Rayat Shikshan Sanstha's

DADA PATIL MAHAVIDYALAYA, KARJAT

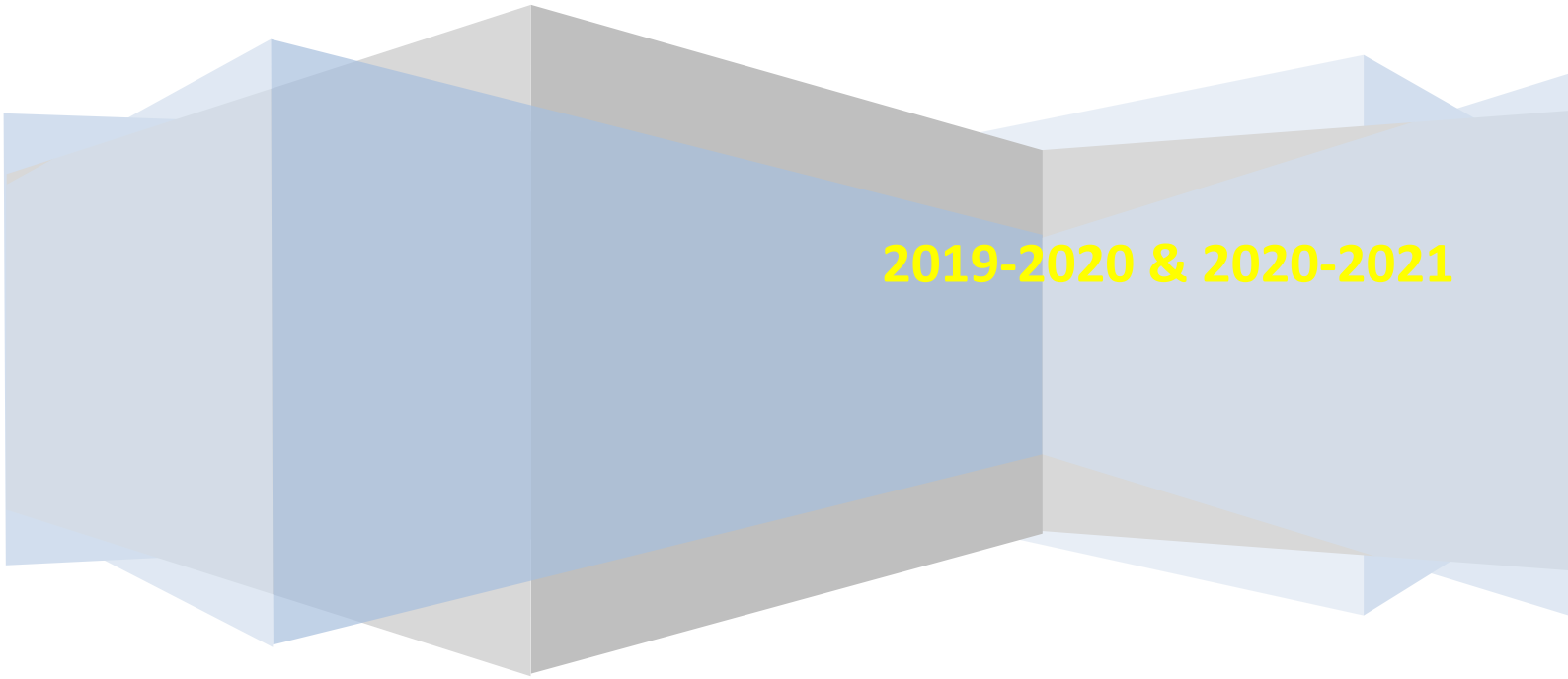
Dist. Ahmednagar, 414402.

Affiliated to

SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

PROGRAMME OUTCOMES (PO)
PROGRAMME SPECIFIC OUTCOMES (PSO)
COURSE OUTCOMES (CO)
(UG AND PG)

ARTS, COMMERCE AND SCIENCE



2019-2020 & 2020-2021

INTRODUCTION:

For every stream, broad expectations listed by the university as well as Institution. The goal of creating an academic program assessment plan is to facilitate continuous program level improvement. A program assessment plan should be developed collaboratively among faculty who teach the program. A program level outcome assessment plan provide faculty with a clear understanding of how their program is assessed.

Program Outcomes (POs) is a systematic method for collecting, analyzing, and using information to answer questions about projects, policies and programs particularly about their effectiveness and efficiency. In both the public and private sectors, stakeholders often want to know whether the programs they are funding, implementing, voting for, receiving or objecting to are producing the intended effect. While program evaluation first focuses around this definition, important considerations often include how much the program costs per participant, how the program could be improved, whether the program is worthwhile, whether there are better alternatives, if there are unintended outcomes, and whether the program goals are appropriate and useful. Evaluators help to answer these questions, but the best way to answer the questions is for the evaluation to be a joint project between evaluators and stakeholders

Programme Specific Outcomes (PSOs) are narrow statements that describe what the students are expected to know and would be able to do upon the graduation. Program outcomes represent broad statements that incorporate many areas of inter-related knowledge and skills developed over the duration of the program through a wide range of courses and experiences. They represent the big picture, describe broad aspects of behaviour, and encompass multiple learning experiences.

