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Program Outcomes,

Program Specific Outcomes

and

Course Outcomes

Department of Chemistry

Programme Outcomes: B. Sc Chemistry

Chemistry (Semester-III)

Department of Chemistry	After successful completion of three year degree program in Chemistry a student should be able to;
Programme Outcomes	<p>PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of Chemistry.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of chemical reactions.</p> <p>PO-4. Create an awareness of the impact of Chemistry on the environment, society, and development outside the scientific community.</p> <p>PO-5. Find out the green route for chemical reaction for sustainable development.</p> <p>PO-6. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-7. Use modern techniques, decent equipments and Chemistry softwares</p>

Programme Specific Outcomes	<p>PSO-1. Gain the knowledge of Chemistry through theory and practicals.</p> <p>PSO-2. To explain nomenclature, stereo Chemistry, structures, reactivity, and mechanism of the chemical reactions.</p> <p>PSO-3. Identify chemical formulae and solve numerical problems.</p> <p>PSO-4. Use modern chemical tools, Models, Chem-draw, Charts and Equipment.</p> <p>PSO-5. Know structure-activity relationship.</p> <p>PSO-6. Understand good laboratory practices and safety.</p> <p>PSO-7. Develop research oriented skills.</p> <p>PSO-8. Make aware and handle the sophisticated instruments/equipment.</p>
Course Outcomes B. Sc Chemistry	
Course	Outcomes After completion of these courses students should be able to;
F.Y.B.Sc.	SEM I
FYBSC P I	<p>1. Chemical Energetics</p> <ol style="list-style-type: none"> 1. Students will be able to apply thermodynamic principles to physical and chemical process 2. Calculations of enthalpy , Bond energy, Bond dissociation energy , resonance energy 3. Variation of enthalpy with temperature –Kirchoff’s equation 4. Third law of thermodynamic and its applications <p>2. Chemical Equilibrium</p> <ol style="list-style-type: none"> 1. Relation between Free energy and equilibrium and factors affecting on equilibrium constant. 2. Exergonic and endergonic reaction 3. Gas equilibrium, equilibrium constant and molecular interpretation of equilibrium constant 4. Van’t Haff equation and its application 3. Ionic equilibria

	<p>Ionic equilibria</p> <ol style="list-style-type: none"> 1. Concept to ionization process occurred in acids, bases and pH scale 2. Related concepts such as Common ion effect hydrolysis constant, ionic product, solubility product 3. Degree of hydrolysis and pH for different salts , buffer solutions
FYBSC P II	<ol style="list-style-type: none"> 1. The students are expected to understand the fundamentals, principles, and recent developments in the subject area. 2. It is expected to inspire and boost interest of the students towards chemistry as the main subject. 3. To familiarize with current and recent developments in Chemistry. 4. To create a foundation for research and development in Chemistry.
FYBSC P III	<ol style="list-style-type: none"> 1. Importance of chemical safety and Lab safety while performing experiments in laboratory 2. Determination of thermochemical parameters and related concepts 3. Techniques of pH measurements 4. Preparation of buffer solutions 5. Elemental analysis of organic compounds (non instrumental) 6. Chromatographic Techniques for separation of constituents of mixtures
	SEM II
FYBSC P I	<p>1. Atomic Structure</p> <ol style="list-style-type: none"> 1. Various theories and principles applied to reveal atomic structure 2. Origin of quantum mechanics and its need to understand structure of hydrogen atom 3. Schrodinger equation for hydrogen atom 4. Radial and angular part of hydrogenic wave functions 5. Significance of quantum numbers 6. Shapes of orbitals <p>2. Periodicity of Elements</p> <ol style="list-style-type: none"> 1. Explain rules for filling electrons in various orbitals- Aufbau's principle, Pauli exclusion principle, Hund's rule of maximum multiplicity 2. Discuss electronic configuration of an atom and anomalous electronic configurations. 3. Describe stability of half-filled and completely filled orbitals. 4. Discuss concept of exchange energy and relative energies of atomic orbitals 5. Design Skeleton of long form of periodic table. 6. Describe Block, group, modern periodic law and periodicity. 7. Classification of elements as main group, transition and inner transition

	<p>elements</p> <p>8. Write name, symbol, electronic configuration, trends and properties.</p> <p>9. Explain periodicity in the following properties in details:</p> <ol style="list-style-type: none"> Effective nuclear charge, shielding or screening effect; some numerical problems. Atomic and ionic size. Crystal and covalent radii Ionization energies Electronegativity- definition, trend, Pauling electronegativity scale. Oxidation state of elements <p>3. Chemical Bonding</p> <ol style="list-style-type: none"> Attainment of stable electronic configurations. Define various types of chemical bonds- Ionic, covalent, coordinate and metallic bond Explain characteristics of ionic bond, types of ions, energy consideration in ionic bonding, lattice and solvation energy and their importance in the context of stability and solubility of ionic compounds Summarize Born-Landé equation and Born-Haber cycle, Define Fajan's rule, bond moment, dipole moment and percent ionic character. Describe VB approach, Hybridization with example of linear, trigonal, square planar, tetrahedral, TBP, and octahedral. Discuss assumption and need of VSEPR theory. Interpret concept of different types of valence shell electron pairs and their contribution in bonding. Application of non-bonded lone pairs in shape of molecule Basic understanding of geometry and effect of lone pairs with examples such as ClF_3, Cl_2O, BrF_5, XeO_3 and XeOF_4.
<p>FYBSC P II</p>	<p>1. Introduction to Analytical Chemistry</p> <ol style="list-style-type: none"> Analytical Chemistry –branch of chemistry Perspectives of analytical Chemistry analytical problems <p>2. Calculations used in Analytical Chemistry</p> <ol style="list-style-type: none"> Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution Relation between molecular formula and empirical formula Stoichiometric calculation Define term mole, millimole, molar concentration, molar equilibrium concentration and Percent

	<p>Concentration.</p> <p>v. SI units, distinction between mass and weight</p> <p>vi. Units such as parts per million, parts per billion, parts per thousand, solution-dilutant volume ratio, function density and specific gravity of solutions.</p> <p>3 Qualitative Analysis of Organic Compounds</p> <p>Basics of type determination, characteristic tests and classifications, reactions of different functional groups.</p> <p>i. Separation of binary mixtures and analysis</p> <p>ii. Elemental analysis -Detection of nitrogen, sulfur, halogen and phosphorous by Lassaigne's test.</p> <p>iii. Purification techniques for organic compounds.</p> <p>4. Chromatographic Techniques – Paper and Thin layer Chromatography</p> <p>i. Basics of chromatography and types of chromatography</p> <p>ii. Theoretical background for Paper and Thin Layer Chromatography</p> <p>5. pH metry</p> <p>i. pH meter and electrodes for pH measurement</p> <p>ii. Measurement of pH</p> <p>iii. Working of pH meter</p> <p>iv. Applications of pH meter</p>
FYBSC P III	<p>1. Inorganic Estimations using volumetric analysis</p> <p>2. Synthesis of Inorganic compounds</p> <p>3. Analysis of commercial products</p> <p>4. Purification of organic compounds</p> <p>5. Preparations and mechanism of reactions involved</p>
S. Y. B. Sc.	<u>Semester-I</u>
S.Y.B.SC. P I	<p>Chapter 1: Elementary Chemical Kinetics</p> <p>i. Concept of kinetics , terms used , rate laws , types of order</p> <p>ii. Discuss examples of first order and second order reaction</p> <p>iii. Pseudo molecular reactions</p> <p>iv. Factors affecting on rate of reaction</p> <p>v. Techniques of measurement of rate of reaction</p> <p>vi. To solve problems</p> <p>Chapter 2: Photochemistry</p> <p>After studying the chapter student should be able to</p> <p>i. Know about photochemistry</p> <p>ii. Understand difference between thermal and photochemical reactions</p> <p>iii. Understand laws of photochemistry</p> <p>iv. Learn what is quantum yield and it's measurement</p> <p>v. Know Types of photochemical reactions and photophysical process</p>

	<p>vi. Know about quenching and chemiluminescent.</p> <p>vii. To solve numericals</p> <p>Chapter 3: Distribution law</p> <p>i. Concept of distribution of solute amongst pair of immiscible solvents</p> <p>ii. Distribution law and it's thermodynamic proof</p> <p>iii. Distribution law and nature of solute in solution state</p> <p>iv. Application – Solvent extraction</p> <p>v. To solve numericals</p> <p>Chapter 4: Introduction to Analytical Chemistry</p> <p>i. What is Analytical Chemistry</p> <p>ii. Chemical analysis and its applications</p> <p>iii. Sampling</p> <p>iv. Common techniques</p> <p>v. Instrumental methods and other techniques</p> <p>vi. Choice of method</p> <p>Chapter 5: Errors in Quantitative Analysis</p> <p>i. Meaning of error and terms related to expression & estimation of errors</p> <p>ii. Methods of expressing accuracy and precision</p> <p>iii. Classification of errors</p> <p>iv. Significant figures and computations</p> <p>v. Distribution of errors</p> <p>vi. Mean and standard deviations</p> <p>vii. Reliability of results</p> <p>Chapter 6: Inorganic Qualitative Analysis</p> <p>i. Basic principles in qualitative analysis</p> <p>ii. Meaning of common ion effect</p> <p>iii. Role of common ion effect and solubility product</p> <p>iv. Different groups for basic radicals</p> <p>v. Group reagent and precipitating agents</p> <p>Chapter 7: Analysis of Organic Compounds (Qualitative & Quantitative)</p> <p>i. Classification of compounds with different functional groups</p> <p>ii. Different tests for detection of elements like C, H, (O), N, S & P.</p> <p>iii. Characteristic tests for different functional groups</p> <p>iv. Different colour tests and the reactions</p> <p>v. Quantitative analysis of C, H by Liebig's method</p> <p>vi. Kjeldahl's method with example</p> <p>vii. Carius tube method with example</p>
<p>S.Y.B.SC. P II</p>	<p>Chapter 1: Stereoisomerism</p> <p>i) Identify chiral center in the given organic compounds.</p> <p>ii) Define Erythro, threo, meso, diastereoisomers with suitable examples.</p> <p>iii) Able to find R/S configuration in compounds containing two chiral centers.</p>

	<p>iv) Explain Bayer's strain theory, Heat of combustion and relates stability of cycloalkanes.</p> <p>v) Explain the stability of cyclohexanes.</p> <p>Chapter 2: Organic reaction Mechanism</p> <p>i) Define and classify heterocyclic compounds.</p> <p>ii) Use the Huckel rule to predict aromaticity.</p> <p>iii) Suggest synthetic route for preparation of various heterocyclic compounds.</p> <p>iv) Write and complete various reactions of heterocyclic compounds.</p> <p>v) Predict products.</p> <p>Chapter 3: General Principles of Metallurgy:</p> <p>i) To differentiate between ore and minerals.</p> <p>ii) To differentiate between calcination and roasting and smelting.</p> <p>iii) To know the different methods for separation of gangue or matrix from metallic compounds.</p> <p>iv) To know the terms smelting, flux.</p> <p>Chapter 4: Metallurgy of Aluminium (Electrometallurgy):</p> <p>i) To know physico-chemical principles involved in electrometallurgy.</p> <p>ii) To understand electrolysis of alumina and its refining.</p> <p>iii) To explain the uses of Aluminum and its alloys.</p> <p>iv) To know purification of bauxite ore.</p> <p>Chapter 5: Metallurgy of Iron and Steel (Pyrometallurgy)</p> <p>i) To explain the term pyrometallurgy and to explain the physicochemical principles involved in the reduction process by carbon monoxide.</p> <p>ii) To know different reactions in the blast furnace.</p> <p>iii) To differentiate between properties of pig iron and wrought iron.</p> <p>iv) To explain the basic principles of different methods for preparation of steel.</p> <p>Chapter 6: Corrosion and Passivity:</p> <p>i) Definition of corrosion.</p> <p>ii) Types of corrosion.</p> <p>iii) Mechanism of corrosion.</p> <p>iv) Factors affecting corrosion.</p> <p>v) Methods of prevention of metal from corrosion.</p>
S. Y. B. Sc.	<u>Semester-II</u>
S.Y.B.SC. P I	<p>Chapter 1: Free Energy and Equilibrium</p> <p>i. Free energy concepts, types and its variation</p> <p>ii. Free energy change for chemical reaction and physical transition</p> <p>iii. Free energy change for ideal gases</p>

	<p>iv. Gibb's Helmholtz equations and its properties & significance v. van't Hoff reaction isotherm and thermodynamic equilibrium constants.</p> <p>Chapter 2: Solutions of Liquids in Liquids</p> <p>i. Ideal and non ideal solutions and laws governing these solutions ii. Interpretation of vapor pressure–composition diagram iii. Interpretation of temperature composition diagram. iv. Distillation from temperature – composition diagram, v. Azeotropes vi. Partially immiscible liquids.</p> <p>Chapter 3: Introduction to volumetric analysis</p> <p>i. Meaning of equivalent weight, molecular weight, normality, molality, primary and secondary standards. ii. Different way to express concentrations of the solution. iii. Preparation of standard solution.</p> <p>Chapter 4: Non Instrumental volumetric analysis</p> <p>i. Explain role of indicators. ii. Know mixed and universal indicators. iii. Know neutralization curves for various acid base titration iv. Know the principle of complexometric precipitation and redox titrations. v. Know the definitions and difference between iodometry and iodimetry.</p>
<p>S.Y.B.SC. P II</p>	<p>Chapter 1: Reagents in Organic Synthesis</p> <p>i) Concept of different reagents used in the one type of conversion ii) Merits & demerits of different reagents iii) Reagent based mechanisms iv) Use of different hydrogen donors for hydrogenation</p> <p>Chapter 2: Chemistry of heterocyclic compounds with one hetero atom.</p> <p>i) Define and classify heterocyclic compounds. ii) Use Huckel rule to predict aromaticity. iii) Suggest synthetic route for preparation of various heterocyclic compounds. iv) Write and complete various reactions of heterocyclic compounds.</p> <p>Chapter 3: Introduction of Biomolecules</p> <p>i) Know different biomolecules. ii) Appreciate the role of biochemistry in the day to day life. iii) Understand the importance of biochemistry. iv) Define carbohydrates. v) Classify carbohydrates giving suitable examples. vi) Write and complete various reactions of glucose.</p> <p>Chapter 4: Chemistry of d-block elements</p> <p>i) To know the position of d-block elements in periodic tables. ii) To know the general electronic configuration & electronic</p>

	<p>configuration of elements.</p> <p>iii) To know trends in periodic properties of these elements w.r.t. size of atom and ions, reactivity, catalytic activity, oxidation state, complex formation ability, colour, magnetic properties, non-stoichiometry, density, melting point, boiling point.</p> <p>Chapter 5: Organometallic Chemistry</p> <p>i) To understand M-C bond and to define organometallic compounds</p> <p>ii) To define organometallic chemistry</p> <p>iii) To understand the multiple bonding due to CO ligand.</p> <p>iv) To know methods of synthesis of binary metal carbonyls.</p> <p>v) To understand the structure and bonding using valence electron count (18 electron rule)</p> <p>Chapter 6: Acids, Bases and Solvents</p> <p>i) To define acids and bases according to Arrhenius theory Lowry-Bronsted concept, Lewis concept.</p> <p>ii) To explain the merits and demerits of different theories of acids and bases.</p> <p>iii) To define the conjugate acid and base pairs.</p> <p>iv) To explain the leveling effect of solvents.</p> <p>v) To demonstrate the trends in the strength of hydracids, oxyacids.</p> <p>vi) To define hard and soft acids.</p> <p>vii) To know the trends in the strength of hydra and oxyacids.</p> <p>Chapter 7: Chemical Toxicology</p> <p>i) To know toxic chemicals in the environment.</p> <p>ii) To know the impact of toxic chemicals on enzymes.</p> <p>iii) To know the biochemical effect of Arsenic, Cd, Pb, Hg</p>
<p>S.Y.B.SC. P III</p>	<p>A) Physical Chemistry practicals (Any Five)</p> <p>i. Verify theoretical principles experimentally</p> <p>ii. Interpret the experimental data</p> <p>iii. Improve analytical skills</p> <p>iv. Correlate the theory and experiments and understand their importance</p> <p>B) Inorganic Qualitative Analysis (Minimum Five mixtures)</p> <p>C) Organic Chemistry Practical</p> <p>i) Verify theoretical principles experimentally.</p> <p>ii) Acquire skill of crystallisation, record correct m. p. / b. p.</p> <p>iii) Perform the complete chemical analysis of the given organic compound and should be able to recognize the type of compound.</p> <p>iv) Write a balanced equation for all the reactions they carry in the laboratory.</p> <p>v) Perform the given organic preparation according to the given procedure.</p>

	<p>vi) Follow the progress of the reaction by using TLC technique. vii) Set up the apparatus properly for the given experiments. viii) Perform all the activities in the laboratory with neatness and cleanness.</p> <p>D) Analytical Chemistry Practicals (Any Five) i. Verify theoretical principles experimentally ii. Interpret the experimental data iii. Improve analytical skills iv. Correlate the theory and experiments and understand their importance</p>
S.Y.B.Sc. (2020 CBCS PATTERN)	<u>Semester-III</u>
S.Y.B.Sc. P I	<p>1. Chemical Kinetics: i. Define / Explain concept of kinetics, terms used, rate laws, molecularity, order. ii. Explain factors affecting rate of reaction. iii. Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions. iv. Determination of order of reaction by integrated rate equation method, graphical method, half-life method and differential method. v. Explain / discuss the term energy of activation with the help of energy diagram.</p> <p>2. Surface Chemistry i. Define / explain adsorption, classification of given processes into physical and chemical adsorption. ii. Discuss factors influencing adsorption, its characteristics, differentiates types as physisorption and Chemisorption. iii. Classification of Adsorption Isotherms, to derive isotherms.</p> <p>3. Errors in Quantitative Analysis i. Define, explain and compare meaning of accuracy and precision. ii. Apply the methods of expressing the errors in analysis from results. iii. Explain / discuss different terms related to errors in quantitative analysis. iv. Apply statistical methods to express his / her analytical results in laboratory. v. Solve problems applying equations.</p> <p>4. Volumetric Analysis i. Explain / define different terms in volumetric analysis such as units of concentration, indicator, equivalence point, end point, standard solutions, primary and secondary standards, complexing agent, precipitating agent, oxidizing agent, reducing agent, redox indicators, acid base indicators, metallochrome indicators, etc. ii. Perform calculations involved in volumetric analysis.</p>

