various physiographic, climatic, vegetation and soil of North East India

CO2. understand the growth and composition of the population of NE India and the problems associated with it.

CO3. Understand the social composition of North East India in terms of linguistic, racial and religious dimensions

CO4. get exposed to the different economic and geographical complexities arising out of globalization and the need for international relations for economic interdependencies.

COURSE NAME: GE 502 PAPER VI MAP READING, RS AND GIS AND SURVEYING:-

Part A Theory:- After the completion of this course students will be able to

CO1. Understand the history and techniques of map making

CO2. get acquainted with field survey and techniques in data collection

CO3. understand the use of modern technology for mapping such as Remote sensing and Geographical Information System which are used for geographical research.

Part B Practical:

CO4. Students will learn how to handle the various land survey instruments and the techniques involved in ground mapping. They will also learn the use of computer software to prepare maps using GIS and Remote sensing techniques.

COURSE NAME: GE 601 PAPER VII GEOGRAPHY OF RESOURCES

After the end of this course students will be able to

CO1. Know the basic concepts of Resources

CO2. Identify and analyse the different types of resources and their distribution over the earth

CO3. understand the relationship between resources and development

CO4. suggest conservation methods and provide solutions for sustaining the depleting and few resouces

COURSE NAME: GE 602 PAPER VIII OPTIONAL PAPER

Part A theory: students will be able to take one optional paper of their choice which are as follows

a) Geomorphology

b) Biogeography

c) Population geography

d) Urban geography

e) Agricultural geography

CO1. After the end of this course students will be able to

CO2. Understand the fundamental concepts and theories of that branch of Geography

CO3. know about the distribution of the phenomena associated with that branch of Geography

CO4. analyze the current issues associated with the subject

Part B Project:

CO5. based on the optional subject students will learn to conduct geographical research on a suitable topic by collecting data, interpreting it using suitable statistical and mapping techniques.

Program Specific Outcome (PSO) of BA History

PSO1. To familiarize the students with the social, economic, cultural, political development in Ancient India.

PSO2. To familiarize the students with the main trends and development in India during Medieval period.

PSO3. To develop in the students the knowledge about socio-economic and cultural patterns and political developments during the freedom struggle in India.

PSO4. To enable the students to understand the fundamental concept of Historiography.
PSO5. To acquaint the students with the knowledge in modern Europe.

PSO6. To acquaint the students with the major political, social, economic, and scientific development in the contemporary world.

PSO7. To familiarize the students with the major trends, of political, social and economic development in North East India.

COURSE OUTCOME (CO) OF BA HISTORY

COURSE NAME: HIS-UG- 101: ANCIENT INDIA

On completion of the course students are able to

CO1. Understand and learn the literary and archaeological sources of Ancient Indian history and the Harappan culture.

CO2. Understand and learn the vedic society and culture, teachings of Buddhism and Jainisam and the rise of Maghada.

CO3. Learn about the political, social and economic life and condition of the Mauryan Empire, the Kushana art and culture and the satavahana administration.

CO4. Students also learn about the social, economic, political life of the Gupta Period and also the reign of Harsha and Pallava art and architecture.

COURSE NAME: HIS-UG- - 201: MEDIEVAL INDIA

On completion of the course students are able to

CO1. Learn and understand the sources of medieval Indian History, Arab invasion of Sindh and also the invasion of Gazni and Ghori.

CO2. Learn and understand the various aspect of the Delhi Sultanate- such as the political structure, theories of kingship, Iqta system, revenue sustem etc.

CO3. Learn about the various aspect of the Mughal Empire including art and architecture. CO4. Learn about the Bhakti, Sufi and Sikh movement in India.

COURSE NAME: HIS-UG-303: HISTORY OF MODERN INDIA

On completion of the course students are able to

CO1. Understand and learn about the advent of European trade and the struggle for supremacy, policies of colonial expansion under the British.