Course outcomes (Cos) also referred as learning outcomes are measurable statements that concretely formally state what students are expected to learn in a course. While goals or objectives can be written more broadly, learning outcomes describe specifically how learners will achieve the goals.

UNDERGRADUATE SECTION

FACULTY OF SCIENCE

PO-1: Conduct research relevant to a scientific issue, evaluate different sources of information including secondary data, understanding that a source may lack detail or show bias.

PO-2: Appreciate the role of science in society; and its personal, social and global importance; and how society influences scientific research.

PO-3: To understand and analyze the data (qualitatively/quantitatively) to identify patterns and relationships, identify anomalous observations, draw and justify conclusions.

PO-4: To recognize questions that are appropriate for scientific investigation, pose testable hypotheses, and evaluate and compare strategies for investigating hypotheses.

PO-5: Students should appreciate the role of science in society; and its personal, social and global importance.

PO-6. Understanding environmental concerns by the students at the undergraduate level.

PO-7. Understanding the relationship of man with the environment and help them change his attitude for more positive, proactive, eco-friendly and sustainable lifestyles.

PO-8. Getting information about climate change, Global warming, Acid rain, Green house effect, Ozone, layer depletion.

PO-9. Cultivating attitudes to safeguard the environment built particularly with field experience.

PO-10. Realization of the impact of human actions on the immediate environment and the linkage with the larger issues.

DEPARTMENT OF PHYSICS

➢ PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1: Students are expected to acquire a core knowledge in physics, including the major premises of classical mechanics, quantum mechanics, electromagnetic theory, electronics, optics, special theory of relativity and modern physics.

PSO2: Students are also expected to develop written and oral communication skills in communicating physics-related topics.

PSO3: Students should learn how to design and conduct an experiment (or series of experiments) demonstrating their understanding of the scientific method and processes. Not only that they are expected to have an understanding of the analytical methods required to interpret and analyze results and draw conclusions as supported by their data.

PSO4: Students will develop the proficiency in the acquisition of data using a variety of laboratory instruments and in the analysis and interpretation of such data.

PSO5: Students will learn the applications of numerical techniques for modelling physical systems for which analytical methods are inappropriate or of limited utility.

PSO6: Students will realize and develop an understanding of the impact of physics and science on society.

PSO7: Apply conceptual understanding of the physics to general real-world situations.

PSO8: Describe the methodology of science and the relationship between observation and theory.

PSO9: Learn to minimize contributing variables and recognize the limitations of equipment.

PSO10: Discover of physics concepts in other disciplines such as mathematics, computer science, engineering, and chemistry.

PSO11: Develop the following experimental tools: Numerically model simple physical systems using Euler's method, curve fitting, and error analysis.

PSO12: Analyze physical problems and develop correct solutions using natural laws

F.Y.B.Sc. COURSE OUTCOMES (CO) (Sem - I and II):

COURSE CODE AND TITLE: PHY-111 Mechanics and Properties of Matter

CO1. The student will be able to understand motion,

CO 2. The student understands the importance of Work and Energy

CO 3. The student knows Concept of viscous force and viscosity

COURSE CODE AND TITLE: PHY-112 PHYSICS PRINCIPLES AND APPLICATIONS

CO1. To understand the general structure of atom, spectrum of hydrogen atom.

CO 2. To understand the atomic excitation and LASER principles.

CO3. To understand the bonding mechanism and its different types.

CO4. To demonstrate an understanding of electromagnetic waves and its spectrum..

CO 5. Understand the types and sources of electromagnetic waves and applications.

CO 6 . To demonstrate quantitative problem solving skills in all the topics covered.

COURSE CODE AND TITLE: PHY-121 HEAT AND THERMODYNAMICS

CO1. Learning outcomes for Concept of thermodynamic

CO2. The learner will understand the importance Applied Thermodynamics

CO3.The learner understands Heat Transfer Mechanisms

CO4. To understands Concept of heat & temperature

COURSE CODE AND TITLE: PHY-122 ELECTRICITY AND MAGNETISM

CO1 To understand the concept of the electric force, electric field and electric potential for stationary charges

CO2. Able to calculate electrostatic field and potential of charge distributions using Coulomb's law and Gauss's law.

CO3. To understand the dielectric phenomenon and effect of electric field on dielectric.

CO4. To Study magnetic field for steady currents using Biot-Savart and Ampere's Circuital laws.