	<ul style="list-style-type: none"> iii. Explain why indicator show colour change and pH range of colour change. iv. To prepare standard solution and b. perform standardization of solutions. v. To construct acid – base titration curves and performs choice of indicator for particular titration.
<p>S.Y.B.Sc. P II</p>	<p>1. Molecular Orbital Theory of Covalent Bonding</p> <ul style="list-style-type: none"> i. Define terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc). ii. Explain and apply LCAO principle for the formation of MO's from AO's. iii. Explain formation of different types of MO's from AO's. iv. Distinguish between atomic and molecular orbitals, bonding, anti-bonding and nonbonding molecular orbitals. v. Draw and explain MO energy level diagrams for homo and hetero diatomic molecules. Explain bond order and magnetic property of molecule. vi. Explain formation and stability of molecule on the basis of bond order. vii. Apply MOT to explain bonding in diatomic molecules other than explained in syllabus. <p>2. Introduction to Coordination Compounds</p> <ul style="list-style-type: none"> i. Define different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of ligand, chelate effect, etc.) ii. Explain Werner's theory of coordination compounds. Differentiate between primary and secondary valency. Correlate coordination number and structure of complex ion. iii. Apply IUPAC nomenclature to coordination compound. <p>3. Aromatic Hydrocarbons</p> <ul style="list-style-type: none"> i. Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned. ii. Explain / discuss synthesis of aromatic hydrocarbons. iii. Give the mechanism of reactions involved. iv. Explain /Discuss important reactions of aromatic hydrocarbon. v. To correlate reagent and reactions. <p>4. Alkyl and Aryl Halides</p> <ul style="list-style-type: none"> i. Identify and draw the structures alkyl / aryl halides from their names or from structure name can be assigned. ii. Explain / discuss synthesis of alkyl / aryl halides. iii. Write / discuss the mechanism of Nucleophilic Substitution (SN1 , SN2 and SNi) reactions. iv. Explain /Discuss important reactions of alkyl / aryl halides. 5. To

	<p>correlate reagent and reactions.</p> <p>5. Alcohols, Phenols and Ethers (Up to 5 Carbons)</p> <ol style="list-style-type: none"> Identify and draw the structures alcohols / phenols from their names or from structure name can be assigned. Able to differentiate between alcohols and phenols Explain / discuss synthesis of alcohols / phenols. Write / discuss the mechanism of various reactions involved. Explain /Discuss important reactions of alcohols / phenols. To correlate reagent and reactions of alcohols / phenols. Give synthesis of expected alcohols / phenols.
S.Y.B.Sc. P III	<p>A. Chemical Kinetics: (Any Three)</p> <ol style="list-style-type: none"> To study the kinetics of reaction. To study the calculation of rate constant. To determine the order of reaction <p>B. Inorganic quantitative / qualitative analysis (Any two)</p> <ol style="list-style-type: none"> To study separation and identification of metal. <p>C. Organic Qualitative Analysis (Two mixtures: solid-solid type)</p> <ol style="list-style-type: none"> Separation of Two Components from given binary mixture of organic compounds. <p>D. Organic Preparations (Any two)</p> <p>E. pH Metry (Compulsory)</p> <ol style="list-style-type: none"> To study pH-metric titration <p>F. Volumetric Analysis (Any two)</p> <ol style="list-style-type: none"> To study find errors in quantitative analysis.
S.Y.B.Sc. (2020 CBCS PATTERN)	<u>Semester-IV</u>
S.Y.B.Sc. P I	<p>1. Phase equilibrium</p> <ol style="list-style-type: none"> Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc. Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium. Discuss meaning of phase, component and degree of freedom. Derive of phase rule. Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system iii) Sulphur system. <p>2. Ideal and real solutions</p> <ol style="list-style-type: none"> Define various terms, laws, differentiate ideal and no-ideal solutions. Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of

	<p>mixing of Ideal solution.</p> <p>iii. Differentiate between ideal and non-ideal solutions and can apply Raoult's law.</p> <p>iv. Interpretation of i) vapour pressure–composition diagram ii) temperature- composition diagram.</p> <p>iv. Explain distillation of liquid solutions from temperature – composition diagram.</p> <p>v. Explain / discuss azeotropes, Lever rule, Henry's law and its application.</p> <p>vi. Discuss / explain solubility of partially miscible liquids- systems with upper critical. Solution temperature, lower critical solution temperature and having both UCST and LCST.</p> <p>vii. Explain / discuss concept of distribution of solute amongst pair of immiscible solvents.</p> <p>3. Conductometry</p> <p>i. Explain / define different terms in conductometry such as electrolytic conductance, resistance, conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, Kohlrausch's law, etc.</p> <p>ii. Discuss / explain Kohlrausch's law and its Applications, Conductivity Cell, Conductivity Meter, Wheatstone Bridge.</p> <p>iii. Explain / discuss conductometric titrations. Apply conductometric methods of analysis to real problem in analytical laboratory.</p> <p>4. Colorimetry</p> <p>i. Explain / define different terms in Colorimetry such as radiant power, transmittance, absorbance, molar, Lambert's Law, Beer's Law, molar absorptivity.</p> <p>ii. Discuss / explain / derive Beer's law of absorptivity. Explain construction and working of colorimeter. Apply colorimetric methods of analysis to real problem in analytical laboratory. Solve problems based on theory / equations. Correlate different terms with each other and derive equations for their correlations.</p> <p>5. Column Chromatography</p> <p>i. Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorbate, etc.</p> <p>ii. Explain properties of adsorbents, ion exchange resins, etc.</p> <p>iii. Discuss / explain separation of ionic substances using resins. Discuss / explain separation of substances using silica gel / alumina. Apply column chromatographic process for real analysis in analytical laboratory.</p>
<p>S.Y.B.Sc. PII</p>	<p>1. Isomerism in coordination complexes</p> <p>i. Isomerism in coordination complexes</p> <p>ii. Explain different types of isomerism in coordination complexes.</p> <p>2. Valence Bond Theory of Coordination Compounds</p> <p>i. Apply principles of VBT to explain bonding in coordination compound</p>

of different geometries.

ii. Correlate no of unpaired electrons and orbitals used for bonding.

iii. Identify / explain / discuss inner and outer orbital complexes.

iv. Explain / discuss limitation of VBT.

3. Crystal Field Theory

i. Explain principle of CFT.

ii. Apply crystal field theory to different type of complexes (Td, Oh, Sq, Pl complexes)

iii. Explain: i) strong field and weak field ligand approach in Oh complexes

ii) Magnetic properties of coordination compounds on the basis of weak and strong ligand field ligand concept. iii) origin of colour of coordination complex.

iv. Calculate field stabilization energy and magnetic moment for various complexes.

v. To identify Td and Sq, Pl complexes on the basis of magnetic properties /

unpaired electrons.

4. Aldehydes and Ketones (aliphatic and aromatic)

i. Identify and draw the structures aldehydes and ketones from their names or from structure name can be assigned.

ii. Explain / discuss synthesis of aldehydes and ketones.

iii. Write / discuss the mechanism reactions aldehydes and ketones.

iv. Explain / Discuss important reactions of aldehydes and ketones.

v. To correlate reagent and reactions of aldehydes and ketones

vi. Give synthesis of expected aldehydes and ketones.

vii. Perform inter conversion of functional groups.

5. Carboxylic acids and their derivatives

i. Identify and draw the structures carboxylic acids and their derivatives from their names or from structure name can be assigned.

ii. Explain / discuss synthesis of carboxylic acids and their derivatives.

iii. Write / discuss the mechanism reactions carboxylic acids and their derivatives.

4. Explain / Discuss important reactions of carboxylic acids and their derivatives.

5. Correlate reagent and reactions of carboxylic acids and their derivatives

6. Give synthesis of expected carboxylic acids and their derivatives.

7. Perform inter conversion of functional groups.

6. Amines and Diazonium Salts

i. Identify and draw the structures amines from their names or from structure name can be assigned.

ii. Explain / discuss synthesis of carboxylic amines.

iii. Write / discuss the mechanism reactions carboxylic amines.

iv. Explain / Discuss important reactions of carboxylic amines.

v. To correlate reagent and reactions of carboxylic amines.

vi. Give synthesis diazonium salt from amines and reactions of diazonium

	<p>salt.</p> <p>7. Stereochemistry of Cyclohexane</p> <p>i. Draw the structures of different conformations of cyclohexane.</p> <p>ii. Define terms such as axial hydrogen, equatorial hydrogen, confirmation, substituted cyclohexane, etc.</p> <p>iii. Convert one conformation of cyclohexane to another conformation and should able to identify governing structural changes.</p> <p>iv. Explain / discuss stability with respect to potential energy of different conformations of cyclohexane.</p> <p>v. Draw structures of different conformations of methyl / t-butyl monosubstituted cyclohexane (axial, equatorial) and 1, 2 dimethyl cyclohexane.</p>
S.Y.B.Sc. PIII	<p>A. Conductometry (Compulsory)</p> <p>i. To determine the cell constant.</p> <p>iii. To investigate the conductometric titration.</p> <p>B. Chromatography (compulsory)</p> <p>i. Separation of binary mixture of cations by Column Chromatography.</p> <p>C. Ideal and Real solutions (Any two)</p> <p>i. To study the effect of added electrolyte.</p> <p>D. Adsorption (Compulsory)</p> <p>i. To verify the Freundlich and Langmuir adsorption isotherm.</p> <p>E. Synthesis of Coordination compounds (any two)</p> <p>i. To study synthesis of compounds.</p> <p>ii. To find out the colour and magnetic property of the compounds.</p> <p>G. Organic Estimations (any two)</p> <p>i. To study the determination of molecular weight.</p> <p>ii. To study the estimation of amides.</p>
T. Y. B. Sc.	Semester III
CH-331 Physical Chemistry	<p>CO-1. Write an expression for rate constant K for third order reaction</p> <p>CO-2. Solve the numerical problems based on Rate constant</p> <p>CO-3. Understand the term specific volume, molar volume and molar refraction</p> <p>CO-4. Know the meaning of phase, component and degree of freedom</p> <p>CO-5. Derive the expression for rotational spectra for the transition from J to J+1</p>
CH-332 Inorganic Chemistry	<p>CO-1. Know the meaning of various terms involved in co-ordination Chemistry</p> <p>CO-2. To understand Werner's formulation of complexes and identify the types of valences</p>

	<p>CO-3. Know the limitations of VBT</p> <p>CO-4. Know the shapes of d-orbitals and degeneracy of d-orbitals</p> <p>CO-5. Draw the geometrical and optical isomerism of complexes</p>
CH-333 Organic Chemistry	<p>CO-1. Define organic acids and bases.</p> <p>CO-2. Distinguish between geometrical and optical isomerism.</p> <p>CO-3. Discuss kinetics, mechanism and stereochemistry of SN^1 and SN^2 reactions.</p> <p>CO-4. Compare between E_1 and E_2 reactions.</p> <p>CO-5. Understand the evidences, reactivity and mechanism of various elimination and substitution reactions.</p>
CH-334 Analytical Chemistry	<p>CO-1. Know the principles of common ion effect and solubility product.</p> <p>CO-2. Study the methods of thermo-gravimetric analysis.</p> <p>CO-3. Understand the principles of Spectro-photometric analysis and properties of electromagnetic radiations.</p> <p>CO-4. Study the Voltammetry and Polarography as an analytical tool.</p> <p>CO-5. Measure the absorbance of atoms by AAS.</p>
CH-335 Industrial Chemistry	<p>CO-1. Know the importance of the chemical industry.</p> <p>CO-2. Classify various insecticides.</p> <p>CO-3. Study the nutritive aspects of food constituents.</p> <p>CO-4. Understand the characteristics of some food starches.</p> <p>CO-5. Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.</p>
CH-336- Environmental Chemistry	<p>CO-1. Importance and conservation of environment.</p> <p>CO-2. Segments of atmosphere</p> <p>CO-3. Hazards of flue gases</p> <p>CO-4. Ozone depletion</p> <p>CO-5. Ecological changes due to hazardous gases</p> <p>CO-6. Water resources</p> <p>CO-7. Quality of potable water</p> <p>CO-8. WHO limits for toxic materials in water stream</p> <p>CO-9. Catalytic routes for sustainable developments</p>

Course Outcomes B. Sc Chemistry**Semester-IV**

CH-341 Physical Chemistry	CO-1. Understand Mechanics of system of particles. CO-2. Know the Redox reaction. CO-3 Study the Crystal Field Theory. CO-4. Solve the cell reaction and calculate EMF.. CO-5. Calculate interplanar distance. CO-6. Understand De-Broglie hypothesis and Uncertainty principle CO-7. Derive Schrodinger's time dependent and independent equations
CH-342 Inorganic Chemistry	CO-1 Study the electronic configuration of lanthanides and actinides. CO-2. Get knowledge of Crystalline solid. CO-3. Understand different operation in stoichiometric molecule. CO-4. Study the Bio-inorganic Chemistry. CO-5. Understand the p-type semiconductor and n-type semiconductor.
CH-343 Organic Chemistry	CO-1. To study UV, IR and NMR spectroscopy. CO-2. Discuss different types of rearrangement reactions. CO-3. Determine structure of compound by spectroscopic methods. CO-4. Understand the difference between carbocation and carbanion. CO-5. To study alkaloids, Ephedrine, citral molecule with their properties and application.
CH-344 Analytical Chemistry	CO-1. Know the different analytical techniques. CO-2. To understand different types of separation techniques. CO-3. To study principle, construction and working of GC and HPLC. CO-4. To give an extended knowledge about chromatographic
	techniques used for separation of amino acids. CO-5. Discuss the problem based on distribution coefficient and extraction techniques.

CH-345 Industrial Chemistry	<p>CO-1. Know the various pharmaceutical drugs, their application and synthesis.</p> <p>CO-2. To study the waste management.</p> <p>CO-3. To understand the function of dyes, paints and pigments. CO-4. To study the various type of surfactants.</p> <p>CO-5. To know about molasses and bagasse.</p> <p>CO-6. To study the different types of polymer.</p>
CH-346 Environmental Chemistry	<p>CO-1. Methods of water purification</p> <p>CO-2. Waste water treatment process.</p> <p>CO-3. Waste water treatment plants</p> <p>CO-4. Types of soil</p> <p>CO-5. Components of soil</p> <p>CO-6. Techniques used to monitor hazardous materials present in environment</p> <p>CO-7. Green house gases and their effects</p> <p>CO-8. Resources of green solvents like alcohol and water</p> <p>CO-9. Conventional and nonconventional energy resources.</p> <p>CO-10. Conservation of energy.</p> <p>CO-11. Utilization of solar and wind energies.</p>
CH-347 Physical Chemistry practical's	<p>CO-1. Calculate molar and normal solution of various concentrations.</p> <p>CO-2. Determine specific rotations and percentage of optically active substances by polarimetrically.</p> <p>CO-3. Study the energy of activation and second order reaction.</p> <p>CO-4. Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry.</p> <p>CO-5. Find out the acidity, Basicity and PKa Value on pH meter.</p> <p>CO-6 Study and operate the pH meter, potentiometer, conductivity meter, refractometer.</p>
CH-348 Inorganic Chemistry Practical's	<p>CO-1. Study the gravimetric and volumetric analysis of ores and alloy.</p> <p>CO-2. Prepare a various inorganic complexes and determine its % purity.</p> <p>CO-3. To study binary mixture with removal of borate and phosphate.</p> <p>CO-4. To understand the chromatographic techniques</p>
CH-349 Organic Chemistry Practical's	<p>CO-1. Perform the Binary mixtures.</p> <p>CO-2. Preparation of organic compounds, their purifications and run TLC.</p>
	<p>CO-3. Determination of physical constant: Melting point, Boiling point.</p> <p>CO-4. Different separation techniques.</p>

Zoology Programme Outcomes: B. Sc Zoology

Course Outcomes B. Sc Zoology Semester I & II	
Course	Outcomes
F.Y.B.Sc.	Semester I and II
Paper - I ZY-101:- Animal Systematic and Diversity-I and II	<p>CO-1 Understand the evolution, history of Systematics classification in animals.</p> <p>CO-2 Understand the evolution, history of Invertebrates</p> <p>CO-3 They know Salient features of all Invertebrate phylum in detail.</p> <p>CO-4 Understand the examples of all Invertebrate phylum in detail.</p> <p>CO-5 Understand the structure and function of unicellular animals.</p> <p>CO-6 Talk about Migration, Neoteny & Parental Care in Different Animals.</p> <p>CO-7 Talk the various internal systems like Digestive system, nervous system in Paramecium, Earthworm and Frog with the help of charts</p>
Paper- II Fundamentals of Cell Biology and Genetics	<p>CO-1 Understand the laws of heredity and their practical application.</p> <p>CO-2 Understand the Test cross and Back cross.</p> <p>CO-3 Understand the concept of gene interaction, codominance and incomplete dominance.</p> <p>CO-4 Understand the Lethal genes and their examples.</p> <p>CO-5 Understand the Concept, characteristics and importance of multiples alleles, ABO & Rh-blood group system and its medicolegal importance.</p> <p>CO-6 Talk about types of chromosomes and Chromosomal theory of sex determination.</p> <p>CO-7 Talk about the human karyotype and Syndromes.</p> <p>CO-8 Understand Inborn errors of metabolism and Sex linked inheritance in human.</p> <p>CO-9 Understand the Genetic counseling, Concept of genetic Engineering and Eugenics.</p>

F.Y.B.Sc. P- III ZY-103:- Zoology Practical	CO-1 Discuss the phylum with suitable specimens. CO-2 To prepare the temporary and permanent slide of different mitotic phases in the root cap. CO-3 To prepare live Paramecium culture in the Laboratory. CO-4 Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts. CO-5 Understand the karyotype from metaphase chromosomal spread pictures and blood groups in humans. CO-6 Understand the cell organelles from electron micrographs. CO-7 To understand practicals for visiting the vermiculture unit/biodiversity spot/ZSI/large water body.
F.Y.B.Sc.	New Syllabus of CBCS Semester I
F.Y.B.Sc. Paper I Animal Diversity I (Course Code- ZO-111)	CO-1 To understand the Animal diversity around us. CO-2 To understand the underlying principles of classification of animals. CO-3 To understand the terminology needed in classification. CO-4 To understand the differences and similarities in the various aspects of classification. CO-5 To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature. CO-6 To understand our role as a caretaker and promoter of life. CO-7 The student will be able to understand, classify and identify the diversity of animals. CO-8 The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. CO-9 The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
F.Y.B.Sc. Paper II Animal Ecology (Course Code: ZO 112)	CO-1 The learners will be able to identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population. CO-2 To understand, anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature. CO-3 The Learner understands and appreciates the diversity of ecosystems and