CO2. Learn and understand about the British commercial policy and de-industrialization, rise of modern industries, transport and communication.

CO3. Learn about the Revolt of 1857, emergence of nationalism and Indian National Congress.

CO4. Learn about the Indian freedom struggle and the role of Mahatma Gandhi in freedom struggle.

COURSE NAME: HIS-UG-404: HISTORIOGRAPHY

On completion of the course students are able to

CO1. Students are able to understand about the definition, nature of History from classical age to the 20th century.

CO2. Students have learned about the objectivity in history and the causation in history.

CO3. Students are able to understand the relationship of history with other social sciences such as, archaeology, sociology, geography, economic and anthropology.

CO4. Students have understood about the major trends in historiography such as Greek and Roman history.

COURSE NAME: HIS-UG-505: MODERN WORLD (MID-15TH CENTURY TO WORLD WAR 11)

On completion of the course students are able to

CO1. Understand the meaning, feature and decline of feudalism in Europe and the rise of new monarchies in Spain England and France.

CO2. Learn about the European Renaissance, Reformation movement and American and France Revolution.

CO3. Students learnt about the rise and fall of Napoleon, t5he Congress of Vienna, and the nationalism in Italy and Germany.

CO4. Students learn about the World war 1st, Peace Settlement, League of Nations and Nazism and Fascism and World War 11.

COURSE NAME: HIS-UG-506: CONTEMPORARY WORLD 1945-1991)

On completion of the course students are able to

CO1. Learn about the United Nations organization and the concept and process of Decolonization.

CO2. Students learnt about the cold war and nuclear politics, Berlin wall, north Atlantic treaty organization (NATO), Vietnam War etc.

CO3. Students learn about the Arab- Israeli conflict, OPEC, Gulf War etc.

CO4. Students learnt about the non- aligned movement, apartheid movement in South Africa and feminist movement.

COURSE NAME: HIS-UG-607: CHINA AND JAPAN (1839-1949)

On completion of the course students are able to

CO1. Student have learned and able to understand about the social, economic and political condition of china in the mid- 19th century.

CO2. Understood the birth of the republic of Chinas such as carrier of Sun-Yat-Sen, Kuomintang, the origin and growth of the Chinese communist party.

CO3. Student have learned and able to understand about the social, economic and political condition of Japan in the mid- 19th century.

CO4. Students have understood about the rise of Japanese militarism, Washington conference and Japan and world war.

COURSE NAME: HIS-UG-608: NORTH EAST INDIA (1824-1972)

On completion of the course students are able to

CO1. Students learned about the British expansion and consolidation in North East India.

CO2. Learned about annexation of north east India such as Assam, Jaintia, Cachar and the British relation with Manipur, Tripura, Garo, Khasi and Naga.

CO3. Learned about the economic and social changes under British rule in North East India.

CO4. Studied about political development since independence and integration of Manipur, Tripura, and emergence of Meghalaya.

PROGRAM SPECIFIC OUTCOME (PSO) OF B.A PHILOSOPHY

On completion of the program, students will be able to:

PSO1. Express ideas with clarity and precision.

PSO2. Acquire the skill of reasoning and hence will help them to formulate valid and sound argument.

PSO3. Approach and analyze any problem rationally, analytically and objectively.

PSO4. Apply philosophical perspectives to contemporary issues.

PSO5. Develop good writing skills required for a variety of professions or fields ranging from Teaching, Writing, and Research to Civil Services, media and journalism, law etc.

PSO6. Appear for State as well as Central Administrative Service examinations.

PSO7. Students will be proficient in qualitative and quantitative research design, data collection and analysis.

COURSE OUTCOME (CO) OF BA PHILOSOPHY

COURSE NAME: PHIL - 11: EPISTEMOLOGY AND METAPHYSICS

CO1. This course intends to familiarize students with the epistemological theories as conceived by both western and Indian schools of thought as well as the metaphysical theories of western thought.