CO5 To study magnetic materials and its properties

S.Y.B.Sc. COURSE OUTCOMES (CO) (Sem - I and II):

COURSE CODE AND TITLE: PH211: MATHEMATICAL MEHODS IN PHYSICS

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

CO2. Understand the complex algebra useful in physics courses

CO3. • Understand the role of partial differential equations in physics.

CO4. • Understand vector algebra useful in mathematics and physics

CO5. Understand the singular points of differential equation.

PH212: ELECTRONICS

CO1. Apply laws of electrical circuits to different circuits.

CO 2. Understand the relations in electricity • Understand the properties and working of transistors.

CO 3. Understand the functions of operational amplifiers

CO 4. Design circuits using transistors and operational amplifiers.

CO 5. Understand the Boolean algebra and logic circuits..

COURSE CODE AND TITLE: PH221: OSCILLATIONS, WAVES AND SOUND

CO1 Solve the equations of motion for simple harmonic, damped, and forced oscillators.

CO2 Formulate these equations and understand their physical content in a variety of applications,

CO3 Describe oscillatory motion with graphs and equations, and use these descriptions to solve problems of oscillatory motion.

CO4Explain oscillation in terms of energy exchange, giving various examples.

CO5 Solve problems relating to undamped, damped and force oscillators and superposition of oscillations.

CO6 Understand the mathematical description of travelling and standing waves.

CO7 Recognise the one-dimensional classical wave equation and solutions to it.

CO8 :Calculate the phase velocity of a travelling wave.

CO9 Explain the Doppler effect, and predict in qualitative terms the frequency change that will occur for a stationary and a moving observer.

CO10 Define the decibel scale qualitatively, and give examples of sounds at various levels.

CO11 Explain in qualitative terms how frequency, amplitude, and wave shape affect the pitch, intensity, and quality of tones produced by musical instruments.

COURSE CODE AND TITLE: PH222: OPTICS

CO1. Describe how light can constructively and destructively interfere.

CO2. Explain why a light beam spreads out after passing through an aperture.

CO3. Summarize the polarization characteristics of electromagnetic waves.

CO4. Understand optical phenomena such as polarisation, birefringence, interference and diffraction in terms of the wave model.

CO5. Analyse simple examples of interference and diffraction phenomena.

CO6. Be familiar with a range of equipment used in modern optics.

T.Y.B.Sc. COURSE OUTCOMES (CO) (Sem - I and II):

SEMESTER I:

COURSE CODE AND TITLE: PH331 : MATHEMATICAL METHODS IN PHYSICS- II

CO1. Introduction to Cartesian, Spherical polar and Cylindrical co-ordinate systems, transformation equations

CO2. Able to appreciate the process The Special Theory of Relativity

CO3. To discuss Special functions

CO4. To understand Differential equations

COURSE CODE AND TITLE: PH332: SOLID STATE PHYSICS

CO1. To explain Special functions

CO2. Understanding . X ray Diffraction and Other Characterization Techniques

CO3. Understanding . Free Electron and Band Theory of Metals

COURSE CODE AND TITLE: PH 333 CLASSICAL MECHANICS

CO1. Understand the mechanics of system of particles

CO2. Get an idea on Motion in Central Force Field

CO3. Help to explore new developments Scattering of particles.

CO4. Enable the students to illustrate Langrangian and Hamiltonian formulation

CO5. Develop an interest in the Canonical Transformation and Poisson's Bracket

COURSE CODE AND TITLE: PH334 ATOMIC AND MOLECULAR PHYSICS

CO1. Understanding on the basic theories and principles of Atomic structure

CO2. Learn current environmental issues based on One and two valence electron systems

CO3. Gain critical understanding Two valence electron systems.

CO4. Expose to the basics and advances in Zeeman Effect, X ray spectroscopy and Molecular spectroscopy

COURSE CODE AND TITLE: PH335: COMPUTATIONAL PHYSICS

CO1. To provide students with knowledge Concepts of programming:

CO2. To enable students to understand the Structure of C program, Character set, key words,

CO3. To enable students to reach Arrays and Pointers and User Defined Function in C

CO4. To provide students with adequate knowledge about Computational Physics

COURSE CODE AND TITLE: PH-336 ELECTIVE I (B) ELEMENTS OF MATERIALS SCIENCE

CO1. Understanding on the details . Defects in Solids

CO2. Explain the fine structure in Phase Metals Molecular Phases and Ceramic Materials

CO3. Understanding the structure and function of Phase Diagrams.

SEMESTER II:

COURSE CODE AND TITLE: PH-341: CLASSICAL ELECTRODYNAMICS

CO1. Understand the importance of Electrostatics:

CO2. Get an idea on tools and techniques available for studying Magneto statics:

CO3. To acquire the Concept of electromagnetic.