	<p>applies beyond the syllabi to understand the local lifestyle and problems of the community.</p> <p>CO-4 The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components.</p> <p>CO-5 The working in nature to save the environment will help development of leadership skills to promote betterment of the environment.</p>
<p>Paper III</p> <p>Zoology</p> <p>Practical Paper</p> <p>(Course Code: ZO113)</p>	<p>CO-1 Discuss the phylum with suitable specimens.</p> <p>CO-2 To prepare the culture of Paramecium .</p> <p>CO-3 To prepare the permanent slides: Spicules and Gemmules in Sponges, T.S. of Sycon, T.S. of Hydra, Taenia Solium: Scolex, Gravid proglottid.</p> <p>CO-4 Visit to Zoological survey of India/ Museum/National Park.</p> <p>CO-5 Understand the animal community structure, Determination of density, frequency and abundance of species by quadrat method.</p> <p>CO-6 To understand microscopic fauna of freshwater ecosystems.</p> <p>CO-7 To understand Estimation of water holding capacity of given soil sample and Estimation of dissolved and free carbon dioxide from water sample.</p> <p>CO-8 To understand the Eutrophication in lake/river.</p>
F.Y.B.Sc.	Semester II
<p>Paper -I</p> <p>Animal</p> <p>Diversity II</p> <p>(Course Code: ZO-121)</p>	<p>CO-1To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature.</p> <p>CO-2 The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.</p> <p>CO-3 To understand the terminology needed in classification.</p> <p>CO-4To understand our role as a caretaker and promoter of life.</p> <p>CO-5 To understand the Animal diversity around us.</p> <p>CO-6 To understand the underlying principles of classification of animals.</p> <p>CO-7 The student will be able to understand, classify and identify the diversity of animals.</p> <p>CO-8 The student understands the importance of classification of animals and classifies them effectively using the six levels of classification.</p> <p>CO-9 To understand the differences and similarities in the various aspects of classification.</p>

<p>F.Y.B.Sc. Paper II Cell Biology (Course Code: ZO122)</p>	<p>CO-1 The learner will understand the importance of cell as a structural and functional unit of life.</p> <p>CO-2 The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates life to the aspect of development.</p> <p>CO-3 The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life.</p> <p>CO-4 The cellular mechanisms and its functioning depends on endo-membranes and structures. They are best studied with microscopy.</p>
<p>F.Y.B.Sc. Paper III Zoology Practical Paper (Course Code: ZO123)</p>	<p>CO-1 Discuss the phylum with suitable specimens.</p> <p>CO-2 To prepare the culture of Paramecium .</p> <p>CO-3 To prepare the permanent slides: Mouthparts of Insects -Mandibulate, Piercing and sucking, Chewing and Lapping.</p> <p>CO-4 To understand Economic importance of honey bees, Lac insects silkworms, red cotton bug, Anopheles mosquito</p> <p>CO-5 To understand types of Shells in Mollusca.</p> <p>CO-6 To understand vermicomposting bin preparation and maintenance.</p> <p>CO-7 Visit to a vermicomposting unit/ field for insect pest collection and its identification</p> <p>CO-8 To understand the Microscope (Simple and Compound) and Measurement of microscopic objects.</p> <p>CO-9 To understand the preparation of a temporary mount of human buccal epithelial cells and blood smears to observe the blood cells.</p> <p>CO-10 To understand the temporary preparation of mitotic cells from onion roots</p> <p>CO-11 To understand the study of Cell organelles.</p>
<p>S.Y.B.Sc.</p>	<p><u>Semester-I</u></p>
<p>Paper- I ZY-211 Animal Systematic and Diversity</p>	<p>CO-1 Understand the evolution, history of phylum.</p> <p>CO-2 Understand about the Phylum Arthropoda.</p> <p>CO-3 They know the Salient features of phylum Arthropoda, Mollusca and Echinodermata upto classes.</p> <p>CO-4 Understand the economical importance of Insects and Molluscs.</p> <p>CO-5 Understand about structure and function of Mouthparts, Metamorphosis and Mimicry Insect.</p>

-III	<p>CO-6 Understand the evolution, history of Echinoderms.</p> <p>CO-7 Talk about the evolution, history of Migration in birds.</p> <p>CO-8 Talk about the various internal systems like Digestive system, nervous system in Starfish with the help of charts.</p>
<p>Paper- II</p> <p>Applied Zoology-I</p>	<p>CO-1 Understand an introduction to fisheries and its types.</p> <p>CO-2 Understand the Different types of ponds used in fishery.</p> <p>CO-3 Understand the Habit, habitat and culture methods of Rohu, Catla, Mrigal, Giant prawn.</p> <p>CO-4 Understand the Harvesting methods of Harpadon, Mackerel, Lobster, Pearl oyster.</p> <p>CO-5 Understand the Crafts and gears in Indian Fishery.</p> <p>CO-6 Talk about Fishery byproducts.</p> <p>CO-7 Talk about Fish preservation technique.</p> <p>CO-8 Understand the Agricultural Pests and their control.</p> <p>CO-9 Understand the Pest control practices in brief.</p>
S.Y.B.Sc.	<u>Semester-II</u>
<p>Paper- I</p> <p>ZY-211 Animal Systematic and Diversity - IV</p>	<p>CO-1 Understand the evolution and History of class Reptilia, Aves, Mammalia.</p> <p>CO-2 They know Salient features of class Reptilia, Aves, Mammalia with Suitable Examples.</p> <p>CO-3 Understand the poisonous and non-poisonous snakes with the help of charts.</p> <p>CO-4 Understand the evolution and History of Desert reptiles, aerial Birds .</p> <p>CO-5 Understand structure and function of beak and feet modification in birds .</p> <p>CO-6 Understand the evolution and history of aquatic and egg laying Mammals.</p> <p>CO-7 Understand the economical importance of Molluscan shells.</p> <p>CO-8 Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts.</p>
<p>Paper- II</p> <p>Applied Zoology-II</p>	<p>CO-1 Understand the An introduction to Apiculture, Study of habit, habitat and nesting behavior of bees.</p> <p>CO-2 Understand the Life cycle, Colony organization and division of labour, Polymorphism.</p> <p>CO-3 Understand the Bee behaviour, bee communication and Beekeeping equipment.</p> <p>CO-4 Understand the Bee keeping and seasonal management.</p>

	<p>CO-5 Understand the Bee products, Diseases and enemies of Bees.</p> <p>CO-6 Talk about Bee pollination.</p> <p>CO-7 Talk about An introduction to sericulture, Study of different types of silk moths, their distribution and varieties of silk produced by Mulberry, Tassar, Eri and Muga silkworms in India.</p> <p>CO-8 Understand the Cultivation, Harvesting of mulberry.</p> <p>CO-9 Understand the Silk worm rearing, Post harvest processing of cocoons.</p>
<p>Paper- III</p> <p>Zoology</p> <p>Practical</p> <p>(ZY-223)</p>	<p>CO-1 Discuss the phylum with suitable specimens.</p> <p>CO-2 To prepare the temporary and permanent slide of T.S. of Arm, pedicellariae and mouthparts respectively .</p> <p>CO-3 Discuss the shell and foot modification in Mollusca with suitable specimens.</p> <p>CO-4 Understand the various internal systems like Digestive system, nervous system in Scoliodon with the help of charts.</p> <p>CO-5 To understand practicals for visiting the sea coast/fishery institute/sericulture farm/apiculture institute / agricultural farm.</p>
<p>S.Y.B.Sc.</p> <p>(2020 CBCS</p> <p>PATTERN)</p>	<p style="text-align: center;">New Syllabus of CBCS</p> <p style="text-align: center;">Semester I</p>
<p>S.Y.B.Sc.</p> <p>Paper I</p> <p>Animal</p> <p>Diversity III</p> <p>(Course Code-</p> <p>ZO-231)</p>	<p>CO-1 To understand the origin and advancement of higher Vertebrates .</p> <p>CO-2 To understand general characters of different groups of higher vertebrate.</p> <p>CO-3 To understand the different behaviour and adaptations in higher vertebrates.</p> <p>CO-4 To understand the affinities among different groups of higher Vertebrates.</p> <p>CO-5 To classify vertebrates and to become able to understand the possible group of vertebrates observed in nature.</p> <p>The students will be able to understand the complexity of higher vertebrates.</p> <p>CO-6 The students will be able to understand different life functions of higher vertebrates.</p> <p>CO-7 The students will be able to understand the linkage among different groups of higher vertebrates.</p>

<p>S.Y.B.Sc. Paper II Applied Zoology I (Course Code: ZO 232)</p>	<p>CO-1 To understand the biology, varieties of silkworms and the basic techniques of silk production and harvesting of cocoons.</p> <p>CO-2 To learn the different silkworm species and their host plants.</p> <p>CO-3 To study types of agricultural pests and Major insect pests of agricultural importance.</p> <p>CO-4 To study Pest control practices.</p> <p>CO-5 The learner understands the basics about beekeeping tools, equipment, and managing beehives.</p> <p>CO-6 The learner understands the basic information about fishery, cultural and harvesting methods of fishes and fish preservation techniques.</p>
<p>S.Y.B.Sc. Paper III Zoology Practical Paper (Course Code: ZO233)</p>	<p>CO-1 Discuss the phylum with suitable specimens.</p> <p>CO-2 Understand the types of Fin in Fishes.</p> <p>CO-3 To prepare the slides: Placoid, Ctenoid, Cycloid, Ganoid Scale.</p> <p>CO-4 Visit to Zoological survey of India/ Museum/National Park.</p> <p>CO-5 Understand the Pond Ecosystem.</p> <p>CO-6 To understand microscopic fauna of freshwater ecosystems.</p> <p>CO-7 To understand external morphology, life cycle and their important of Silkworm.</p> <p>CO-8 To understand agricultural pests and their management.</p>
<p>S.Y.B.Sc. (2020 CBCS PATTERN)</p>	<p>Semester II</p>
<p>S.Y.B.Sc. Paper -I Animal Diversity IV (Course Code: ZO-241)</p>	<p>CO-1 The students will be able to understand, classify and identify the diversity of higher vertebrates.</p> <p>CO-2 The students will be able to understand the complexity of higher vertebrates.</p> <p>CO-3 The students will be able to understand different life functions of higher vertebrates.</p> <p>CO-4 The students will be able to understand the linkage among different groups of higher vertebrates.</p> <p>CO-5 The student will become aware regarding his role and responsibility towards nature as a protector, to understand his role as a trustee and conservator of life which he has achieved by learning, observing and understanding life</p>

<p>S.Y.B.Sc. Paper II Applied Zoology II (Course Code: ZO 242)</p>	<p>CO-1 To understand the basic life cycle of the honey bees, beekeeping tools and equipment.</p> <p>CO-2 To learn to manage bee hives for honey production and pollination.</p> <p>CO-3 To understand the basic information about fishery, cultural and harvesting methods of fishes.</p> <p>CO-4 To understand fish preservation techniques.</p> <p>CO-5 The learner understands the biology, varieties of silkworms and the basic techniques of silk production.</p> <p>CO-6 The learner understands the types of agricultural pests, Major insect pests of agricultural importance and Pest control practices.</p>
<p>S.Y.B.Sc. Paper III Zoology Practical Paper (Course Code: ZO 243)</p>	<p>CO-1 Discuss the phylum with suitable specimens.</p> <p>CO-2 To understand external morphology, life cycle and their important of Honey Bees.</p> <p>CO-3 To prepare the temporary mounting of the mouthparts of different Insect.</p> <p>CO-4 To understand the external and internal structure of Rat.</p> <p>CO-5 To understand Animal Diversity in and around the campus.</p> <p>CO-6 . To understand classification and importance of aquatic Fish.</p> <p>CO-7 Visit to an apiculture unit/ Fish Farm/Aquarium for more study about fishes.</p> <p>CO-8 To understand maintenance of aquariums.</p> <p>CO-9 To understand Craft and Gear in Fishing.</p> <p>CO-10 To understand nutritional values of Fish.</p>

Department of Physics

PROGRAMME OUTCOMES: B. Sc. PHYSICS

Department of Physics	After successful completion of three year degree program in physics a student should be able to;
Programme Outcomes	<p>PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of physics.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments.</p> <p>PO-4. Create an awareness of the impact of Physics on the society, and development outside the scientific community.</p> <p>PO-5. PO-6. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-7. Use modern techniques, decent equipments and Phonics software's</p>
Programme Specific Outcomes	<p>PSO-1. Gain the knowledge of Physics through theory and practical's. PSO-2. Understand good laboratory practices and safety.</p> <p>PSO-3. Develop research oriented skills.</p> <p>PSO-4. Make aware and handle the sophisticated instruments/equipments.</p>
Course Outcomes B. Sc Physics	
Course	Outcomes
	After completion of these courses students should be able to;
F. Y. B. Sc.	Semester I
F.Y.B.Sc. P I	<p>CO-1. To understand the motion,displacement ,velocity,acceleration.</p> <p>CO-2. To understand the energy,work ,force.</p> <p>CO-3. To understand the viscous force,viscosity,application of viscous force.</p> <p>CO-4. To understand the surface tension ,angle of contact and stress and strain,application of surface tension.</p> <p>CO-5.To demonstrate quantative problem solving skills in of topics covered.</p>
F.Y.B.Sc. P II	<p>CO-1. To understand the general structure of atom ,spectrum of hydrogen atom.</p> <p>CO-2.To understand the excitationand laser principles.</p> <p>CO-3.To understand the bonding mechanisms and its different types.</p>

	<p>CO-4.To demonstrate and understanding of E.M waves and spectrum.</p> <p>CO-5.To understand thetypes and sources of E.M waves and application.</p> <p>CO-6.To demonstrate quantative problem solving skills in of topics covered.</p>
F.Y.B.Sc. P III	<ol style="list-style-type: none"> 1. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. 2. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data. 3. Demonstrate an understanding of laboratory procedures including safety, and scientific methods. 4. Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena. 5. Acquire the complementary skills of collaborative learning and teamwork inlaboratory settings.
F. Y. B. Sc.	Semester II
F.Y.B.Sc. P I	<p>CO-1. Describe the properties of and relationships between the thermodynamic properties of a pure substance.</p> <p>CO- 2. Describe the ideal gas equation and its limitations.</p> <p>CO- 3. Describe the real gas equation. CO-4. Apply the laws of thermodynamics to formulate the relations necessary to analyze a thermodynamic process.</p> <p>CO- 5. Analyse the heat engines and calculate thermal efficiency.</p> <p>CO- 6. Analyze the refrigerators, heat pumps and calculate coefficient of performance.</p> <p>CO- 7. Understand property ‘entropy’ and derive some thermo dynamical relations using entropy concept.</p> <p>CO- 8. Understand the types of thermometers and their usage.</p>
F.Y.B.Sc. P II	<p>CO-1. Demonstrate an understanding of the electric force, field and potential, and related concepts, for stationary charges.</p> <p>CO-2. Calculate electrostatic field and potential of simple charge distributions using Coulomb's law and Gauss's law.</p> <p>CO-3. Demonstrate an understanding of the dielectric and effect on dielectric due to electric field.</p> <p>CO-4. Demonstrate an understanding of the magnetic field for steady currents using Biot-Savart and Ampere's laws.</p> <p>CO-5. Demonstrate an understanding of magnetization of materials. CO-6. Demonstrate quantitative problem solving skills in all the topics covered.</p>
F.Y.B.Sc. P III	<ol style="list-style-type: none"> 1. Acquire technical and manipulative skills in using laboratory equipment, tools, and materials. 2. Demonstrate an ability to collect data through observation and/or experimentation and interpreting data. 3. Demonstrate an understanding of laboratory procedures including safety,

	<p>and scientific methods.</p> <p>4. Demonstrate a deeper understanding of abstract concepts and theories gained by experiencing and visualizing them as authentic phenomena.</p> <p>5. Acquire the complementary skills of collaborative learning and teamwork in laboratory settings.</p>
S.Y.B.Sc. P I	<p>CO-1 Understand the complex algebra useful in physics courses</p> <p>CO-2 Understand the concept of partial differentiation.</p> <p>CO-3 Understand the role of partial differential equations in physics</p> <p>CO-4 Understand vector algebra useful in mathematics and physics</p> <p>CO5- Understand the singular points of differential equation.</p>
S.Y.B.Sc. P II	<p>CO-1 Apply laws of electrical circuits to different circuits.</p> <p>CO-2 Understand the relations in electricity</p> <p>CO-3 Understand the properties and working of transistors.</p> <p>CO-4 Understand the functions of operational amplifiers.</p> <p>CO-5 Design circuits using transistors and operational amplifiers.</p> <p>CO-6 Understand the Boolean algebra and logic circuits.</p>
S.Y.B.Sc. P I SEM II	<p>CO-1. Understand the physics and mathematics of oscillations.</p> <p>CO-2 Solve the equations of motion for simple harmonic, damped, and forced oscillators.</p> <p>CO-3 Formulate these equations and understand their physical content in a variety of applications,</p> <p>CO-4 Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion.</p> <p>CO-5 Explain oscillation in terms of energy exchange, giving various examples.</p> <p>CO-6 Solve problems relating to undamped, damped and force oscillators and superposition of oscillations. • Understand the mathematical description of travelling and standing waves.</p> <p>CO-7 Recognise the one-dimensional classical wave equation and solutions to it.</p> <p>CO-8 Calculate the phase velocity of a travelling wave.</p> <p>CO-9 • Explain the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.</p> <p>CO-10 Define the decibel scale qualitatively, and give examples of sounds at various levels.</p> <p>CO-11 Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments. • Explain oscillation in terms of energy exchange, giving various examples. Solve problems relating to undamped, damped and force oscillators and superposition of oscillations.</p> <p>CO-12 Understand the mathematical description of travelling and standing waves. Recognise the one-dimensional classical wave equation and solutions to it. Calculate the phase velocity of a travelling wave. Explain the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.</p>

	CO-13 Define the decibel scale qualitatively, and give examples of sounds at various levels. Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments.
S.Y.B.Sc. P II	CO-1 acquire the basic concepts of wave optics CO-2 describe how light can constructively and destructively interfere CO-3 explain why a light beam spreads out after passing through an aperture CO-4 summarize the polarization characteristics of electromagnetic waves CO-5 appreciate the operation of many modern optical devices that utilize wave optics CO-6 Understand optical phenomena such as polarisation, birefringence, interference and diffraction in terms of the wave model. CO-7 analyse simple examples of interference and diffraction phenomena. CO-8 be familiar with a range of equipment used in modern optics.
S.Y.B.Sc P III	CO 1. After completing this practical course students will be able to CO 2 Use various instruments and equipment. CO 3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity. CO 4 Investigate the theoretical background to an experiment. CO 5 Set up experimental equipment to implement an experimental approach. CO 6 Analyse data, plot appropriate graphs and reach conclusions from your data analysis. CO7 Work in a group to plan, implement and report on a project/experiment. CO 8 Keep a well-maintained and instructive laboratory logbook.
S.Y.B.Sc-2020 SEMETER III (2020 CBCS PATTERN)	Credit Pattern
S.Y.B.Sc-2020 P-I	Course code and title: PHY-231: Mathematical Methods in Physics CO-1. After the completion of this course students will be able to Understand the complex algebra useful in physics courses. CO-2.Understand the concept of partial differentiation. CO-3.Understand the role of partial differential equations in physics. CO-4 .Understand vector algebra useful in mathematics and physics. CO-5 .Understand the concept of singular points of differential equation
S.Y.B.Sc-2020 P-II	Course code and title: PHY-232: Electronics On successful completion of this course the students will be able to Apply different theorems and laws to electrical circuits. CO-1• Understand the relations in electricity. CO-2Understand the parameters, characteristics and working of transistors. CO-3 Understand the functions of operational amplifiers.