CO2. It helps the students to gain philosophical insight into the nature and scope of philosophy as an enquiry which endeavours to give a comprehensive and holistic view of the universe, knowledge, reality and truth.

COURSE NAME: PHIL- 21: LOGIC

CO1. This course intends to develop critical thinking in students to avoid various fallacies that can arise through the misuse of logic.

CO2. In order to have logical and well reasoned argument, students will be familiarized with the techniques to test the validity and invalidity of an argument by means of formulas, symbols, variables and construction of truth tables.

COURSE NAME: PHIL -31: SOCIAL AND POLITICAL PHILOSOPHY

CO1. This course intends to familiarize students with the nature and scope of social and political philosophy, different social and political concepts, ideals and the nature of transformation that takes place in the social and political scenario.

CO2. A philosophical understanding of these fundamental concepts and their moral implications will create a sense of altruistic responsibility on the students as the citizens of the state and society.

COURSE NAME: PHIL - 41: INDIAN PHILOSOPHY

CO1. This course introduces students to the salient features of Indian philosophy and the varied tradition of Indian philosophical thought – Orthodox (astika) and Heterodox (nastika) schools.

CO2. The epistemological, metaphysical and ethical theories of both the schools will be familiarized to the students in order to make them aware that Indian philosophy has had its own impact in every sphere of man's life in his quest for knowledge, truth and reality.

COURSE NAME: PHIL -51: HISTORY OF MODERN WESTERN PHILOSOPHY

CO1: This course intends to familiarize students with the concepts, ideas and theories proposed by different modern western philosophers like Descartes, Spinoza, Leibnitz, Locke, Berkeley, Hume, Kant and Hegel.

CO2: The study of these different theories put forward by modern western philosophers will enable students to conceptualize, analyze and understand how knowledge of truth and reality becomes possible and what can and cannot be known by the human mind.

COURSE NAME: PHIL - 52: PHILOSOPHY OF RELIGION

CO1. This course is intended to develop a critical understanding of the basic concepts of religion.

CO2. It enables students to critically examine and understand the idea of God, the problem of suffering and liberation from various religious perspectives.

CO3. Further this study will help the students to develop right attitude, tolerance and respect towards other religions that exist in the society.

COURSE NAME: PHIL - 61: ETHICS

CO1. This course intends to make the students understand the basic moral concepts.

CO2. It familiarizes students with the nature and scope of moral philosophy, the nature of moral judgments and the traditional ethical theories of moral philosophy whose moral implications will help the students to develop the ideal practice of right action in order to bring general welfare for all the members of the society.

COURSE NAME: PHIL- 622: EXISTENTIALISM

CO1. This course intends to familiarize students to the various branches of existentialist thought and the influence that existentialism had on philosophy, literature and culture in the 19th and 20thcenturies.

CO2. It helps students to have an understanding that humans define their own meaning in life and the means how they are trying to make rational decisions despite existing in an irrational universe.

Program Specific Outcome (PSO) of BA Political Science

In general, successful political science honours will:

PSO1. Understand and be able to interrelate the leading theories, literature, and approaches, political theory and methods, international relations, and comparative politics.

PSO2. Have competence in the basic methodology of research and analysis in political science and be able to analyze and formulate effective argumentation about the political world in writing and oral presentation, making use of that competence.

PSO3. Critically assess the actions of actors in the political process and determine their motives.

PSO4. Understand the decisions human beings make in political settings, including those regarding the forms of government available and understand the philosophical underpinnings of political systems, major ideologies, and political parties.

PSO5. The BA graduates can do Post Graduate studies in political science. After M.A, they can join M.PHIL and PH.D if they want to take up teaching as their career in higher education in colleges and universities.

PSO6. They can also pursue B.ED and teach in Schools. Students majoring in political science can also take up journalism, law; appear for UPSC and State civil services, social welfare studies, gender studies, international relations etc.