COURSE CODE AND TITLE: PH-342: QUANTUM MECHANICS

CO1. To study Origin of Quantum Mechanics:

CO2. Learn more about Physical interpretation of wave function

CO3. Outline the basic Schrodinger's equation in spherical polar co-ordinate system

CO4. Compare the different Operators in Quantum Mechanics

COURSE CODE AND TITLE: PH-343: THERMODYNAMICS AND STATISTICAL PHYSICS

CO1. Discuss Assumptions of Kinetic theory of gases

CO2. Explain the Maxwell Relations and Application

CO3. Describe how Elementary Concepts of Statistics

CO4. Distinguish Statistical Distribution of System of Particles: and Statistical Ensembles

COURSE CODE AND TITLE: PH 344 NUCLEAR PHYSICS

CO1. Explain Basic Properties of Nucleus

CO2. Describe the experiments of Radioactivity

CO3. Describe the Meson theory of nuclear forces, Properties of nuclear forces,

CO4. Explain the consequence Introduction to particle Accelerators

COURSE CODE AND TITLE: PH345:ELECTRONICS

CO1. Expose to concepts and process in developmental Special Purpose Diodes and Transistor amplifier

CO2. Understand Operational Amplifier and Timer (IC555)

CO3. Introduction to SOP and POS technique in Combinational circuits

CO1. Demonstrate advanced.

COURSE CODE AND TITLE: PH346 ELECTIVE II (K): LASERS

CO1. Knowledge and understanding of Introduction to Lasers:

CO2. Describe the Laser Action and Laser Oscillators

CO3 To understand Characteristics of Laser as well as Types and Applications of Lasers

DEPARTMENT OF CHEMISTRY

- **PROGRAMME SPECIFIC OUTCOMES (PSO):**

PSO1: This paper presents the basic principles of chemistry

PSO2: Students should have a working knowledge of the main area of chemistry organic, Inorganic, physical, analytical ,textiles and dye chemistry

PSO3: To understand the important concepts of chemistry

PSO4: Students should be able to perform and understand chemical reactions.

PSO5: To have an understanding of the professional responsibility and ethical values.

PSO6: To communicate effectively.

PSO7: Identify the study of the compositions structure ,properties, and reaction of matter.

PSO8: To understand work in a chemical related field.

F.Y.B.Sc (Chemistry)

Sr No.		Course	Outcomes
1	**F. Y. B. Sc. Chemistry Semester-I (Theory and practical)**	CH- 101: Physical Chemistry	**Chemical Energetics** 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 **Chemical Equilibrium** 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 **Ionic equilibria** 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
2		CH- 102: Organic Chemistry	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 themain subject. 3. To familiarize with current and recent developments in Chemistry. 4. To create foundation for research and development in Chemistry.
3		CH- 103: Chemistry Practical Course I	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 constituent.
4	**F. Y. B. Sc Chemistry. Semester-II (Theory and practical))**	CH-201: Inorganic Chemistry	**Atomic Structure** 1.Various theories and principles applied to revel 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 **Periodicity of Elements** 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 elements 8. Write name, symbol, electronic configuration, trends and properties. 9. Explain periodicity in the following properties in details: a. Effective nuclear charge, shielding or screening effect; some numerical problems. b. Atomic and ionic size. c. Crystal and covalent radii d. Ionization energies e. Electronegativity- definition, trend, Pauling electronegativity Scale. f. Oxidation state of elements **Chemical Bonding** 1. Attainment of stable electronic configurations. 2. Define various types of chemical bonds- Ionic, covalent, coordinate and metallic bond 3. Explain characteristics of ionic bond, types of ions, energy 4. consideration in ionic bonding, lattice and solvation energy and their importance in the context of stability and solubility of ionic compounds

			4. Summarize Born-Lande equation and Born-Haber cycle, 5. Define Fajan's rule, bond moment, dipole moment and percent ionic character. 6. Describe VB approach, Hybridization with example of linear, trigonal, square planer, tetrahedral, TBP, and octahedral. 7. Discuss assumption and need of VSEPR theory. 8. Interpret concept of different types of valence shell electron pairs and their contribution in bonding. 9. Application of non-bonded lone pairs in shape of molecule 10. Basic understanding of geometry and effect of lone pairs with examples such as ClF3, Cl2O, BrF5,XeO3 and XeOF4.
5		CH- 202: Analytical Chemistry	**Introduction to Analytical Chemistry** i. Analytical Chemistry –branch of chemistry ii. Perspectives of analytical Chemistry iii. analytical problems **Calculations used in Analytical Chemistry** i. Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution ii. Relation between molecular formula and empirical formula iii. Stoichiometric calculation iv. Define term mole, millimole, molar concentration, molar equilibrium concentration and Percent Concentration. v. SI units, distinction between mass and weight vi. Units such as parts per million, parts per billion, parts per thousand, solution-dilatant volume ratio, function density and specific gravity of solutions. **Qualitative Analysis of Organic Compounds** i. Separation of binary mixtures and analysis ii. Elemental analysis -Detection of nitrogen, sulfur, halogen and phosphorous by Lassiagen's test. iii. Purification techniques for organic compounds. **Chromatographic Techniques – Paper and Thin layer Chromatography** i. Basics of chromatography and types of chromatography ii. Theoretical background for Paper and Thin Layer Chromatography **pH metry** i. pH meter and electrodes for pH measurement ii. Measurement of pH iii. Working of pH meter iv. Applications of pH meter