	<p>CO-4 Design circuits using transistors and applications of operational amplifiers.</p> <p>CO-5 Understand the Boolean algebra and logic circuits.</p>
S.Y.B.Sc-2020 P-III	<p>Course code and title: PHY-233: Practical Course (Laboratory 2A) CO-1.After completing this practical course students will be able to Use various instruments and equipment.</p> <p>CO-2..Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>Investigate the theoretical background of an experiment.</p> <p>CO-3. Setup experimental equipment to implement an experimental approach. Analyze the data, plot appropriate graphs and reach conclusions from data analysis.</p> <p>CO-4.Work in a group to plan, implement and report on a project/experiment.</p> <p>V.Keep a well-maintained and instructive laboratory logbook.</p>
S.Y.B.Sc-2020 SEMETER -IV P-I	<p>Course code and title: PHY-241: Oscillations, Waves, and Sound</p> <p>CO-1 To study underlying principles of oscillations and it's scope in development.</p> <p>CO-2 To understand and solve the equations / graphical representations of motion for simple harmonic, damped, forced oscillators and waves.</p> <p>CO-3 To explain oscillations in terms of energy exchange with various practical applications.</p> <p>CO-4 To solve numerical problems related to undamped, damped, forced oscillations and superposition of oscillations.</p> <p>CO-5 To study characteristics of sound, decibel scales and applications.</p>
S.Y.B.Sc-2020 SEMETER -IV P-II	<p>Course code and title: PHY-242: OpticsAcquire the basic concept of wave optics.</p> <p>CO-1.Describe how light can constructively and destructively interfere.</p> <p>CO-2..Explain why a light beam spread out after passing through an aperture Summarize the polarization characteristics of electromagnetic wave Understand the operation of many modern optical devices that utilize wave optics</p> <p>CO-3.Understand optical phenomenon such polarization, diffraction and interference in terms of the wave model Analyze simple example of interference and diffraction.</p>
S.Y.B.Sc-2020 SEMETER -IV P-III	<p>Course code and title: PHY-243: Practical Course (Laboratory 2B)</p> <p>CO-1.Use various instruments and equipment.</p> <p>CO-2 Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>CO-3 Investigate the theoretical background of an experiment.</p> <p>CO-4Setup experimental equipment to implement an experimental approach.</p> <p>CO-5.Analyze the data, plot appropriate graphs and reach conclusions from data analysis.</p> <p>CO-6 Work in a group to plan, implement and report on a</p>

	project/experiment. CO-7.Keep a well-maintained and instructive laboratory logbook.
PH-331: Mathematical Methods in Physics II	<u>Semester-III</u> CO-1. Know the Cartesian, spherical polar and cylindrical co-ordinate systems. CO-2. To understand the Special Theory of Relativity. CO-3. Discuss the Michelson- Morley Experiment. CO-4 To obtain the series solution by Frobenius method . CO-5 Study the Generating function for Legendre, Hermite polynomials.
PH 332: Solid State Physics	CO-1. Know the principles of structures determination by diffraction CO-2. To understand the principles and techniques of X-rays diffraction CO-3. Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density CO-4. To give an extended knowledge about magnetic properties like

	diamagnetic, paramagnetic, ferromagnetic, ferrites and superconductors
PH-333: Classical Mechanics	CO-1.Understand Newton's Laws of motion and their applications such as projectile and rocket motion CO-2. Gain the knowledge of motion in central force field CO-3. Classify elastic and inelastic scattering CO-4. Know the difference between Laboratory and centre of mass system CO-5. Understands Lagrangian and Hamiltonian formulation CO-6 Solve the problems using Lagrangian and Hamiltonian formulation CO-7 Get knowledge of canonical transformation and Poisson's bracket
PH-334: Atomic and Molecular Physics	CO-1. To know the Rutherford Experiment of atom. CO-2. To understand molecular spectra of atom. CO-3. To study the Raman spectra. CO-4. To study the Zeeman Effect. CO-5. To understand the Quantum Numbers.
PH-335: Computational Physics	CO-1. Write algorithm and flow chart for c-programming language. CO-2. To use of iterative, decision making and the jump statement. CO-3. Understand the concept of arrays and pointers. CO-4. Study of user defined functions and program structures. CO-5. Able to use the concept graphics in c language.

PH-336 B: Elements of Materials Science	<p>CO-1. To study the Mechanical, Electrical and Thermal Properties of material.</p> <p>CO-2. Discuss the type of Phase Diagrams.</p> <p>CO-3. Know the solid solution and types of solid solution.</p> <p>CO-4. Understanding the Point Defect, Line Defect with example.</p> <p>CO-5. Study the Diffusion Mechanism.</p> <p>CO-6. Know the difference between Elastic and Plastic Deformation.</p> <p>CO-7. To understand the Polymer Vulcanization of rubber.</p> <p>CO-8. Know the AX-type crystal structure – eg. NaCl, ZnS etc.</p>
<p>Course Outcomes B. Sc. Physics</p> <p><u>Semester-IV</u></p>	
PH-341 Classical Electrodynamics	<p>CO-1. Understand Mechanics of system of particles.</p> <p>CO-2. Know the Motion in Central Force Field.</p> <p>CO-3 Elastic and inelastic scattering.</p> <p>CO-4. Solve Langrangian and Hamiltonian formulation.</p> <p>CO-5. Learn Canonical Transformation and Poisson's Bracket.</p>
PH-342: Quantum Mechanics	CO-1. Understand De-Broglie hypothesis and Uncertainty principle
	<p>CO-2. Derive Schrodinger's time dependent and independent equations</p> <p>CO-3. Solve the problems using Schrödinger's steady state equation</p> <p>CO-4. Get knowledge of rigid rotator</p> <p>CO-5. Understand different operators in Quantum Mechanics</p>
PH-343: Thermodynamics and Statistical Physics	<p>CO-1. To study kinetic theory of Gases.</p> <p>CO-2. To study Maxwell Relations and Application.</p> <p>CO-3. Know the elementary concept of statistics.</p> <p>CO-4. Understand statistical distribution of system of particles.</p> <p>CO-5. To study statistical ensembles.</p> <p>CO-6. To study Quantum statistics.</p>
PH-344: Nuclear Physics	<p>CO-1. Know the properties of nucleus likes binding energy, magnetic dipole moment and electric quadruple moment</p> <p>CO-2. To understand the concept of radioactivity and decays law</p> <p>CO-3. To study achievement of Nuclear Models of Physics and its limitations</p> <p>CO-4. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion</p> <p>CO-5. To understand the basic concept of Particle Physics</p>
PH-345: Electronics	<p>CO-1. Know the special purpose Diode.</p> <p>CO-2. To study the Transistor Amplifier.</p> <p>CO-3. To understand the FET, JFET, MOSFET.</p> <p>CO-4. To study the Operational Amplifier and their types.</p> <p>CO-5. To know the Timer IC- 555 and its classification.</p> <p>CO-6. To study the Regulated Power supply.</p> <p>CO-7. To understand the Sequential Logic Circuits.</p>

PH-346 K: Lasers	<p>CO-1. Know the history of LASERS and its basic concepts.</p> <p>CO-2. Understand the basic principle and working of different types of lasers.</p> <p>CO-3. Know the applications of lasers in various fields.</p> <p>CO-4. Understand the characteristics of LASERS.</p> <p>CO-5. Learn safety precaution and measures while handling the lasers.</p>
Practical 1	<p>1. After completing this practical course students will be able to</p> <p>2 Use various instruments and equipment.</p> <p>3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>4 Investigate the theoretical background to an experiment.</p> <p>5 Set up experimental equipment to implement an experimental approach.</p> <p>6 Analyse data, plot appropriate graphs and reach conclusions from your data analysis.</p> <p>7 Work in a group to plan, implement and report on a project/experiment.</p> <p>8 Keep a well-maintained and instructive laboratory logbook</p>
Practical 2	<p>1. After completing this practical course students will be able to</p> <p>2 Use various instruments and equipment.</p> <p>3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>4 Investigate the theoretical background to an experiment.</p> <p>5 Set up experimental equipment to implement an experimental approach.</p> <p>6 Analyse data, plot appropriate graphs and reach conclusions from your data analysis.</p> <p>7 Work in a group to plan, implement and report on a project/experiment.</p> <p>8 Keep a well-maintained and instructive laboratory logbook</p>
Practical 3	<p>1. After completing this practical course students will be able to</p> <p>2 Use various instruments and equipment.</p> <p>3 Design experiments to test a hypothesis and/or determine the value of an unknown quantity.</p> <p>4 Investigate the theoretical background to an experiment.</p> <p>5 Set up experimental equipment to implement an experimental approach.</p> <p>6 Analyse data, plot appropriate graphs and reach conclusions from your data analysis.</p> <p>7 Work in a group to plan, implement and report on a project/experiment.</p> <p>8 Keep a well-maintained and instructive laboratory logbook</p>

Department of Botany

Programme Outcomes: B. Sc Botany

Department of Botany	After successful completion of three-year degree program in Botany a student is able to;
Programme Outcomes	<p>PO-1. Students know about different types of lower & higher plants their evolution from algae to angiosperm & also their economic and ecological importance.</p> <p>PO-2. Cell biology gives knowledge about cell organelles & their functions</p> <p>PO-3. Molecular biology gives knowledge about the chemical properties of nucleic acid and their role in living systems.</p> <p>PO-4. Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal aberrations & multiple alleles.</p> <p>PO-5. Structural changes in chromosomes.</p> <p>PO-6. Students can describe morphological & reproductive characters of plants and also identify different plant families and classification.</p> <p>PO-7. They know the economic importance of various plant products & artificial methods of plant propagation</p> <p>PO-8. Use modern Botanical techniques and decent equipment.</p> <p>PO-9. To inculcate the scientific temperament in the students and outside the scientific community.</p>
Programme Specific Outcomes	<p>PSO-1. Students acquire fundamental Botanical knowledge through theory and practical's.</p> <p>PSO-2. To explain the basis plant of life, reproduction and their survival in nature.</p>

	<p>PSO-3. Helped to understand the role of living and fossil plants in our life. PSO-4. Understand good laboratory practices and safety. PSO-5 To create awareness about cultivation, conservation and sustainable utilization of biodiversity.</p> <p>PSO-6. To know advanced techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs, etc.</p> <p>PSO-7 Students are able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation, and horticultural practices.</p>
Course Outcomes B. Sc. Botany	
Course	Outcomes
	After completion of these courses students should be able to;
F.Y.B.Sc.	Semester I
FYBSC P I Plant life and utilization I -	<p>CO1 - Student helped to understand the General outline of the plant kingdom</p> <p>CO2 - Distinguishing characters, Classification, Life Cycle of plant groups like Algae, Fungi, Lichen and Bryophytes</p>
FYBSC P II Plant morphology and Anatomy	<p>CO1- Students know about the morphology plans.</p> <p>CO2- They understand the scope of plant morphology.</p> <p>CO3- Student helped to understand the morphology of reproductive parts of plants like inflorescence, flower, and fruit</p> <p>CO 4 - Anatomy of plants helped to understand the types of tissues and internal structure of the primary plant body.</p>
FYBSC P III Practical	<p>CO1- Students can describe morphological & anatomical characters of plants.</p> <p>CO2 - Students can understand the life cycle of <i>Spirogyra</i>, <i>Agaricus</i>, <i>Riccia</i>.</p> <p>CO3- They can cultivate mushrooms.</p> <p>CO 4- Study visit increases interest among students about the subject.</p>
F.Y.B.Sc.	Semester II

FYBSC P I PLANT LIFE AND UTILIZATION-II	<p>CO1 - Students helped to understand the distinguishing characters, Classification, Life Cycle of plant groups like Pteridophytes, Gymnosperm, and Angiosperm.</p> <p>CO2 - They know the economic importance of Pteridophytes, Gymnosperm, and Angiosperm.</p> <p>CO3 - They can understand the habit, habitat, types of reproduction, morphological and anatomical characters of the plant group.</p>
FYBSC P II PRINCIPLES OF PLANT SCIENCE	<p>CO1- Understands the plant physiology and its scopes.</p> <p>CO2- They study the plant cell structure and its components, the difference between prokaryotic and eukaryotic cells.</p> <p>CO3 - They increase knowledge about molecular biology.</p> <p>CO4- Students understand the structure of DNA and its types.</p> <p>CO5 - They study the process of transcription, DNA replication and Packing of DNA into chromosomes, types of chromosomes.</p>
FYBSC P III Practical	<p>CO1 - Students are able to describe anatomical and morphological characters of <i>Nephrolepis</i>, <i>Cycas</i> plant</p> <p>CO2 - Students are able to DNA extraction using the phenol-chloroform method.</p> <p>CO3 - They know the process of estimation of Chlorophyll pigments.</p>
SYBSC P I Taxonomy of Angiosperms and Plant community	<p style="text-align: center;"><u>Semester-III</u></p> <p>CO1 - Students can understand the types of plant classification.</p> <p>CO2 - They know the Sources of data for Systematics like Morphology, anatomy, cytology, embryology, phytochemistry.</p> <p>CO3 - Students understand the principles of ICBN, Binomial nomenclature of plants, plant families and Computers in taxonomy.</p> <p>CO4 - They can study the plant community, ecology, food chain, ecosystem and ecological grouping of plants.</p>
SYBSC P II Plant Physiology	<p>CO1 - Students get knowledge about plant physiology.</p> <p>CO2 - They are able to understand plant water relations, osmosis, plasmolysis.</p> <p>CO3 - Students are able to understand the ascent of sap and transpiration processes</p> <p>CO4 - They understand the properties and practical application of plant growth regulators and hormones.</p>
SYBSC P III PRACTICAL	<p>After completing this practical course students will be able to</p> <p>CO1 - Study the plant families</p> <p>CO2 - Students can understand the tools of taxonomy and ecological instruments and description of flowering plants in botanical terms.</p> <p>CO3 - Determination of Diffusion Pressure Deficit (DPD)</p> <p>CO4 - Determine the rate of transpiration under different conditions of Sunlight, Shade and Wind and Calculate seed germination percentage and vigor index</p>

SYBSC P I Plant Anatomy and Embryology	<p style="text-align: center;"><u>Semester-IV</u></p> <p>CO1 - Study of morphology regarding epidermal tissue system, mechanical and vascular tissue system of a plant.</p> <p>CO2 - To know about normal and anomalous secondary growth</p> <p>CO3 - Students understand about male and female gametophyte, fertilization in plants.</p> <p>CO4 - Types of ovule can easily understand.</p>
SYBSC P II Plant Biotechnology	<p>CO1 - Study of plant biotechnology and its scope.</p> <p>CO2 - Know the enzyme technology and fermentation technology,</p> <p>CO3 - Study the need for Single-cell protein.</p> <p>CO4 - Understand the phytoremediation in environmental biotechnology</p> <p>CO5 - To understand the structure of DNA, Structure of gene in prokaryotes and eukaryotes, Methods of gene transfer in plants and Application of plant genetic engineering in crop improvement</p>
SYBSC P III PRACTICAL	<p>After completing this practical course students will be able to</p> <p>CO1 - Students can understand the epidermal tissue system and the mechanical tissues and their distribution in root, stem and leaves.</p> <p>CO2 - Study the tetrasporangiate anther and types of ovules with the help of permanent slides</p> <p>CO3 - Study the anatomical and embryological through practicals.</p> <p>CO4 - They can know the instruments/equipments used in plant tissue culture laboratory and preparation & sterilization of MS medium.</p>
T.Y.B.Sc. BO . 331 CRYPTOGAMIC BOTANY.	<p style="text-align: center;"><u>T.Y.B.Sc. Semester-III</u></p> <p>CO-1. Study of cryptogams to understand their Diversity.</p> <p>CO-2. Know the systematics, morphology, and structure of algae, fungi, bryophytes, and Pteridophytes.</p> <p>CO- 3. Know the life cycle pattern of cryptogams.</p> <p>CO-4. Know the economic importance of cryptogams.</p> <p>CO-5. Know the evolution of algae, fungi, bryophytes, and Pteridophytes.</p>
BO.332 CELL & MOLECULAR BIOLOGY	<p>CO-1. Gain knowledge about cell and its function.</p> <p>CO-2. Learn the scope and importance of molecular biology.</p> <p>CO-3. Understand the ultrastructure of the cell wall, plasma membrane, and cell organelles</p> <p>CO-4. Understand the biochemistry of the cell.</p> <p>CO-5. Understand the biochemical nature of nucleic acid and its role in living systems.</p>

<p>BO. 333 GENETICS AND EVOLUTION</p>	<p>CO-1. Understand the Mendelian and neo-Mendelian genetics.</p> <p>CO-2 Know about the interaction of genes, multiple alleles and linkage and crossing over.</p> <p>CO-3. Know about sex-linked inheritance, chromosomal aberrations.</p> <p>CO-4. Know the evolutionary sequence of various groups of plants.</p>
<p>BO.334 SPERMATOPHYTES AND PALAEOBOTANY</p>	<p>CO-1. A systematic study of gymnosperms and angiosperms.</p> <p>CO-2. Understand the morphological and reproductive character of spermatophyte plants.</p> <p>CO-3. Understand the economic importance of gymnosperms and angiosperms.</p> <p>CO-4. Understand the diversity among spermatophyte.</p> <p>CO-5. To bring an investigation of palaeobotanical study in India.</p> <p>CO-6. Know, scope and application of Palaeobotany.</p> <p>CO-5. Know types of fossils, geological time scale.</p>
<p>BO.335 HORTICULTURE & FLORICULTURE</p>	<p>CO-1. Understand the economic importance of plant and plant products.</p> <p>CO-2. Know the methods of plant propagation.</p> <p>CO-3. Understand the fruit & vegetable production technology.</p> <p>CO-4. Understand the scope & importance of floriculture.</p> <p>CO-5. Understand the methods of cultivation of different flowering plants.</p>
<p>BO.336 COMPUTATIONAL BOTANY</p>	<p>CO-1. Understand the scope & importance of biostatistics.</p> <p>CO-2. Understand the scope and some basic commonly used terms like sampling, data, dispersion, population, central tendency, etc.</p> <p>CO-3. Knowledge to apply statistical analysis to biological data for testing different hypotheses.</p>

Course Outcomes B. Sc Botany

Semester-IV

BO. 341 PLANT PHYSIOLOGY & BIOCHEMISTRY.	CO-1. Know the scope and importance of plant physiology. CO-2. Understand plant & water relation. CO-3. Understand the process of photosynthesis, C ₃ , C ₄ , CAM pathways. CO-4. Understand the process of respiration, growth and developmental process in plants. CO-5. Understand the biochemistry of cells. CO-6. Understand the different biochemical reactions of biomolecules in plant cells.
BO. 342 PLANT ECOLOGY AND BIODIVERSITY.	CO-1. Know the biotic and abiotic components of the ecosystem. CO-2. Food chain & food web in the ecosystem. CO-3. Understand diversity among various groups of the plant kingdom. CO-4. Understand plant community & ecological adaptation in plants. CO-5. Scope, importance, and management of biodiversity.
BO. 343 PLANT PATHOLOGY.	CO-1. Understand the scope and importance of plant pathology. CO-2. Know the disease cycle and disease development. CO-3. Know the effect of plant diseases on the economy of crops. CO-4. Know the methods of studying plant diseases. CO-5. They can identify plant diseases like a bacterial, nematodes, and fungi. CO-6. Know the disease forecasting. CO-7. Know the prevention and control measures of plant diseases.