COURSE OUTCOME (CO) OF BA POLITICAL SCIENCE

COURSE NAME: PAPER I: PSC 01: POLITICAL THEORY

On successful completion of this course the students will be able to

CO1. Understand the nature, scope and significance of political theory.

CO2. Explain Karl Marx's view with particular regard to his critique of democracy and the modern liberal state; how it came to be and its fundamental link to capitalism.

CO3. Explain the different versions of and importance of the social contract theory to political thought.

CO4. Compare and contrast the concepts of liberty, equality, justice and sovereignty.

CO5. Analyse critically the theories of Monism and Pluralism.

CO6. Learn the origin of the concepts of Law, political obligation and resistance.

COURSE NAME: PAPER II: PSC 02: MAJOR POLITICAL SYSTEMS

On successful completion of this course the students will be able to

CO1. Discuss and evaluate the institutional structures and operations of the political systems.

CO2. Compare the basic strengths and weaknesses of the four political systems.

CO3. Demonstrate knowledge of the history and development of China and Russia as communist countries.

CO4. Compare and contrast the rights of the people of UK and USA with that of China and Russia.

CO5. Identify and explain electoral rules and compare and contrast voting behavior in the four countries.

CO6. Analyse women's role as a citizen, voter and as a policy maker in the four countries.

CO7. Evaluate the evolution and functioning of the political parties.

COURSE NAME: PAPER III: PSC 03: INDIAN POLITICAL SYSTEM

On successful completion of this course the students will be able to

CO1. Acquiring knowledge about the British rule

CO2. Appreciate the various phases of the Indian National movement.

CO3. Acquiring knowledge about the Indian Constitution.

CO4. Getting awareness about ones rights and duties.

CO5. Getting information about the political parties and pressure groups.

CO6. Students become aware of the system of justice in India.

CO7. Knowing about the problems and challenges in Indian politics.

COURSE NAME: PAPER IV: PSC 04: INTERNATIONAL POLITICS

On successful completion of this course the students will be able to

CO1. Understand international institutions and forces that drive behavior in international relation.

CO2. Demonstrate a broad and deep understanding of international relations.

CO3. Analyse and explain contemporary international phenomena.

CO4. Understand the theoretical foundations of the government and governmental decision making.

CO5. Identify the context of political decisions and its impact on society. CO6. Identify the processes of decision making.

CO7. Analyse the foreign policies of different countries.

COURSE NAME: PAPER V: PSC 05: WESTERN POLITICAL THOUGHT

On successful completion of this course the students will be able to

CO1. Analyse the theory of Greek political thinkers; Plato and Aristotle.

CO2. Examine political thought through the various stages based on the works of Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau and Marx.

CO3. Explain the different versions of and importance of the state of nature to political thought.

CO4. Compare and contrast the concepts of dialectics in the works of Hegel and Marx.

CO5. Explain Marx's view with particular regard to State and class struggle.

CO6. Acquire knowledge about the modern political thinkers and their views on statecraft.

COURSE NAME: PAPER VI: PSC 06: MODERN INDIAN POLITICAL IDEAS

On successful completion of this course the students will be able to

CO1. Students will demonstrate knowledge of key thinkers and concepts.

CO2. Create awareness of the important Indian political thinkers.

CO3. Analyse the British rule and how it affected the people of India.

CO4. Understand about the various social evils that existed and the approach of the reformers in dealing with those evils.

CO5. Generate new ideas about how the Indian society and politics should be organized and conducted.

COURSE NAME: PAPER VII: PSC 07: GOVERNMENT AND POLITICS IN NORTH EAST INDIA

On successful completion of this course the students will be able to

CO1. Understand the socio political significance of the North East India as it occupies strategic geo political situations due to its international boundaries.

CO2. Evaluate the evolution, functioning and consequences of the regional political parties.

CO3. Understand the power of district council and their contribution to the development of the region.