6		**CH- 203: Chemistry Practical –II**	1. Inorganic Estimations using volumetric analysis 2. Synthesis of Inorganic compounds 3. Analysis of commercial products 4. Purification of organic compounds 5. Preparations and mechanism of reactions involved

S.Y.B.Sc. (CHEMISTRY)

Sr .No.		Course	Outcomes
1	**S.Y.B.Sc Chemistry Semester-I (Theory)**	**CH-211: Physical and Analytical Chemistry**	**Elementary Chemical Kinetics** i. Concept of kinetics , terms used , rate laws , types of order ii. Discuss examples of first order and second order reaction iii. Pseudo molecular reactions iv. Factors affecting on rate of reaction v. Techniques of measurement of rate of reaction vi. To solve problems **Photochemistry** i. Know about photochemistry ii. Understand difference between thermal and photochemical reactions iii. Understand laws of photochemistry iv. Learn what is quantum yield and it's measurement v. Know Types of photochemical reactions and photophysical process vi. Know about quenching and chemiluminence vii. To solve numerical **Distribution law** i. Concept of distribution of solute amongst pair of immiscible solvents ii. Distribution law and it's thermodynamic proof iii. Distribution law and nature of solute in solution state iv. Application – Solvent extraction v. To solve numerical **Introduction to Analytical Chemistry** i. What is Analytical Chemistry ii. analysis and its applications iii. Sampling iv. Common techniques v. Instrumental methods and other techniques vi. Choice of method **Errors in Quantitative Analysis** i. Meaning of error and terms related to expression & estimation of errors ii. Methods of expressing accuracy and precision iii. Classification of errors iv. Significant figures and computations v. Distribution of errors

			vi. Mean and standard deviations vii. Reliability of results **Inorganic Qualitative Analysis** i. Basic principles in qualitative analysis ii. Meaning of common ion effect iii. Role of common ion effect and solubility product iv. Different groups for basic radicals v. Group reagent and precipitating agents vi. Interfering anions and its removal vii. Separation for basic radicals vii. Method of detection of acidic radicals **Analysis of Organic Compounds (Qualitative & Quantitative)** i. Classification of compounds with different functional groups ii. Different tests for detection of elements like C, H, (O), N, S . iii. Characteristic tests for different functional groups iv. Different colour tests and the reactions v. Quantitative analysis of C, H by Liebig's method vi. Kjeldahl's method with example vii. Carius tube method with example vii. Empirical and molecular formula vii. To solve numericals.
2		CH-212: Organic and Inorganic Chemistry	**Chapter 1: Stereoisomerism** i) Identify chiral center in the given organic compounds. ii) Define Erythro, threo, meso, diasteroisomers with suitable Examples. iii) Able to find R/S configuration in compounds containing two Chiral centers. iv) Explain Bayer's strain theory, Heat of combustion and relates stability of cycloalkanes. v) Explain the stability of cyclohexanes. vi) Draw the structure of boat and chair configuration of cyclohexanes. vii) Draw axial and equatorial bonds in cyclohexanes.. viii) Draw structure of conformations of mono- & disubstituted cyclohexanes ix) Explain the stability of axial and equatorial conformation of Monosubstituted cyclohexanes. **Chapter 2: Organic reaction Mechanism** 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. v) Predict product **Chapter 3: General Principles of Metallurgy.** i) To differentiate between ore and minerals.