BO. 344 MEDICAL AND ECONOMIC BOTANY	<p>CO-1. Understand the scope and importance of pharmacognosy.</p> <p>CO-2. Know the cultivation, collection, processing & importance of various herbal drugs.</p> <p>CO-3. Understand the scope of economic botany.</p> <p>CO-4. Know the botanical resources like nonwood forest products.</p> <p>CO-5. Understand the concept of Ayurvedic pharmacy.</p>
BO. 345 PLANT BIOTECHNOLOGY	<p>CO-1. Understand the fundamental of recombinant DNA technology.</p> <p>CO-2. Understand tissue culture techniques.</p> <p>CO-3. Role of microbes in agriculture, medicine & industry.</p> <p>CO-4. Know the fermentation technology.</p> <p>CO-5. Understand the concept of bioinformatics, genomics & proteomics.</p> <p>CO-6. Understand technical germplasm & cryopreservation.</p>
BO. 346 PLANT BREEDING & SEED TECHNOLOGY.	<p>CO-1. Understand the scope & importance of plant breeding.</p> <p>CO-2. Know the technique of production of new superior crop varieties.</p> <p>CO-3. Know the about heterosis, hybrid vigor, etc.</p> <p>CO-4. Know the process of hybrid variety, development & their release.</p> <p>CO-5. Know about seed germination, processing, production, etc.</p>
Practical 1	<p>CO-1 Study of Algae, Fungi, Bryophytes, and Pteridophytes with suitable examples.</p> <p>CO-2 Know the various stages of mitosis and meiosis and the Maceration technique for the study of plant tissues.</p> <p>CO-3 Understand the estimation of DNA and RNA with suitable methods</p> <p>CO-4 Able to the estimation of chlorophyll pigments and separation Chlorophyll pigments</p> <p>CO5- Preparation of MS Medium for tissue culture practical</p>

Practical 2	<p>CO1- Study of chromosomes in Chironomus larvae and Induction of tetraploidy in onion root cells</p> <p>CO2- Study of Gymnosperm group of plants with the help of permanent slides and plant material.</p> <p>CO3- Study of polluted water body with ref. to BOD.</p> <p>CO4- Know the Hybridization Techniques and Polyploidy induction in Allium cepa by colchicine</p>
Practical 3	<p>CO1- Know the Study of garden tools and implements and Study of cutting, layering, budding and grafting</p> <p>CO2- Understand the computation of mean, mode, median, variance and standard deviation from the given data.</p> <p>CO3- Know the culture media for isolation of plant pathogens</p> <p>CO4- Understand the preparation of ayurvedic formulations - Asav, Arishtha, Churna</p>

Department of Mathematics

B. Sc Mathematics

Course Outcomes B. Sc Mathematics	
Semester I & II	
Course	Outcomes
	After completion of these courses students should be able to;
F.Y.B.Sc.	Semester I and II
Paper - I MT-101:- Algebra and Geometry	<ol style="list-style-type: none"> 1. Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. 2. Apply factor theorem, remainder theorem to solve problems on polynomials and by using given relations between roots he will find the roots of polynomials. 3. Solve the problems of lines in 3-D, planes, sphere and cylinder and how geometry is related to algebra by using their algebraic equation. 4. Solve the system of homogeneous and non homogeneous linear if m equations in n variables by using concept of rank of matrix, finding eigen values and eigen vectors.
Paper- II MT-102 Calculus and Differential Equations	<ol style="list-style-type: none"> 1. Identify algebraic and order properties of real number. 2. Identify and apply the function properties of real number system such as completeness property. 3. Verify the values of limit of a function at a point using the definition of a limit. 4. Student will be familiar with the techniques of integration and differentiation of function with real variables. 5. Identify and apply the intermediate value theorem, mean value theorem and L-Hospital rule 6. Identify types of differential equations and solve differential equation such as Exact, homogeneous, non- homogeneous and linear and Bernoulli differential equations etc..
F.Y.B.Sc.	New Syllabus of CBCS (2019 PATTERN)
	Semester I
F.Y.B.Sc. Paper I Algebra (Course Code- MT-111)	<ol style="list-style-type: none"> 1. To study about sets, relations, equivalence relations, equivalence classes and partition of sets. 2. To study division algorithm, The GCD, The LCM, Euclid's lemma. 3. To study about the primes and the theory of congruence and fermat's theorem. 4. Students will learn about sums and products, basic algebraic properties, module, complex conjugates, exponential form, products and quotients, De-Moivre's theorem of complex numbers.

F.Y.B.Sc. Paper II Calculus- I (Course Code: MT-112)	<ol style="list-style-type: none"> 1. Identify algebraic and order properties of real number. 2. Identify and apply the function properties of real number system such as completeness property. 3. Verify the values of limit of a function at a point using the definition of a limit. 4. Student will learn sequences and their limits, limits theorems, monotone sequence, subsequences and Bolzano-Wierstrass theorem. 5. To study about continuouse function and continuous functions on intervals.
Paper III Mathematics Practical Paper (Course Code: MT-113)	<ol style="list-style-type: none"> 1. Students will learn how to solve problems using maxima software.
F.Y.B.Sc.	Semester II
Paper -I Analytical Geometry (Course Code: MT-121)	<ol style="list-style-type: none"> 1. To study about the analytical geometry of 2-D, general equation of second degree in two variables, reduction to standard form, center of conic, nature of conic. 2. Solve the problems of lines in 3-D, planes, sphere and cylinder and how geometry is related to algebra by using their algebraic equation.
F.Y.B.Sc. Paper II Calculus-II (Course Code: MT-122)	<ol style="list-style-type: none"> 1. Identify and apply the intermediate value theorem, mean value theorem,L-Hospital rule, Taylor’s theorem, successive differentiation. 2. To study about the linear first order equation, seperable equations,existence and uniqueness of solutions of non linear equations. 3. To study about the transformation of non linear equations to seperable equations, exact differential equations, integrating factors.
F.Y.B.Sc. Paper III Mathematics Practical Paper (Course Code: MT-123)	<ol style="list-style-type: none"> 1. Students will learn how to solve problems using maxima software.
S.Y.B.Sc.	<u>Semester-I</u>
Paper- I MT 211 Multivariva	<ol style="list-style-type: none"> 1. Students learn analysis of multivariable functions, continuity and differentiability. 2. Learn the concept of multiple integrals and their application to area and volumes.

ble Calculus I	
Paper- II MT 212(B) Lapalce Transform and Fourier Series	<ol style="list-style-type: none"> 1. Learn the methods and properties of laplace transform and inverse laplace transform, apply them to solve linear differential equations. 2. Apply the fundamental concept of fourier series, fourier sine series, fourier cosine series to find series representation of irrational numbers.
S.Y.B.Sc.	<u>Semester-II</u>
Paper- I MT-221 Linear Algebra	<ol style="list-style-type: none"> 1. Use the concept of basis and dimension of vector spaces linear dependance and linear independence, to solve problems. 2. Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis. 3. Apply the properties of linear transformations to linearity of transformation, kernel and rank of linear transformation , inverse transformation to solve the problems of matrix transformations, change of basis.
Paper- II MT 222(A) Multivariable calculus II	<ol style="list-style-type: none"> 1. Student develop knowledge in the limit, continuity, differentiation of vector functions. 2. Use the varies techniques of solving integral problems of vector valued functions.
Paper- II MT 222(B) Numerical Method and It's Application	<ol style="list-style-type: none"> 1. To study about algebraic and transcendental equations, bisection method , method of false position and Newton-Raphson method. 2. Students will learn finite difference operators, differences of a polynomial, Newton's and Lagrandes's interpolation formula. 3. To study about the numerical differentiation, integration and Simpson's 1\3 rd and 3\8 th rule. 4. To study numerical solution of first order ordinary differential equations.
S.Y.B.Sc.	New Syllabus of CBCS (2020 PATTERN) Semester I
S.Y.B.Sc. Paper I Calculus of several variable (Course Code- MT-231)	<ol style="list-style-type: none"> 1. To study about the function of several variables, limits and continuity. 2. To study about the partial derivatives and differentiability, partial differential equation and wave equation. 3. Student will learn extreme values of functions of two variables, second derivative test, Lagrange multiples.

	<ol style="list-style-type: none"> 4. Study about integrated integrals, Fubini's theorem, double integral in polar condition, Jacobians, change of variables in multiple integrals.
S.Y.B.Sc. Paper II Numerical Method and It's Application (Course Code: MT 232(A))	<ol style="list-style-type: none"> 1. To study about algebraic and transcendental equations, bisection method, method of false position and Newton-Raphson method. 2. Students will learn finite difference operators, differences of a polynomial, Newton's and Lagrange's interpolation formula. 3. To study about the numerical differentiation, integration and Simpson's 1/3 rd and 3/8 th rule. 4. To study numerical solution of first order ordinary differential equations.
S.Y.B.Sc. Paper III Mathematics Practical Paper (Course Code: MT-233)	<ol style="list-style-type: none"> 1. Students will learn how to solve problems using maxima software.
S.Y.B.Sc.	Semester II
S.Y.B.Sc. Paper -I Linear Algebra (Course Code: MT-241)	<ol style="list-style-type: none"> 1. Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. 2. Apply the properties of linear transformations to linearity of transformation, kernel and rank of linear transformation, inverse transformation to solve the problems of matrix transformations, change of basis.
S.Y.B.Sc. Paper II Vector Calculus (Course Code: MT-242(A))	<ol style="list-style-type: none"> 1. To study about the curves in space, limits and continuity, integrals of vector functions, unit tangent vector, curvature of plane curve and normal vectors for space curve. 2. Students will learn line integrals, additivity, vector fields, gradient fields, work done by a force over a curve in space also path independences, green's theorem. 3. To study about parameterization of surfaces, implicit surface, surface integrals, orientation of surfaces. 4. To study about applications of integrals, Stokes' theorem, divergence in 3-D, divergence theorem, unifying the integral theorems.
S.Y.B.Sc. Paper III Mathematics Practical Paper	<ol style="list-style-type: none"> 1. Students will learn how to solve problems using maxima software.

(Course Code:
MT-243)

Department of Mathematics

Course Title	Course Objective	Expected Outcome
F.Y.B.Sc Paper- I Algebra and Geometry	(i) A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies.	After completing this course student will be able to
	(ii) A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.	1. Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. 2. Apply factor theorem, remainder theorem to solve problems on polynomials and by using given relations between roots he will find the roots of polynomials 3. Solve the system of homogeneous and non homogeneous linear of m equations in n variables by using concept of rank of matrix, finding eigen values and eigen vectors.
	(iii) A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.	4. Solve the problems of lines in three dimension, planes, spheres, and cylinders and how geometry is related to algebra by using their algebraic equations.
	(iv) A student be able to apply their skills and knowledge that is, translate information presented verbally into	After completing the course, students will able to-
		1. Identify algebraic and order properties of real numbers. 2. Identify and apply the function properties of real

<p>F.Y.B.Sc Paper- II</p> <p>Calculus and Differential Equations</p>	<p>mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.</p> <p>(v) A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.</p>	<p>number system such as the completeness property</p> <ol style="list-style-type: none"> 3. Verify the values of limit of a function at a point using the definition of a limit 4. Students will be familiar with the techniques of integration and differentiation of function with real variables 5. Identify and apply the intermediate value thm, Mean value thm and L'Hospital's rule 6. Identify types of differential equations and solve differential equations such as Exact, homogeneous, non-homogeneous, and linear and Bernoulli differential equations etc.
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S.Y.B.Sc Paper- I Multivariable Calculus I		After completing the course, students will able to- <ol style="list-style-type: none"> 1. Students learn analysis of multivariable functions, continuity, and differentiability. 2. learn the concepts of multiple integrals and their Application to area and volumes
S.Y.B.Sc Paper- II Laplace Transforms and Fourier Series		After completing this course student will be able to <ol style="list-style-type: none"> 1. Learn the methods and properties of Laplace transform and Inverse Laplace Transform, apply them to solve Linear Differential equations. 2. Apply the fundamental concepts of Fourier series, Fourier Sine series, Fourier Cosine series to find series representation of irrational numbers.
S.Y.B.Sc Paper- I Linear Algebra		After completing this course student will be able to <ol style="list-style-type: none"> 1. Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. 2. Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis. 3. Apply the properties of linear transformations to linearity of transformations, kernel and rank of linear transformations, inverse transformations to solve the problems of matrix transformations, change of basis.
S.Y.B.Sc Paper- II Multivariable Calculus II		After completing this course student will be able to <ol style="list-style-type: none"> 1. Students develop knowledge in the limit, continuity, differentiation of vector functions. 2. Use the various techniques of solving Integral problems of vector valued functions.

Department of Geography

PROGRAM SPECIFIC OUTCOMES:

Geography

On Completion of the BA (Geography) Students are able to:

1. Serve as a Geographer
2. Work as a teacher in colleges, schools and high schools
3. Serve as a conservator in forest, Soil, Agricultural Departments.
4. Work in disaster and water resources management.
5. Serve in the forest department as forest conservator.
6. Serve as a cartographer in map making divisions of Government.
7. Work in NGOs.
8. Can Prepare for Competitive exams.

COURSE OUTCOMES:Geography

F.Y.B.Sc.(Old syllabus)

Gg-110 Geomorphology (Paper 2)

1. Understand the Geological Time Scale.
2. Understand the interior structure of the earth.
3. Study the Wegener's Continental Drift Theory.
4. Study the theory of Plate Tectonics.
5. Understand the Internal movements – slow and rapid.
6. Study the causes and effects of earthquakes and Volcanic eruption.
7. Study the classification of rocks on the basis of formation & characteristics.
8. Study the types of weathering and mass movement.
9. understand the Geomorphic Agents & its threefold work.

Gg-120 Climatology and Oceanography (Paper 2)

1. Understand the importance of Climatology in modern times.
2. Study the composition and structure of the atmosphere.
3. Know the Hydrological cycle.
4. Study the Heat budget of the Earth.
5. Study Global warming.
6. Study the Atmospheric Pressure and Wind System.
7. Know about the Atmospheric Moisture and Precipitation.
8. Understand the importance of the study of oceanography in modern times.
9. Study the general idea of ocean relief.
10. Study the types of Coasts.
11. Understand the properties of ocean water.
12. Study the movements of ocean water.

Gg-101 Techniques in Physical Geography (Paper 3)

1. Study the elements of the map.
2. Study the types of map scale.
3. Know the methods of relief representation.
4. Understand the types of Toposheet.
5. Understand the Toposheet reading.
6. Study the India Meteorological Department (IMD) weather symbols.
7. Understand the Isobaric Patterns.
8. Understand the various Weather Instruments.
9. Study the weather map reading.

F.Y.B.Sc.(New syllabus-CBCS 2019) Paper-1 (Semester-1)

Gg-111 Introduction to Physical Geography–I (Geomorphology)

1. To introduce the students to the basic concepts in Geomorphology.
2. To acquaint the students with the utility and applications of Geomorphology in different areas and environment.
3. To make the students aware of the need for protection and conservation of different landforms.

Paper-2

Gg 112 Introduction to Physical Geography II (Geography of Atmosphere and Hydrosphere)

1. To introduce the students to the basic concepts in Geomorphology.
2. To acquaint the students with the utility and applications of Climatology & Oceanography in different areas and environment.
3. To introduce the students about the heat budget of the Earth.
4. To make the students aware of the Hydrological cycle and movement of ocean water.

Paper-3

Gg. 113 Practicals in Physical Geography

1. To introduce the students to the basic concepts maps.
2. Know about the types of map scale.
3. To acquaint the students with the utility and applications of map projection.
4. To acquaint the students with the utility and applications of various methods of representation of data.

Paper-1 (Semester-2)

Gg 121 Introduction to Human Geography

1. To introduce the students to the basic concepts of human geography.
2. Understand about Human Evolution and Races.
3. Know about the Indian Tribes.
4. To make the students aware of human culture.

Gg 122 Population and Settlement Geography

1. To introduce the students to the basic concepts of population & settlement.
2. Know about the distribution of the world & Indian population.
3. Understand about classification of urban settlements.

Gg:123 Practicals in Human Geography

1. To introduce the students to the basic concepts of population indices.
2. Understand about methods for calculation Urban data.
3. Know about the method of crop combination.
4. Understand methods of agricultural efficiency.

S.Y.B.Sc.(Old syllabus)

Paper 1 (Semester- 1)

Gg 211: GEOGRAPHY OF RESOURCES – I

To introduce the students to the basic concepts in Geography of Resources.

To acquaint the students with fundamental concepts of resources.

To acquaint the students with past, present and future utility and potentials of resources at regional, national and global levels.

To make the students aware about problems of utilization and conservation in the view of sustainable development.