CO4. Explain the formation of Meghalaya, Mizoram, Arunachal Pradesh, Tripura etc.

CO5. Understand the problems of ethnicity in the politics of North East India.

CO6. Identify, describe, analyse and evaluate the autonomy movements of North East India.

COURSE NAME: PAPER VIII: PSC 08: INTERNATIONAL ORGANISATION

On successful completion of this course the students will be able to

CO1. Assess the working and the causes of the failure of the League of Nations

CO2. Analyse the strengths and weaknesses of different international organizations.

CO3. To have a general understanding of the U.N with particular emphasis on the analysis of its powers and areas of operation.

CO4. Identify the various projects taken up by the UNESCO and UNDP.

CO5. Identify the various measures undertaken by the U.N to settle disputes in different regions of the world.

CO6. Analyse whether UN has been successful in fulfilling its main objective of maintaining international peace and security.

Program Specific Outcome (PSO) of BA Sociology

On completion of the programme, students will be able to:

PSO1. To develop a sociological imagination in order to articulate and demonstrate understanding of basic sociological concepts and theories.

PSO2. To apply sociological concepts to real world and ultimately their everyday life.

PSO3. Demonstrate a basic understanding of the major theoretical paradigm used to study social phenomena and generate research in the field of Sociology.

PSO4. It helps in an understanding of the formation and operation of the major social institutions that exist within our society.

PSO5. Develop the ability to research, organise and compose information for both oral and written presentation.

PSO6. Students will be proficient in qualitative and quantitative research design, data collection and data analysis.

COURSE OUTCOME (CO) OF BA SOCIOLOGY

COURSE NAME: SOC UG 101: INTRODUCTION TO SOCIOLOGY-I

CO1. It intends to introduce and familiarize the students with basic concepts and scope of Sociology.

COURSE NAME: SOC UG 201: INTRODUCTION TO SOCIOLOGY-II

CO1. It supplements the understanding of Sociology imparted in a similar course in the previous semester.

COURSE NAME: SOC UG 301: INDIAN SOCIETY

CO1. This course aims to impart an understanding of empirical realities of Indian Society which will enable the students to understand different aspects of caste and tribal societies of the country.

COURSE NAME: SOC UG 401: SOCIOLOGICAL THINKERS

CO1. The course intends to introduce the students to Classical thinkers in Sociology.

CO2. The students are expected to understand the theoretical formulation and argument provided by these thinkers and develops insights to examine social phenomena.

COURSE NAME: SOC UG 501: FAMILY AND KINSHIP

CO1. It intends to familiarize the students with basic conceptual understanding of Family, Marriage and Kinship.

COURSE NAME: SOC UG 502: ECONOMIC SOCIOLOGY

CO1. The course intends to examine interplay between economy and society.

CO2. The students will learn sociological approaches in understanding economic phenomena, economic systems prevalent in the modern world.

COURSE NAME: SOC UG 601: SOCIOLOGY OF RELIGION

CO1. The course intends to provide explanation towards the understanding of the institution of religion and its functions.

CO2. It will familiarize the students about the existence of religious organisations as well as religion in national and regional contexts.

COURSE NAME: SOC UG 602: POLITICAL SOCIOLOGY

CO1. It intends to examine the interface between polity and society.

CO2. Students will learn and be exposed to the various dimensions of Political Sociology such as political systems, elites and political parties.

COURSE NAME: SOC UG 603: RESEARCH METHODOLOGY

CO1. It intends to introduce the students to the understanding of social research.

CO2. The students will learn about various principles of scientific method and it's appropriate in the discipline of Sociology.

Course outcome (CO) of Environmental Studies

COURSE NAME: ENVIRONMENTAL STUDIES (COMMON PAPER)

CO1: Basic concepts of Environment, natural resources, biodiversity, ecology, environmental problems and its solution, environmental laws, sustainable development and social issues.