			ii) To differentiate between calcination and roasting and smelting. iii) To know the different methods for separation of gangue or matrix from metallic compounds. iv) To know the terms smelting, flux. **Chapter 4: Metallurgy of Aluminium (Electrometallurgy)** i) To know physico-chemical principles involved in electrometallurgy. ii) To understand electrolysis of alumina and its refining. iii) To explain the uses of Aluminum and its alloys. iv) To know purification of bauxite ore. **Chapter 5: Metallurgy of Iron and Steel (Pyrometallurgy)** i) To explain the term pyrometallurgy and to explain the physico chemical principles involved in the reduction process by carbon monoxide. ii) To know different reactions in the blast furnace. iii) To differentiate between properties of pig iron and wrought iron. iv) To explain the basic principles of different methods for preparation of steel. v) To explain the merits and demerits of different methods. **Chapter 6: Corrosion and Passivity** i) Definition of corrosion. ii) Types of corrosion. iii) Mechanism of corrosion. iv) Factors affecting corrosion. v) Methods of prevention of metal from corrosion. vi) Meaning of passivity vii) Different theories of passivity. viii) Galvanising, Tinning, Electroplating from corrosion
3	**S.Y.B.Sc Chemistry .Semester-II (Theory**	**CH-221: Physical and Analytical Chemistry**	**Chapter 1: Free Energy and Equilibrium** i. Free energy concepts, types and its variation ii. Free energy change for chemical reaction and physical transition iii. Free energy change for ideal gases iv. Gibb's Helmholtz equations and its properties & significance v. van't Hoff reaction isotherm and thermodynamic equilibrium constants, vi. Chemical and physical equilibrium vii. Clausius –Clapeyron equation and its applications vii. To solve numericals. **Chapter 2: Solutions of Liquids in Liquids** 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. vii. To solve numerical **Chapter 3: Introduction to volumetric analysis**

			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. iv. To solve numerical problems. v. Calibrate various apparatus such as burette, pipette, volumetric flask, barrel pipette etc. vi. Types instrumental and non instrumental analysis **Chapter 4: Non Instrumental volumetric analysis** i. Explain role of indicators. ii. Know mixed and universal indicators. iii. Know neutralization curves for various acid base titration iv. Know principle of complexometric precipitation and redox titrations. v. Know the definitions and difference between iodometry and iodimetry. vi. To know standardization of sodium thiosulphate and EDTA. vii. Reactions between CuSO4 and Iodine and liberated I2 and Na2S2O3 viii. Choice of suitable indicator. ix. Estimate copper from CuSO4 and available chlorine in bleaching powder. x. Prepare standard silver nitrate solution. xi. Mohr's and Fajan's method.
5		**CH-222: Organic and Inorganic Chemistry**	**Chapter 1: Reagents in Organic Synthesis** 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 **Chapter 2: Chemistry of heterocyclic compounds with one hetero atom.** 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. v) Predict products **Chapter 3: Introduction of Bio-molecules** 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. vii) Explain optical activity in carbohydrates.

			viii) Write Fischer projection and perspective formula with glyceraldehydes as reference compound. ix) Explain the principle in Killani Fischer synthesis. x) Explain stereoisomerism in monosaccharide. xi) Draw structure of some common aldoses and ketoses. xii) Distinguish between diastereomers and epimers. xiii) Write cyclic structure of glucose in Fischer, Haworth and chair form. xiv) Know the phenomenon of mutaroatation. xv) Draw the structure and bonding in maltose, lactose, cellobiose and sucrose. xvi) Know about polysaccharide, structures of starch and cellulose. xvii) Classify the naturally occurring amino acids. xviii) Explains the amphoteric nature of amino acids. xix) Know the important reactions of □-amino acids. xx) Outline the formation of peptide bond. xxi) Explain the hydrogen bonding in □-helical structure. xxii) Relate the stability of □-helical chain and their R-groups **Chapter 4: Chemistry of d-block elements** i) To know position of d-block elements in periodic table. ii) To know the general electronic configuration & electronic configuration of elements. 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 ablility, colour, magnetic properties, non-stoichiometry, density, melting point, boiling point. **Chapter 5: Organometallic Chemistry** i) To understand M-C bond and to define organometallic compounds ii) To define organometallic chemistry iii) To understand the multiple bonding due to CO ligand. iv) To know methods of synthesis of binary metal carbonyls. v) To understand the structure and bonding using valence electron count (18 electron rule) vi) To understand the catalytic properties of binary metal carbonyls. vii) To understand the uses of organometallic compounds in the homogenous catalysis. **Chapter 6: Acids, Bases and Solvents** i) To define acids and bases according to Arrhenius theory Lowery-Bronsted concept, Lewis concept. ii) To explain the merits and demerits of different theories of acids and bases. iii) To define the conjugate acid and base pairs. iv) To explain the leveling effect of solvents. v) To demonstrate the trends in the strength of hydracids, oxyacids. vi) To define hard and soft acids. vii) To know the trends in the strength of hydra and oxyacids.

			viii) To know the rules governing the strength of oxyacids. ix) To explain the properties of a solvent that determines their utility. x) To know some useful solvents. xi) To explain the reactions in non-aqueous solvents like HF and NH3. **Chapter 7: Chemical Toxicology** i)To know toxic chemical in the environment. ii) To know the impact of toxic chemicals on enzyme. iii) To know the biochemical effect of Arsenic, Cd, Pb, Hg. iv) To explain biological methylation
6	**S.Y.B.Sc Chemistry Practical**	**CH – 223 Chemistry Practical**	i. Verify theoretical principles experimentally ii. Interpret the experimental data iii. Improve analytical skills iv. Correlate the theory and experiments and understand their importance