Semester- 2

Gg 211: GEOGRAPHY OF RESOURCES – II

1. To acquaint the students with fundamental concepts of resources.
2. To acquaint the students with past, present and future utility and potentials of resources at regional, national and global levels.
3. To make the students aware about problems of utilization and conservation in the view of sustainable development.

Paper 2 (Semester- 1)

Gg 212: Watershed Management – I

1. To acquaint the students with concepts in Watershed Management.
2. To familiarize the students with the importance of Watershed Management.
3. To acquaint the students with concepts in Hydrological Process in Watershed.
4. To familiarize the students with the importance of Soils in a Watershed Land Capability Classification.
5. To acquaint the students with concepts in land capability classification.

Semester- 2

Gg 212: Watershed Management- II

1. To acquaint the students with concepts in Watershed Management.
2. To familiarize the students with the importance of Watershed Management.
3. To acquaint the students with concepts in water and soil conservation measures.
4. To familiarize the students with the importance of Watershed Development Programmes.

Paper- 3

Gg 201: Fundamentals of Geographical Analysis

1. To enable the students to use various projections to prepare maps.
2. To acquaint the students with the principles of surveying, its importance and Utility in the geographical area.
3. To introduce the importance and basic principles of GPS.

S.Y.B.Sc.(New syllabus CBCS-2020)

Paper 1 (Semester- 3)

GG231: ENVIRONMENTAL GEOGRAPHY – I

- i. To create environmental awareness amongst the students.
- ii. To familiarize the students with fundamentals concepts of Environmental Geography.
- iii. To acquaint the students to past, present, and future utility and potentials of resources at regional, national and global levels.
- iv. To enable the students to understand dynamics of man–environment relationship in various region of the world

Semester- 4

GG241: ENVIRONMENTAL GEOGRAPHY – II

- i. To introduce the methods and assessments of the impact on the environment amongst the students.
- ii. To acquaint the students with environmental protection laws, acts, planning, and management.
- iii. To appraise the students with various indigenous environmental conservation measures.
- iv. To make aware the students about various programs and policies carried out in the regional and global scale.

Paper 2 (Semester- 3)

GG 232: GEOGRAPHY OF MAHARASHTRA– I

- i. To appraise the students with salient features of the Maharashtra State.
- ii. To familiarize the students with the climatic characteristics of the State.
- iii. To make the students aware of the geographic problems of Maharashtra in the view of sustainable development.

Semester- 4

GG 242: GEOGRAPHY OF MAHARASHTRA– II

- i. To acquaint the students with the relationship between man and environment in Maharashtra State.
- ii. To familiarize the students with the agricultural pattern, problems and prospects in the state.
- iii. To study and understand the industrial sector, spatial distribution, development and problems faced within the state.
- iv. To know the status of transport and communication in Maharashtra state.

Paper- 3 (Semester- 3)

Gg 233: Fundamentals of Geographical Analysis

- i. To acquaint the students with the principles of surveying, its importance, and its utility in the Geographical study.
- ii. To familiarize the students with the basic aspects of linear, vertical and angular measurements of surveying.
- iii. To understand the importance, basic principles and uses of GPS in surveying.
- iv. To identify sources and types of errors occurs during surveys.

Semester- 4

Gg 243: Surveying – II

- i. To acquaint the students with the principles of surveying, its importance and utility in the Geographical study.
- ii. To familiarize the students with the basic aspects of linear, vertical, and angular measurements of surveying.
- iii. To introduce the importance, basic principles, and uses of GPS in surveying.
- iv. To identify sources and types of errors occurs during surveys.

F.Y.B.A.(Old syllabus)

Gg-110 Elements of Geomorphology (G1)

1. Understand the effect of rotation of revolution the Earth
2. Understand interior structure of the earth
3. know the importance of longitudes & latitudes
4. International Date line and Standard time
5. Understand Theory regarding of Origin of Continents and oceans
6. Study the formation of Rocks
7. Understand the work of internal and external forces and their associated Landforms.
8. Study the erosional and depositional landforms of Rivers and Sea Waves.
9. Understand the concept of mass Wasting Understand the Application of Geomorphology.

F.Y.B.A.(New CBCS-2019)

Semester- 1

1. Understand the Earth system.
2. Understand the interior structure of the earth.
3. Know the drifting of continental masses on the earth.
4. Understand the structure of Atmosphere.
5. Understand heat balance.
6. Understand the types of winds & pressure belts.
7. Know the Hydrological cycle
8. Study the structure of the ocean floor.
9. Study about waves & tide.

Semester- 2

1. Understand the importance of human geography.
2. Know the factors affecting on distribution of population
3. Know the theory of demographic transition.
4. Understand the composition of Indian population
5. Study the types and patterns of rural Settlements.
6. Understand the urbanisation in India.
7. Understand the urbanisation in Maharashtra.
8. Study the understanding of urbanisation in India.
9. Study Problems of Indian agriculture.

S.Y.B.A. (Old Syllabus)

Gg-210: Elements of Climatology and Oceanography (G2)

1. Understand the importance of Atmosphere
2. Understand heat balance.
3. Understand the types of winds
4. Understand the structure, composition of Atmosphere.
5. Understand weather phenomena winds, humidity and precipitation.
6. Understand properties of ocean water.
7. Knowledge about the effects of ocean Currents.
8. Study about types of tides.
9. Study of coastal environment and Ocean Resources

Gg-220: Economic Geography (S1)

1. Study the Human Economic Activities
2. Explain the Weber theory of Industrial Location
3. Understand the mineral and power resources
4. Study conventional and non-conventional energy resources

Study of the distribution of Iron and Steel, Automobile, Cotton Paper and Ship Building Industries in India

5. Get knowledge about types of agriculture, trade and transport.
6. Aware the student about the need for conservation and Protection of natural resources.
7. Study of Transport and Trade
8. Understand the concept of Privatization, Globalization and Liberalisation

Gg201 Fundamentals of Geographical Analysis (S2)

1. Measure Map Scales, conversion of scales
2. Understand types of projections
3. Preparation of various graphs and diagrams
4. Get knowledge about Statistical Methods.
5. Understand the different surviving techniques like, plane table, prismatic survey.
6. Acquire knowledge of preparation of drawing of profile with the help of Dumpy level.
7. Understand the socio economic condition of the villages.

S.Y.B.A. (New Syllabus CBCS 2020)

Semester III: Environment Geography- I, Subject Code: Gg.210 (A)

1. To create awareness about the dynamic environment among the students.
2. To acquaint the students with fundamental concepts of environment geography for development in different areas.
3. The students should be able to integrate various factors of Environment and dynamic aspects of Environmental geography.
4. To make aware the students about the problems of environment , their utilization and conservation in the view of sustainable development

Semester VI Environment Geography- II, Subject Code: Gg.210 (B)

1. To create awareness about a dynamic environment among the students.
2. To acquaint students with the fundamental concepts of Environment Geography.
3. To acquaint students about the past, presents and future utility and potentials of natural resources.
4. To make aware students about the problems of the environment, its utilization and conservation in the view of sustainable development.

Semester III Geography of Maharashtra, Subject Code: Gg.220 (A)

1. To acquaint students with Geography of our State.
2. To make students aware of the magnitude of problems and prospects in Maharashtra.
3. To help students understand the inter relationship between the subject and the society.
4. To help students understand the recent trends in regional studies

Semester IV Geography of Maharashtra, Subject Code: Gg.220 (B)

1. To make students aware about the Agriculture problems and prospects of Maharashtra.
2. To understand the population distribution and settlement pattern in Maharashtra.
3. To understand the concept of rural development.
4. To understand the prospectus in Tourism activity in Maharashtra and the role of MTDC and Role of MIDC in industrial development in rural area of Maharashtra

Semester III Scale and Map Projection, subject Code: Gg. 201 (A) Practical Geography-I

1. Develop practical skill and use of map scale and projection.
2. To make students aware of the new techniques, accuracy and skills of map making

Semester IV Cartographic Techniques, Surveying and Excursion / Village / Project Report subject Code: Gg. 201 (B) Practical Geography-II

1. Develop practical knowledge and application of cartographical techniques.
2. To make students aware of the new techniques, accuracy and skills of Map Making.

T.Y.B.A.

Gg-310: Human Geography (G3)

1. Understand the relationship of man and environment
2. Study of human evolution and races of mankind's.
3. Understand the concept of Determinism, Possibilism and Stop and Go determinism.
4. Understand the modes of life of Bhill, gonad, Nagas and Tribes in India
5. Importance of Right to Information Acts.
6. Understand the history of population
7. Study of distribution and density of population.
8. Get knowledge of population theories.
9. Study types, cause, effects of migration.

Gg-320 :Agricultural Geography (S3)

1. Understand approaches of agricultural geography
2. know the silent features, problems and prospects of Agriculture.
3. study about types of agriculture,
4. Understand methods of irrigation

Know the Importance of Water Resources.

5. Study about water harvesting concepts and methods.
6. Study allied areas in agriculture and agriculture development
7. Study the Problems And Prospect of Agriculture
8. Understand sustainable agricultural development

Gg-301: Techniques of Spatial Analysis (S4)

1. know about Toposheets and its types
2. Understand the mechanism function of topographical maps.
3. Understand interpretation of weather images.
4. Understand the History of Remote Sensing
5. Know Aerial Photographs and Satellite Imageries
6. Understand methods of representation of relief.
7. Introduce the student to the top sheet, weather map.

8. Understand the basic concept of RS GIS & GPS.
9. Mapping and interpretation of Aerial Photograph.

Department of Economics

PROGRAM SPECIFIC OUTCOMES: B. A. ECONOMICS

On completion of B.A (Economics), Students are able to:

1. Understand basic concepts of economics.
2. To able to analyze economic behavior in practice.
3. Understand the economic way of thinking.
4. The ability to analyze historical and current events from an economic perspective.
5. The ability to write clearly expressing an economic point of view.
6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.
7. To create students ability to suggest of the various economic problems.

COURSE OUTCOMES: B. A. Economics

F.Y.B.A. (old syllabus)

ECO-1157- Indian Economy – Problems and Prospects (G-1)

On completion of the course, students are able to

1. Understand nature, Basic Characteristics and Major issues of Indian economy
2. Understand population & economic development
3. Understand Poverty and Unemployment Concepts and their trends in Indian economy
4. Understand role of agriculture, industrial sector in Indian economy.
5. Understand economic planning in India
6. Understand Salient Features of Economy of Maharashtra.
7. Understand Role of Co-operative in Economic Development of Maharashtra.
8. Understand Regional Imbalance Causes & Preventive Measures.

F.Y.B.A. (New CBCS)

ECO-11151: Indian Economic Environment.

On completion of the course, students are able to

1. Familiarize the student with the recent development in the

Indian Economy.

2. We provide the student with the background of the Indian Economy with focus on contemporary issues like the economic environment.
3. The Syllabus helps the student prepare for a varied competitive examination.
4. Students became able to understand and comprehend the current business scenario, agricultural scenario and other sectoral growth in the Indian context. Student became aware of the developments such as MSMEs, Digital Economy, E-Banking, BPO & KPO, etc
5. The Syllabus increased ability and developed an understanding of the economic environment and the factors affecting the economic environment.
6. Ability to develop awareness on the various new developments in the different sectors of an economy- agriculture, industry, services, etc
7. Ability to compare and contrast Indian Economy with other world Economies.
8. At the end of the course, the student should be able to discuss and debate on the various issues and challenges facing the Indian economic Environment

S.Y.B.A. (Old Syllabus)

S.Y.B.A. Economics

G -2. Financial System

Objectives (Course Outcomes) of the Paper:

- 1 To understand fundamentals of modern financial system.
- 2 To understand the recent trends and developments in banking system.
- 3 To understand the role of the Reserve Bank of India in Indian financial system.
- 4 To provide the knowledge of various financial and non-financial institutions.
- 5 To provide the students the intricacies of Indian financial system for better financial decision making.

S -1. Micro Economics

Objectives of the Paper:

- 1 To develop an understanding about subject matter of Economics.
- 2 To impart knowledge of microeconomics.
- 3 To clarify micro economic concepts
- 4 To analyse and interpret charts, graphs and figures
- 5 To develop an understanding of basic theories of micro economics and their application.
- 6 To demonstrate that the theories discussed in class will usually be applied to real-life situations.
- 7 To help the students to prepare for varied competitive examinations

S -2. Macro Economics

Objectives of the Paper:

- 1 To introduce students to the historical background of the emergence of macroeconomics

- 2 To familiarize students with the differences between microeconomics and macroeconomics
- 3 To familiarize students with various concepts of national income
- 4 To familiarize students with Keynesian macroeconomic theoretical framework of consumption and investment functions
- 5 To introduce students to the role of money in an economy.
- 6 To introduce students to the conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle .
- 7 To familiarize students with the conceptual and theoretical framework of business cycles
- 8 To introduce students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.
- 9 To introduce students to the various instruments of monetary and fiscal policies

S.Y.B.A. Economics (New syllabus 2020 CBCS pattern)

G -2. Financial System

- To understand fundamentals of modern financial system.
- To understand the recent trends and developments in banking system.
- To understand the role of the Reserve Bank of India in Indian financial system.
- To provide the knowledge of various financial and non-financial institutions.
- To provide the students the intricacies of Indian financial system for better financial decision making.

S -1. Micro Economics

- To develop an understanding about subject matter of Economics.
- To impart knowledge of microeconomics.
- To clarify micro economic concepts
- To analyse and interpret charts, graphs and figures
- To develop an understanding of basic theories of micro economics and their application.
- To demonstrate that the theories discussed in class will usually be applied to real-life situations.
- To help the students to prepare for varied competitive examinations

S -2. Macro Economics

- To introduce students to the historical background of the emergence of macroeconomics
- To familiarize students with the differences between microeconomics and macroeconomics
- To familiarize students with various concepts of national income
- To familiarize students with Keynesian macroeconomic theoretical framework of consumption and investment functions
- To introduce students to the role of money in an economy.

- To introduce students to the conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle .
- To familiarize students with the conceptual and theoretical framework of business cycles
- To introduce students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.
- To introduce students to the various instruments of monetary and fiscal policies

T.Y.B.A.

ECO-3157: Economic Development and Planning (G3)

On completion of the course, students are able to

1. Understand the differences between Economic growth and Development, Indicators of Economic Development.
2. Understand Characteristics of Developing Countries.
3. Understand Constraints on Development Process.
4. Understand theories and Approaches of economic development.
5. Understand some growth models
6. To understand macroeconomic policies, roll of foreign capital and economic planning etc. in developing countries.

ECO-3158: International Economics (S3)

On completion of the course, students are able to

1. Understand Nature, Scope and Importance of International Economics
2. Understand theories international trade.
3. Understand gains from international trade & their measurements
4. Understand theory of intervention in trade
5. Understand the theory of regional blocks
6. Understand trade policies in India
7. Understand international financial institutions
8. Understand foreign direct investments
9. Understand foreign exchange market

ECO3159: Public Finance (S4)

On completion of the course, students are able to

1. Understand Functions and Role of Government in Economy and Meaning, Nature, Scope & Importance"s of public finance.
2. To understand various Approaches about Role of Government and Principle of Maximum Social Advantage- Dr. Dalton.
3. Understand concept of public expenditure
4. Understand concept of public revenue
3. Understand incidence & approaches of taxation

4. Understand concept of public debt
5. Understand concept of budget & deficit finance
6. Understand taxation & public debt of India
7. Understand fiscal federalism in India

Department of English

PROGRAM SPECIFIC OUTCOMES: B. A. ECONOMICS

On completion of B.A (Economics), Students are able to:

COURSE OUTCOMES: B. A. English

F.Y.B.A. (Old Syllabus)

Compulsory English

Objectives.

1. Bridge up the gap of the students knowledge between H.S.C. and U.G.
2. To acquaint the students with the basics of the subject of English.
3. To develop the comprehensive attitude of the students in reading and writing.

Outcomes.

1. The students know the nature of the subject in comparison to the secondary level.
2. The students get more knowledge of structure and semantics.
3. They have the literary sense and comprehension of the subject.

Optional English (G-1)

Objectives

1. To acquaint the students with English Language for further studies in English language and Literature
2. To prepare the students with basic skills in language.
3. To prepare the students with the basics of phonology.
4. To prepare the students for vocabulary and basic Grammar.

Outcomes

1. After the completion of the course the students are ready to take up the special studies in language and Literature.
2. The students know English as a Language at the global level.
3. The students are also able to do other certificate courses with the knowledge of English.

F.Y.B.A. (CBCS)

Compulsory English :

1. To expose students to the best example of prose and poetry in English so that they realise the beauty and communicative power of English.
2. To instill human values and develop the character of students as a responsible citizen of the world.
3. To develop the ability to appreciate ideas and think critically.

English General:

1. The students know the skills of communication in English.
2. The students know the difference between prose and poetry.
3. The students have the literary sense and comprehension of the subject.

S.Y.B.A

Compulsory English

Objectives.

1. To develop the skills of the students in English Language.
2. To prepare the students with vocabulary and Grammar.
3. To develop the comprehension level of the students.

Outcomes.

1. The students know the nature of the subject in comparison to the secondary level.
2. The students get more knowledge of structure and semantics.
3. The students have the literary sense and comprehension of the subject.

Optional English (G-2)

1. To acquaint the students with literature and Language.
2. To broaden the scope of the studies in English with different forms of literature.
3. To enrich vocabulary through learning literature.
4. To get in acquaints with linguistic aspects of English.

Outcomes.

1. The students know the forms of literature.
2. The students get to know the literary values.
3. The students also know about the word formation and vocabulary.
4. The students know well how to study Language and Literature.

English Special- (S-1)

Objectives-

1. To acquaint the students with the dramatic Poetry.
2. To broaden the scope of the studies in dramatic Poetry with the basics in Drama.
3. To develop the sense of humanity with the study of Drama.

4. To apply the literary values in practical life.

Outcomes.

1. The students know the Drama as a form of Literature
2. The students know Human life at the Universal Level
3. The students also know about the different streaks of human life.
4. The students can analyze the literary forms

English Special-(SII)

Objectives-

1. To acquaints the students with the Lyrical Poetry.
2. To broaden the scope of the studies in Lyrical Poetry with the basics in verse.
3. To develop the sense of humanity with the study of poetry.
4. To apply the literary values in practical life.

Outcomes.

1. The students know the Poetry as a form of Literature.
2. The students know Human life at the Universal Level.
3. The students also know about the different streaks of human life.
4. The students can analyze poetry as a form of literature.