T. Y. B. Sc. (CHEMISTRY)

Semester-III	
Course	**Outcomes** After completion of these courses students should be able to;
CH-331 Physical Chemistry	CO-1. Write an expression for rate constant K for third order reaction CO-2. Solve the numerical problems based on Rate constant CO-3.Understand the term specific volume, molar volume and molar refraction CO-4. Know the meaning of phase, component and degree of freedom CO-5. Derive the expression for rotational spectra for the transition from J to J+1
CH-332 Inorganic Chemistry	CO-1. Know the meaning of various terms involved in co-ordination chemistry CO-2.TounderstandWerner‟sformulationofcomplexesandidentify the types ofvalences CO-3. Know the limitations of VBT CO-4.Knowtheshapesofd-orbital‟sanddegeneracyofd-orbital‟s CO-5. Draw the geometrical and optical isomerism ofcomplexes

CH-333 Organic Chemistry	CO-1. Define organic acids and bases. CO-2. Distinguish between geometrical and optical isomerism. CO-3. Discuss kinetics, mechanism and stereochemistry of SN^1 and SN^2 reactions. CO-4. Compare between E_1 and E_2 reactions. CO-5. Understand the evidences, reactivity and mechanism of various elimination and substitution reactions.
CH-334 Analytical Chemistry	CO-1. Know the principles of common ion effect and solubility product. CO-2. Study the methods of thermo-gravimetric analysis. CO-3. Understand the principles of Spectro-photometric analysis and properties of electromagnetic radiations. CO-4. Study the Voltammetry and Polarography as an analytical tool. CO-5. Measure the absorbance of atoms by AAS.
CH-335 Industrial Chemistry	CO-1. Know the importance of chemical industry. CO-2. Classify various insecticides. CO-3. Study the nutritive aspects of food constituents. CO-4. Understand the characteristics of some food starches. CO-5. Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.
CH-336-E Agriculture Chemistry	CO-1. Know the role of agriculture chemistry and its potential CO-2. Understand the basic concept of soil, properties of soil & its classification on the basis of pH. CO-3. Know the different plant nutrients, their functions and deficiency symptoms. CO-4. Identify the problematic soil and recommend a method for their reclamation. CO-5. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.

Course Outcomes T.Y.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	CO-1. Know the various pharmaceutical drugs, their application and synthesis. CO-2. To study the waste management. CO-3. To understand the function of dyes, paints andpigments. CO-4. To study the various type ofsurfactants. CO-5. To know about molasses and bagasse. CO-6. To study the different types ofpolymer.

CH-346(E) Dairy Chemistry	CO-1. Know the market of milk in different breeds. CO-2. Understand the basic principle of sterilization, homogenization, and standardization of milk. CO-3. Study the flow sheet diagram of shrikhand powder, whey powder, and ice-cream. CO-4. Study the different nutrient value in milk.
CH-347 Physical chemistry practical"s	CO-1. Calculate molar and normal solution of various concentrations. CO-2. Determine specific rotations and percentage of to optically active substances by polorimetrically. CO-3. Study the energy of activation and second order reaction. CO-4. Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. CO-5. Find out the acidity, Basicity and PKa Value on pH meter.
CH-348 Inorganic Chemistry Practical"s	CO-1. Study the gravimetric and volumetric analysis of ores and alloy. CO-2. Prepare a various inorganic complexes and determine its % purity. CO-3. To study binary mixture with removal of borate and phosphate. CO-4. To understand the chromatographic techniques
CH-349 Organic ChemistryPractical"s	CO-1. Perform the Binary mixtures. CO-2. Preparation of organic compounds, their purifications and run

DEPARTMENT OF BOTANY

➢ PROGRAMME SPECIFICAT OUT COMES (PSO)

PSO1. To foster curiosity in the students for Botany

PSO2. To create awareness amongst students for basic and applied areas in botany

PSO3. To orient students about the importance of abiotic and biotic factors of environment and its conservation.

PSO4. To provide an insight to the aspects in plant biodiversity.

POS5. To inculcate good laboratory practices in students and to provide training in instrument handling and technical support.

POS6. To understand the plant diversity in the area

PSO7. To understand the underlying principles in classification of plants

PSO8. To understand the terminology needed in classification

PSO9. To understand the differences and similarities in various aspects of classifications

PSO10. To classify plant kingdom based on various morphological characteristics

PSO11. To understand our role as caretaker and promoter of life

PSO12. To understand the origin and advancement of higher plants

PSO13. To understand general characters of different families in higher plants

PSO14. To classify plants and to make able to identify and describe various plant families

PSO15. To understand different behaviours and adaptations in higher and lower plants.