S. Y. B. A.

**Compulsory English (Core Course-CC)
(Choice Based Credit System-70:30-Pattern)
(w. e. f- 2020-2021)**

(03 Credit Course)

Compulsory English

- a) To expose students to the best examples of literature in English and to contribute to their emotional quotient as well as independent thinking.
- b) To instill universal human values through best pieces of literature in English
- c) To develop effective communication skills by developing ability to use right words in the right context.
- d) To enhance employability of the students by developing their basic soft skills
- e) To revise and reinforce the learning of some important areas of grammar for better linguistic competence.

Special English 1

1. To introduce Drama as a major form of literature
2. To introduce minor forms of Drama
3. To acquaint and enlighten students regarding the literary and the performing dimensions of drama
4. To acquaint and familiarize the students with the elements and the types of Drama
5. To encourage students to make a detailed study of a few sample masterpieces of English Drama from different parts of the world
6. To develop interest among the students to appreciate and analyze drama independently
7. To enhance students' awareness regarding aesthetics of Drama and to empower them to evaluate drama independently

Special English 2

1. To acquaint students with the terminology in poetry criticism (i.e. the terms used in appreciation and critical analysis of poems)
2. To encourage students to make a detailed study of a few sample masterpieces of English poetry
3. To enhance students awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate poetry independently

General English 2

- a) To familiarize students with the various components of language.
- b) To develop overall linguistic competence of the students.
- c) To introduce students to some advanced areas of language study.
- d) To prepare students to go for detailed study and understanding of language.
- e) To enhance communicative skills of students by developing insight into the working of language

T.YB.A

Compulsory English

Objectives.

1. To develop the skills of the students in English communication skills.
2. To prepare the students with vocabulary and Grammar.
3. To develop the comprehension level of the students.
4. To develop soft communication skills in English.

Outcomes.

4. The students know the skills of communication in English.
5. The students know the different between prose and poetry.
6. The students have the literary sense and comprehension of the subject.

Optional English (G3)

Objectives-

1. To continue the knowledge of the students with literature and Language on the basis of G1 and G2.
2. To broaden the scope of the studies in English with the poetry of particular country in English.
3. To enrich vocabulary through learning literature.
4. To get in acquaintance with structure of English.

Outcomes.

1. The students know literature of particular country.
2. The students know cultural background of the country.
3. The students also know about structure of English.
4. The students are ready for some jobs in any field of the society.
5. The students also prepare with vigor for competitive exams.

English Special- (S-III)

Objectives-

1. To acquaints the students with the novel as form of literature.
2. To broaden the scope of the studies in narrative Poetry with the basics in novel.
3. To develop the sense of humanity with the study of novel.
4. To apply the literary values in practical life.

Outcomes.

1. The students know the novel as a form of Literature
2. The students know Human life at the Universal Level
3. The students also know about the different streaks of human life.
4. The students can analyze the novellas form of literature.

English Special-(S-IV)**Objectives-**

1. To acquaintance the students with the nature of literary criticism.
2. To broaden the scope of critical studies in literature.
3. To get in acquaintance with fine arts and poetry.
- 4 To get know different social trends through literary criticism.

Outcomes -

1. The students know how to criticize literature.
2. The students know the Human complexities.
3. The students also know about the different streaks of human life.
4. The students can analyze literature.

Department of Political Science

Program Outcomes: BA POLITICAL SCIENCE

After completion of BA programme students should be able to ...

- Students enable to develop academic proficiency in the subfields of Indian Government and Politics, Comparative Government, International Relations, Public Administration, Political Theory, and Political Ideology.
- Students enable to develop and be able to demonstrate skills in conducting as well as presenting research in political science.
- Students enable to analyze political and policy problems and formulate policy options.
- Students enable to discuss the major theories and concepts of political science and its subfields, and also deliver thoughtful and well articulated presentations of research findings.

PROGRAM SPECIFIC OUTCOMES: BA Political Science

On Completion of the BA (Political Science) Students are able to:

1. Serve as a politician
2. Work as a teacher in colleges, schools and high schools
3. Serve as political party member, political adviser, and well citizen of India.
4. Work in elections and political as well as administrative system.
5. Serve in forest department as forest conservator.
6. Can admit to MA Politics, LLB, MSW, MBA,
7. Work in NGOs.
8. Can Prepare for Competitive exams.

F.Y.B.A. (Old Syllabus)

Indian Government and Politics (G-1)

1. Students enable to understand the philosophy of Indian constitutions.
2. Students enable to identify the causes, impact of British colonial rule.
3. Students enable to appreciate the various phases of Indian national movement.
4. Students enable to create value in young youth regarding the patriotism.
5. Students enable to understand the various Government of Indian acts their provision and reforms.
6. Students enable to know the salient features in making of Indian constitution
7. Students enable to appreciate the socio-economic political factors which lead to the freedom struggle.
8. Students enable to appreciate the fundamental rights and duties and the directive principle of state policy
9. Students enable to evaluate the evolution, functioning and consequences of political parties in India.
10. Students enable to identify how electoral rules and procedure in India effect election outcomes.

F.Y.B.A. (New CBCS)

INTRODUCTION TO INDIAN CONSTITUTION (G -1)

1. To acquaint students with the important feature of the Constitution Of Indian and with the basic framework of Indian government.
2. To familiarize students with the working of the Constitution Of Indian.
3. Students enable to appreciate the fundamental rights and duties and the directive principle of state policy
4. Students enable to appreciate the fundamental rights and duties and the directive principle of state policy
5. Students enable to identify how electoral rules and procedure in India effect election outcomes.

S.Y.B.A.

Political Theory (G-2)

1. Students enable to understand the nature and scope of political theory.
2. Students enable to understand the significance of political theory.
3. Students enable to acquaint with the theories, approaches, concepts and principles of political theory.
4. Students enable to appreciate the procedure of different theoretical ideas in political theory.
5. Students enable to Interpret and assess information regarding a variety of political theory.
6. Students enable to understand the various traditional and modern theories of political science.
7. Students enable to evaluate the theories of origin of the state.

Western Political Thought (S-1)

Students enable to:-

1. Examine political thought through the Classical, Renaissance, and Enlightenment periods based on the works of Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Tocqueville, and Marx;
2. Compare and contrast the concepts of justice, freedom, equality, citizenship, and sovereignty in the works of Machiavelli, Hobbes, Locke, and Rousseau;
3. Explain the different versions of, and importance of, the state of nature to political thought;
4. Explain Karl Marx's worldview, with particular regard to his critique of democracy and the modern, politically liberal state; how it came to be; and its fundamental link to capitalism; and
5. Explain John Stuart Mill's theory on utilitarianism and how he applies it to society and the state.

Political Sociology (S-2)

1. Have good knowledge about main issues and topics in political sociology.
2. Be able to understand basic principles of the exercise of power, of the state relations with civil society; individual and group interactions in the political realm.
3. Achieve practical skills of analysis of social phenomena in their political settings.
4. Acquire habits of socio-political information finding, sorting and critical examining.
5. Foster skills of public presentations and discussions.

S.Y.B.A. New Syllabus (CBCS)

AN INTRODUCTION TO POLITICAL IDEOLOGIES (G-2)

1. Role of different political ideologies and their impact in politics
2. Close link between an idea and its actual realization in public policy
3. Legacy of all the major ideologies

WESTERN POLITICAL THOUGHT (S-1)

1. Major traditions of thought that have shaped political discourse in different parts of the world.
2. The great diversity of social contexts and philosophical visions.
3. The history of political thought as a series of critical, interconnected and open-ended conversations about the ends and means of the good life.

POLITICAL JOURNALISM (S-2)

1. Complex relationship between the communication, media and power politics.
2. Critical appraisal of practices of political image management, campaigns, propaganda and censorship.
3. Indian context of political Journalism

T.Y.B.A.

POLITICAL IDEOLOGIES (G-3)

1. Have good knowledge about main issues and topics in political Ideologies.
2. Achieve knowledge of analysis of Ideology, Nationalism, Democratic Socialism,
3. Principles Of Fascism, Phule-Ambedkarism
4. Students enable to equip the learner to play an active and responsible leadership role in the functioning of Phule-Ambedkarism, Gandhism.

Public Administration (S-3)

1. Students enable to demonstrate understanding of various activities of governmental administrators that fall under the rubric of public administration to include rule-making, ratemaking, and other regulatory activities, policy making and the delivery of services and programs
2. Students enable to understand the 20th century emergence of the modern administrative state as a result of the technological, social, economic and political pressures that have emerged in national industrialized and developed complex, interdependent systems.
3. Students enable to understanding of public administration as a career field in government.

International Politics (S-4)

1. Students enable to understand the evolution, scope and significance of international relations
2. Students enable to demonstrate an understanding of: the key historical events and also they enable to understand contemporary international system; and the key actors which shaped the international Politics.
3. Students enable to discuss the main international relations theories.
4. Students enable to analyze importance of International relation in process of nation progress.
5. Students enable to appreciate the foreign policy their determinants features & its relevance.

Department of History

PROGRAM OUTCOMES: B.A. History

After completion of the programme the students should be able to know

1. Student enables to Evaluate, analyze and synthesize historical materials (primary and secondary sources).
2. Student enables to Recognize and explain the historical development of cultures.
3. Student understands to Evaluate and recognize different Empire in Indian history.
4. Student Identify the role of theory and methodology in the production of historical knowledge
5. Student Identify and critique basic historical concepts

PROGRAM SPECIFIC OUTCOMES: BA History

On Completion of the BA (History) Students are able to:

1. A history graduate can find employment with Archaeological Survey of India or with private firms related to archaeology.
2. For History graduates, the option of public service is always open.
3. Work as a teacher in schools and high schools
3. Serve as conservator and tourist guide in historical monuments.
4. NGOs and Social Welfare Organizations also employ BA History graduates.
5. Writer/Subject Matter Expert

COURSE OUTCOMES: B.A. History

F.Y.B.A. (Old Syllabus)

History General -1

(1177) Chh. Shivaji and His Times (1630 to 1707)

1. Students got knowledge of concept of Shivaji and his times.
2. Student view increased of Nationalism and Secularism.
3. Students got knowledge of administration of Shivaji Maharaj.
4. Introduced to student social, economic and religious condition.

F.Y.B.A. (New CBCS)

Semester-I

Early India: From Prehistory to the Age of the Mauryas

1. It attempts to highlight the factors and forces behind the rise, growth and spread of civilization and culture of India along with the dynastic history.
2. It also attempts to help the students to understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology.
3. It also aims to foster the spirit of enquiry among the students by studying the major developments in early Indian history.

Early India: Post Mauryan Age to the Rashtrakutas

1. The history of India after the Mauryas is very important to understand the developments in early India after the Mauryas, which finally led to the transition to medieval India.
 2. The course is aimed at introducing the students to the developments in different parts of India through a brief study of regional kingdoms up to the tenth century C.E.
 3. It attempts to highlight the consequences of the foreign invasions, particularly on the polity, economy, society and art and architecture.
 4. The attempt is also to instill the spirit of enquiry among the students.

S.Y.B.A.

History General - 2

(2177) Modern India (1857-1950)

1. "History of Modern India" topic as a part of History is a very important section as far as the Syllabus of any competitive examination is possible, especially Civil Services exams.
2. Students understand of the stages of development in Modern India, why certain events happened and analysis of the consequences of such developments that paves an impact on our society, economy and our political system.
3. Modern Indian history Importance For competitive examination.

History Special- 1 (2178)-

Ancient India (3000B.C. to 1260AD.)

1. Ancient Indian history is very importance for UPSC Examination.
2. When students doing study of ancient Indian history that time they know about original culture religion and society.
3. Increasing student's wideness.
4. Student capable for discuss any Social issue.

History Special – 2 (2179) -

History of Modern Maharashtra (1818-1960)

1. Students got knowledge of concept History of modern Maharashtra.
2. Modern Maharashtra history is useful to student for MPSC examination.
3. National and social movement in Maharashtra Introduced to students.
4. Student got knowledge of Maharashtra Philosophers and their philosophy

S.Y.B.A. New Syllabus (CBCS)

History of the Marathas (1630-1818)(G2)

1. Students got knowledge of concept History of modern Maharashtra.
2. Modern Maharashtra history is useful to student for MPSC examination.
3. Student capable for discuss any Social issue.

History of Medieval India (sultan Period- Mughal Period)(S1)

1. Students got knowledge of concept History of Medieval India.
2. Modern Maharashtra history is useful to student for MPSC examination.
3. National and social movement in Maharashtra Introduced to students.
4. Student got knowledge of Maharashtra Philosophers and their philosophy.

History of Asia (S2)

1. Students got knowledge of concept in world history.
2. Students got global event knowledge it is use for increased intellectual level.
3. World trend of thinking, Marxist, Communalism, Dictatorship, Empearalism, Nazizum, fascism, Terrorism, Feminism, Globalization, etc introduced to Students.

T.Y.B.A.

History General -

3 (3177)-History of the World in 20th century

4. Students got knowledge of concept in world history.
5. Students got global event knowledge it is use for increased intellectual level.
6. World trend of thinking, Marxist, Communalism, Dictatorship, Empearalism, Nazizum, fascism, Terrorism, Feminism, Globalization, etc introduced to Students.

History Special - 3

(3178)- Introduction to History

1. Students known source of history,
2. Practically student known to how much write history.
- 3 Increased the knowledge of research in history
4. Students know external and internal Criticism.
- 5 Students know historian works.

History Special -

4 (3179) History of Asia in 20th Century

1. Students know history of America.
2. Concept of American history introduced to Students
3. Students know causes of Great Depression and policy of New Deal and Fear Deal.
4. Students know American politics in world.
5. Students got knowledge of international relation with America.

Programme Outcomes : B.A. Marathi

Department of Marathi	After successful completion of three year degree program in Marathi a student should be able to;
Programme Outcomes	<ol style="list-style-type: none"> १. विशिष्ट कालखंडाच्या पाशवभुमीवर साहित्यामागील प्रेरणा प्रवृत्तींचे ज्ञान करून घेतो . २. चिकित्सक अभ्यासाची क्षमता विकसित होते . ३. जागतिकीकरणाने विविध क्षेत्रांना सामोरे जाण्यासाठी भाषिक क्षमता विकसित करणे . ४. विविध प्रकारची लेखनकौशल्ये विकसित करणे . ५. आस्वाद घेण्याची डोळस क्षमता विकसित करणे . ६. वाङ्मयीन व्यवहार व प्रकाशन व्यवसायाचे स्वरूप समजते . ७. समीक्षा करण्याची दृष्टी व क्षमता विकसित होते . ८. समीक्षा करण्याची दृष्टी व क्षमता विकसित होते .
Programme Specific Outcomes	<ol style="list-style-type: none"> १. मराठी साहित्यातील भिन्न भिन्न प्रवाह आणि प्रकार लक्षात घेणे . २. विद्यार्थ्यांच्या वाङ्मयीन अभिरूचीचा विकास करणे . ३. संशोधनाची संकल्पना प्रयोजने आणि विविध संशोधन पध्दती समजाऊन घेतो . ४. व्यक्तिमत्त्व विकासासाठी भाषिक कौशल्ये विकसित करणे . ५. प्रसारमाध्यमांसाठी विविध प्रकारची लेखन कौशल्ये आत्मसात करणे .
Course Outcomes B. A. Marathi	
Course	Outcomes
	After completion of these courses students should be able
	FY BA Credit Pattern Semester -1
Paper -1 १. मराठी साहित्य कथा आणि भाषिक कौशल्य विकास (CC-1 A)	<ol style="list-style-type: none"> १. मराठी भाषा मराठी साहित्य आणि मराठी संस्कृती यांची ओळख करून घेतो २. साहित्य विषयक आकलन, आस्वाद आणि मुल्यमापन क्षमतांचा विकास करून घेतो ३. साहित्य अभ्यासातून जीवन विषयक समज विकसित करून घेतो. ४. मराठी भाषेची उपयोजनात्मक कौशल्य आत्मसात करतो. ५. कथा हा साहित्य प्रकार समजावून घेतो. ६. कथा या साहित्यप्रकाराचे स्वरूप घटक आणि प्रकार यांचे अध्ययन करतो.
	FY BA Credit Pattern Semester -2
Paper -1	१. एकांकिका या साहित्यप्रकाराची ओळख करून घेतो.

<p>४. मराठी साहित्य: एकांकिका आणि भाषिक कौशल्य विकास (CC-1 A)</p>	<p>३.मराठी साहित्यातील विद्वठल तो आला आला व हंडा भर चांदण्या या एकांकिकेची ओळख करुन घेतो अध्ययन करतो. ४.मराठी भाषेतील भाषा उपयोजनाची विविध अविष्काररुपे यांची ओळख करुन घेतो. ५.संवाद लेखन, कल्पना विस्तार, भाषांतर व घोषवाक्य लेखन ही कौशल्य आत्मसात करतो.</p>
<p>Mar – 1024 आधुनिक मराठी वाङ्मय सामान्य स्तर १</p>	<p>१. मराठी साहित्यातील मराठी भाषा आणि मराठी संस्कृती यांचा क्रमशः परिचय करुन घेतो . २. मराठी साहित्यासंबधी रूची निर्माण होते . ३. वाङ्मयीन अभिरूचीचा विकास होतो . ४. मराठी साहित्यातील भिन्न भिन्न प्रवाह व प्रकार लक्षात येतात .</p>
<p>Mar – 2024 आधुनिक मराठी आणि उपयोजित</p>	<p>१. शुद्धलेखनाची ओळख होते . २. पारिभाषिक संज्ञांचा परिचय होतो .</p>

मराठी सामान्य स्तर २	<p>३. चरित्र आत्मचरित्र या साहित्यप्रकारांच्या तात्विक घटकांचे ज्ञान प्राप्त होते .</p> <p>४. मराठीतील निवडक चरित्र आत्मचरित्रात्मक वेच्यांचे आकलन आस्वाद आणि मूल्यमापन करण्याची क्षमता विकसित होते .</p>
<p>Mar – 2025</p> <p>मराठी साहित्यातील विविध साहित्यप्रकार विशेष स्तर १</p>	<p>१. मराठी साहित्यातील तात्विक घटकांचे ज्ञान प्राप्त होते .</p> <p>२. वेगवेगळ्या कालखंडातील मराठीतील अभिजात साहित्यकृतींचा संस्कार घडतो .</p> <p>३. साहित्याविषयीची अभिरूची निर्माण होते .</p> <p>४. साहित्यकृतीला मुक्त प्रतिसाद देण्याची क्षमता निर्माण होते .</p> <p>५. साहित्यकृतीचे आकलन आस्वाद आणि मूल्यमापन करण्याची क्षमता विकसित होते .</p>
<p>Mar – 2026</p> <p>अर्वाचीन मराठी वाङ्मयाचा इतिहास १८१८ ते १९६० विशेष स्तर २</p>	<p>१. अभ्यासाच्या प्रारंभी विद्यार्थी मराठी साहित्याच्या ऐतिहासिक परंपरेचे ज्ञान प्राप्त करून घेतो .</p> <p>२. विशिष्ट कालखंडाच्या पाश्वभूमीवर साहित्यामागील प्रेरणा प्रवृत्तींचे ज्ञान करून घेतो .</p> <p>३. साहित्यप्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान करून घेतो</p> <p>४. विद्यार्थी पदव्युत्तर अभ्यास करण्याची तयारी करतो</p>
<p>Mar- 83112</p> <p>मराठी विज्ञान साहित्य आणि व्यावहारिक मराठी</p>	<p>१. मराठी विज्ञान साहित्याची अभिरूची निर्माण होते .</p> <p>२. वैज्ञानिक जाणवा निर्माण होतात .</p> <p>३. विज्ञान उद्योगातील विविध प्रवाह संधी इ.चा परिचय होतो .</p> <p>४. लेखन वाचन आकलन आणि संभाषण ही भाषिक कौशल्ये विकसित होतात .</p> <p>५. वैज्ञानिक कार्यालयीन व्यावसायिक आदी कामकाजात मराठीच्या</p>
<p>Mar – 3024</p> <p>आधुनिक मराठी साहित्य आणि व्यावहारिक व उपयोजित मराठी सामान्य स्तर ३</p>	<p>१. आधुनिक मराठी साहित्यातील विविध साहित्यप्रकारांचा परिचय होतो .</p> <p>२. साहित्याबद्दलची अभिरूची विकसित होऊन कलाकृतीचा आस्वाद घेण्याची क्षमता विकसित होते .</p> <p>३. भाषेचे यथोचित आकलन करून तिचा वापर करण्याची क्षमता विकसित होते .</p> <p>४. निबंध व प्रवासवर्णन या साहित्यप्रकारांचे तात्विक विवेचन आत्मसात करतो .</p>
<p>Mar – 3025</p> <p>साहित्यविचार विशेष स्तर ३</p>	<p>१. साहित्याचे स्वरूप समजून घेतो .</p> <p>२. वाङ्मयीन मूल्यांचा परिचय होतो .</p>

	<p>३ . साहित्याची प्रयोजने जाणून घेतो .</p> <p>४ . साहित्य आणि समाज यांच्यातील परस्पर संबंध समजून घेतो .</p> <p>५ . साहित्य निर्मितीची तत्वे जाणतो .</p>
<p>Mar – 3026</p> <p>भाषाविज्ञान विशेष स्तर ४</p>	<p>१ . भाषेचे स्वरूप व कार्य [भाषेच्या अभ्यासाचे महत्व [भाषेच्या प्रमुख अंगांचा परिचय करून घेतो .</p> <p>२ . भाषेचे मानवी जीवनातील कार्य व महत्व जाणून घेतो .</p> <p>३ . वेगवेगळ्या भाषाभ्यास पध्दतीचे वेगळेपण व महत्व जाणून घेतो .</p> <p>४ . मराठी भाषेचा उत्पत्तीकाल जाणून तत्कालीन भाषिक स्थित्यंतराचा परिचय होतो .</p> <p>५ . मराठी भाषेचा ऐतिहासिक परिचय होतो .</p>

2020 CBCS PATTERN SYBA NEW SYLLABUS

अभ्यासक्रमाची उद्दिष्टे

सामान्य मराठी एस.वाय.बी.ए

भाषिक कौशल्य विकास आणि आधुनिक मराठी साहित्यप्रकार: कांदबरी

१. कांदबरी या साहित्यप्रकाराचे स्वरूप, घटक, प्रकार आणि वाटचाल समजून घेतली.
२. रारंग ढांग या कांदबरीचे आकलन, आस्वाद घेऊन विश्लेषण केले.
३. भाषिक कौशल्य आत्मसात झाली.
४. ललितगदय या साहित्यप्रकाराचे स्वरूप, घटक, प्रकार आणि वाटचाल समजून घेतली.
५. साहित्यरंग या ललितगदय पाठयपुस्तकाचे आकलन, आस्वाद घेऊन विश्लेषण केले.
६. गुगल साधनांचा अध्ययनात उपयोग केला.

विशेष स्तर पेपर ०१ मराठी एस.वाय.बी.ए

आधुनिक मराठी साहित्य:प्रकाशवाटा

१. आत्मचरित्र या साहित्यप्रकाराचे स्वरूप, घटक, प्रकार आणि वाटचाल समजून घेतली.
२. ललित गद्यातील अन्य साहित्यप्रकाराच्या तुलनेत आत्मचरित्राचे वेगळेपण समजावून घेतले.
३. प्रकाशवाटा या आत्मचरित्राचे आकलन, आस्वाद घेऊन विश्लेषण केले.

विशेष स्तर पेपर ०२ मराठी एस.वाय.बी.ए

साहित्यविचार

१. भारतीय आणि पाश्चात्य साहित्यविचारांच्या आधारे साहित्याची संकल्पना, स्वरूप आणि प्रयोजन विचार समजावून घेतली.
 २. साहित्याची निर्मितीप्रक्रिया समजावून घेतली.
 ३. साहित्याची भाषा आणि शैली विषयक विचार समजावून घेतले
 ४. साहित्य समीक्षेची संकल्पना स्वरूप यांची ओळख झाली.
 ५. साहित्य आणि समीक्षा यांचा परस्पर संबंध समजावून घेवून अभ्यासला.
 ६. साहित्यप्रकारानुसार समीक्षेचे स्वरूप समजावून घेवून अभ्यासला.
 ७. ग्रंथ परिचय परीक्षण व समीक्षण यातील फरकाचा बोध झाला.
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एस.वाय.बी.एस्सी

अभ्यासक्रमाची उद्दिष्टे

१. मराठी भाषा, साहित्य आणि त्यांच्या परस्परसंबंधाची जाणीव करून घेतली.
२. मराठी भाषेचा परिभाषासापेक्ष आणि शैलीसापेक्ष विकास समजावून घेतला.
३. मराठी भाषेची उपयोजनात्मक कौशल्य आत्मसात केली.
४. साहित्यविषयक अभिरुची निर्माण केली.
५. साहित्यविषयक अभ्यासातून जीवनविषयक समज विकसित केला.
६. विज्ञानसाहित्यविषयक आकलनक्षमता विकसित केली.

Programme Outcomes : B.A. Hindi

Department of Hindi	After successful completion of three year degree program in Marathi a student should be able to;
Programme Outcomes	PO-1 छात्रों को हिन्दी भाषा के उद्भव, विकास तथा विभिन्न रूपों एवं बोलियों का ज्ञान प्राप्त हुआ।
	PO-2 छात्रों को काव्यशास्त्र के सैद्धांतिक एवं अनुप्रयोगात्मक ज्ञान प्राप्त हुआ।
	PO-3 छात्रों में हिन्दी साहित्य के इतिहास के विकासक्रम और लेखन-परम्परा के संबंध में यथोचित दृष्टिकोण विकसित हुआ।
	PO-4 छात्रों को भाषा ज्ञान के माध्यम से हिन्दी भाषा के व्यवस्थित और यथोचित प्रयोग का ज्ञान प्राप्त हुआ।
	PO-5 छात्र हिन्दी गद्य और पद्य के विभिन्न साहित्य विधाओं से परिचित हुए।
	PO-6 छात्रों में हिन्दी भाषा और साहित्य को समझने, अध्ययन, अंशकाल और मूल्यांकन की क्षमता निर्माण हुई।
	PO-7 साहित्य की विभिन्न विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ।
	PO-8 छात्रों में हिन्दी साहित्य के माध्यम से नैतिक मूल्यों, राष्ट्रीय मूल्य तथा सामाजिक मूल्यों के प्रति आस्था निर्माण हुई।
	PO-9 छात्रों को सरकारी कार्यालयों में प्रयुक्त कार्यालय-हिन्दी भाषा का परिचय प्राप्त हुआ।
Programme Specific Outcomes	PSO-1 हिन्दी भाषा का व्यवस्थित और यथोचित ज्ञान प्राप्त हुआ।
	PSO-2 भावात्मक और सौंदर्यात्मक विकास।
	PSO-3 श्लेष और सूत्र संचालक
	PSO-4 पटकथा लेखक, विज्ञापन लेखक,
	PSO-5 प्रकाशक, संपादक, संवाददाता
	PSO-6 दुर्भाषिया, अनुवादक, प्रूफ शोधक
	PSO-7 एम.ए.बी.एड., पत्रकारिता, अनुवाद, और दूरसंचार: पदविका और पदवी
	PSO-8 मूल्य समझने: नैतिक, राष्ट्रीय, सामाजिक मूल्यों का संवर्धन
	PSO-9 राष्ट्रीय एकात्मता, समानता, बंधुता, उत्तरदायित्व और वैज्ञानिकता का विकास

	PSO-10 नगरी सेवा परीक्षा
Course Outcomes B. A. Hindi F.Y.B.A. Old Syllabus	
Course	Outcomes
	After completion of these courses students should be able to;
HI 1097 हिन्दी सामान्य-1 (G-1)	CO-1 छात्रों को हिन्दी के गद्य और पद्य रचनकारों का परिचय प्राप्त हुआ।
	CO-2 साहित्य की विभिन्न विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ।
	CO-3 छात्रों में राष्ट्रीय ऐक्य, सामाजिक उत्तरदायित्व, वैज्ञानिकता आदि मूल्यों की प्रतिष्ठा हुई।
	CO-4 छात्रों में हिन्दी साहित्य और रचनकारों के प्रति रुचि धर्माण हुई।
	CO-5 छात्रों में राष्ट्रभाषा हिन्दी तथा मन्क लिपि का प्रचार-प्रसार हुआ।
	CO-5 छात्रों को भाषा के रचनत्मक पहलुओं का ज्ञान प्राप्त हुआ।
F.Y.B.A. (CBCS) Sem I वैकल्पिक हिन्दी प्रश्नत्र	
	CO-1 छात्रों को हिन्दी काव्य साहित्य का परिचय दें। CO-2 हिन्दी कव्जनी साहित्य से अवगत करज्जत। CO-3 हिन्दी भाषा द्वारा संवाद कौशल विकसित करन। CO-4 मौलिक लेखन की ओर रुझान बढेज्जत। CO-5 श्वज्जत लेखन कौशल विकसित करन। CO-6 टुनुवाद संबंधी ज्जन्कारी दें। CO-7 हिन्दी कंप्यूटिंग का परिचय दें।
	Sem II वैकल्पिक हिन्दी प्रश्नत्र
	CO-1 छात्रों को हिन्दी काव्य साहित्य का परिचय दें। CO-2 हिन्दी कव्जनी साहित्य से अवगत करज्जत। CO-3 श्वबंध लेखन कौशल को विकसित करज्जत। CO-4 छात्रों को श्वज्जत लेखन से अवगत करज्जत।
S.Y.B.A.	
	CO-1 छात्रों को हिन्दी के प्रतिश्व्धी कव्जन्कारों एवं कवियों का परिचय प्राप्त हुआ।

HI 2097 हिन्दी सामान्य-2 (G-2)	CO-2 छात्रों को हिन्दी कहानी एवं नई कविता की विशेषताओं का परिचय प्राप्त हुआ।
	CO-3 छात्रों को हिन्दी के कार्यालय एवं व्यावहारिक पत्रों के स्वरूप का ज्ञान प्राप्त हुआ।
	CO-4 छात्रों को पारिभाषिक शब्द, शब्दांश, रिपोर्ट लेखन आदि परिचय प्राप्त हुआ।
	CO-5 छात्रों को शब्द युग्म का ज्ञान प्राप्त हुआ।

HI 2098 हिन्दी भाषा का विकास (S-1)	CO-1 छात्रों को भाषा के स्वरूप, परिभाषा और विशेषताओं का ज्ञानकारी प्राप्त हुई
	CO-2 छात्रों को राजभाषा हिन्दी के संवैधानिक स्वरूप का ज्ञान प्राप्त हुआ।
	CO-3 छात्रों को भाषा के विविध रूपों का ज्ञान प्राप्त हुआ।
	CO-4 छात्रों में भाषा शास्त्र के वैज्ञानिक अध्ययन की दृष्टि धर्माण हुई।
	CO-5 छात्रों को हिन्दी भाषा की शब्दावली बोलियों का परिचय प्राप्त हुआ।
	CO-6 छात्रों को लिपि का स्वरूप, उत्पत्ति, विकास तथा इतिहास का ज्ञान प्राप्त हुआ।
HI 2099 उपन्यास, नटक तथा मध्ययुगीन हिन्दी काव्य (S-2)	CO-1 छात्रों में हिन्दी उपन्यास का स्वरूप, तत्व आदि मूल्यों के आधार पर समीक्षा की क्षमता धर्माण हुई।
	CO-2 छात्रों में हिन्दी नटक का स्वरूप, तत्व आदि मूल्यों के आधार पर समीक्षा की क्षमता धर्माण हुई।
	CO-3 छात्रों को संत एवं भक्ति के काव्य का परिचय प्राप्त हुआ।
	CO-4 छात्रों में उपन्यास और नटक के अन्तर्भाव की क्षमता धर्माण हुई।
	CO-5 छात्रों को मध्ययुग के कवियों के योगदान का परिचय प्राप्त हुआ।
	CO-4 छात्रों में साहित्य कृतियों के शिल्प एवं सौंदर्य को देखने की दृष्टि विकसित हुई।
S.Y.B.A(New Syllabus CBCS 2020)	
ही २०१७ ही ही HI(2097) G-2 आधुनिक काव्य ,कहानी तथा व्यावहारिक हिन्दी	Co-1 छात्रों को हिन्दी काव्य साहित्य से परिचित कराना। Co-2 छात्रों को हिन्दी कहानी साहित्य से परिचित कराना। Co-3 छात्रों को हिन्दी कारक –व्यवस्था समझाना। Co-4 शब्द युग्म का अर्थ लिखकर प्रत्यक्ष वाक्य में प्रयोग समझाना। Co-5 संक्षेपण लेखन का प्रत्यक्ष बोध कराना। Co-6 सर्जनात्मकता का विकास कराना।
HI (2098) S-1(Third Semester) काव्यशास्त्र (सामान्य)	Co-1 भारतीय काव्यशास्त्र का परिचय देना I Co-2 काव्य परिभाषा ,तत्व आदि अवगत कराना I Co-3 काव्य के तत्व ,शब्द-शक्तियों का परिचय देना I Co-4 रस का स्वरूप समझाना I Co-5 भारतीय काव्यशास्त्र में रुची पैदा करना तथा अलोचनात्मक दृष्टि को विकसित कराना I

HI (2098) S-1 (Fourth Semester) साहित्य के भेद	Co-1 छात्रों को साहित्य के भेद से अवगत कराना I Co-2 छात्रों को पद्य भेद से अवगत कराना I Co-3 महाकाव्य ,खंडकाव्य और मुक्तक काव्य का परिचय कराना I Co-4 नाटक का स्वरूप समझाना I Co-5 छात्रों में नाट्य अभिनय की रुची विकसित कराना I
HI (2099) S-2 (Third Semester) मध्ययुगीन काव्य तथा उपन्यास साहित्य	Co-1 कबीर के साहित्य का परिचय देना I Co-2 मीराबाई के काव्य से अवगत कराना I Co-3 भारतीय उपन्यास की अवधारणा समझाना I Co-4 उपन्यास कृती का मूल्यांकन कला विकसित कराना I Co-5 साहित्य कृतियों द्वारा प्रस्तुत जीवनमूल्यों को आत्मविस्तृत कराना I
HI (2099) S-2(Fourth Semester) मध्ययुगीन काव्य तथा नाटक साहित्य	Co-1 रहीम के काव्य का बोध कराना I Co-2 बिहारी की काव्य अभिव्यजना समझाना I Co-3 हिंदी नाटक और रंगमंच से अवगत कराना I Co-4 छात्रों में अभिनय गुण विकसित कराना I Co-5 नाट्यलोचना से अवगत कराना I
T.Y.B.A	
HI 3097 हिन्दी सामान्य-3 (G-3)	CO-1 छात्रों को हिन्दी की आत्मकथा विधा का परिचय प्राप्त हुआ।
	CO-2 छात्रों को हिन्दी की दीर्घ कविता और काव्य नाटक का परिचय प्राप्त हुआ।
	CO-3 छात्रों को सरकारी पत्र लेखन की विभिन्न पध्दतियों का ज्ञान प्राप्त हुआ।
	CO-4 छात्रों को पत्रकारीता के विभिन्न पहलुओं का ज्ञान प्राप्त हुआ।
	CO-5 छात्रों में टिप्पणी करने का कौशल्य विकसित हुआ।

	CO-6 छात्रों को कार्यालय= हिन्दी के स्वरुप का परिचय प्राप्त हुआ।
HI 2098 हिन्दी साहित्य का विकास (S-3)	CO-1 छात्रों को हिन्दी साहित्य के इतिहास लेखन की परम्परा का परिचय प्राप्त हुआ।
	CO-2 छात्रों को हिन्दी साहित्य के इतिहास के कालखंडों एवं डन्के नमकरण का परिचय प्राप्त हुआ।
	CO-3 छात्रों को हिन्दी साहित्य के प्रतिष्ठी रचनकारों का महत्व,प्रदेय, प्रभाव आदि ज्ञान प्राप्त हुआ।
	CO-4 छात्रों को हिन्दी साहित्य के विकासक्रम तथा साहित्य के परिष्ने के कारणों का ज्ञान प्राप्त हुआ।
	CO-5 छात्रों में साहित्य साहित्य और युग जीन का संबंध विशद करने की क्षमता र्माण हुई।
	CO-6 छात्रों को आधुनिक युग को सामाजिक, र्जनीतिक, धार्मिक, साहित्यिक परिस्थिति का ज्ञान प्राप्त हुआ।
HI 2099 काव्यशास्त्र (S-4)	CO-1 छात्रों को काव्यशास्त्र के स्वरुप का ज्ञान प्राप्त हुआ।
	CO-2 छात्रों को काव्य के हेतु तथा प्रयोजन पर परिचय प्राप्त हुआ।
	CO-3 छात्रों को काव्य के तत्व तथा शब्द शक्तियों का ज्ञान प्राप्त हुआ।
	CO-4 छात्रों को रस के स्वरुप, भेद एवं अलंकारों का शास्त्रीय ज्ञान प्राप्त हुआ।
	CO-5 छात्रों में नटक और एकांकी के रसास्वाहन को दृष्टि विकसित हुई।
	CO-4 छात्रों आलोचन का स्वरुप, उपयोगिता तथा आलोचक के गुण का ज्ञान प्राप्त हुआ।