PSO16. To understand affinities and phylogenetic relationship among advanced and primitive plant families

PSO17. To provide thorough knowledge about plant growth, physiological processes etc.

PSO18. To make the students aware about application of botany in various disciplines

PSO19. To highlight the potential of various applied branches of botany to becomeentrepreneurs

PSO20. To equip the students with skills related to laboratory as well as field based studies

PSO21. To make the students aware about conservation and sustainable use of biodiversity.

PSO22. To inculcate interest and foundation for further studies in botany

PSO23. To address the socio-economical challenges related to plant sciences

F.Y.B.Sc. COURSE OUTCOME (CO) (SEM I & II)

COURSE TITLE: PLANT LIFE AND UTILIZATION I

CO1. Students will be made aware of plant life and its classification

CO2. Students will know lower cryptogams, higher cryptogams and phanerogams

CO3. The student will understand the role of lower and higher crypotogams with detailed understanding of their life cycles, and applications.

COURSE TITLE: PLANT MORPHOLOGY AND ANATOMY

CO1. The learners will be made aware of definition, descriptive and interpretative morphology so as to distinguish the plant forms.

CO2. Students will acquire knowledge on different morphological features like, fruit, flower, inflorescences their types and distinguishing features.

CO3. The learner will also have a deep understanding of anatomical features, types of tissues and its organization in the plant body with special emphasis on its role and functions.

CO4. These learning points will help the student in further applied aspects of the subjects during their higher studies.

CO5. The course will also develop their thinking ability to identify and let know the knowhow and importance of the plants to wider societal reach.

COURSE TITLE: PLANT LIFE AND UTILIZATION II

CO1. Students will be made aware of plant diversity in Pteridophytes, Gymnosperms and Angiosperms with reference to vascular plants

CO2. The student will understand the role of these groups with detailed understanding of their life cycles, and applications.

CO3. The learners will be acquainted with understanding of application and uses of such plants in utilization.

COURSE TITLE: PRINCIPLES OF PLANT SCIENCE

CO1. The learner will understand the physiological processes in the plants.

CO2. The students will get acquainted with different cellular functions and processes of cell division

CO3. The learners will get knowledge of the subatomic molecules and their role and functions in the cell.

CO4. The course will create an applied interest of the students in the subject and will provoke to consider research as one of the potential field as career.

S.Y.B.Sc. COURSE OUTCOME (CO) (SEM I & II)

COURSE TITLE: FUNDAMENTALS OF PLANT SYSTEMATICS AND PLANT ECOLOGY

CO1. The students will be able know the objectives, importance and scope of plant systematics.

CO2. The learners will get acquainted with sources of data on systematics, botanical nomenclature.

CO3. The learner will have a deep knowledge on different plant families and its characterization features.

CO4. The students will be made aware of environmental awareness, ecological grouping and community dynamics.

CO5. The course will be made aware of his/her role in environment and will make them a responsible citizen it will also force to think students about sustainable ecology.

COURSE TITLE: FUNDAMENTALS OF PLANT PHYSIOLOGY

CO1. Learners will have an in deep knowledge about importance of plant physiology and its application

CO2. Students will acquire understanding about biophysical phenomenon and various process in plants like plasmolysis, osmosis, diffusion, permeability

CO3. The learner will have an understanding about water absorption, various cells involved in the process and their functioning.

CO4. The course also emphasize on understanding of various processes such as mineral and salt absorption with references to growth.

CO5. The students will understand the role of plant growth regulators its types and also the process of flowering.

CO6. The course will help students to take up research as career and will also those provoke understanding of growth and flowering to make them successful entrepreneurs.

COURSE TITLE: STRUCTURAL BOTANY (ANATOMY, EMBRYOLOGY AND PALYNOLOGY)

CO1. The students will have an in deep knowledge about different types of tissues with understanding of their role in plant system

CO2. The learner of the course will also understand the process of tissues systems in plants and will be able to know the growth types happening in the plant body.

CO3. The student will understand the process of embryo formation, types of embryo and process of fertilization in plants. Which will help them to know about its application in horticulture and agricultural practices.

CO4. The learner will also get an in deep idea about a branch of botany i.e. palynology, with its application in lucrative industries viz. honey making. This will certainly help them select the stream as one of the potential career.

COURSE TITLE: FUNDAMENTALS OF PLANT BIOTECHNOLOGY

CO1. The student will be introduced and made acquainted with the applied field of biotechnology with special reference to the plants.

CO2. The learner of the course will have a detailed knowledge on plant genome, genetic engineering and bioprocesses.

CO3. The student will have an understanding about the different applied industries in the stream and its applications in food, medicine etc.

CO4. The learner will not only be acquainted with production processes but also will be made aware about scale ups in upstream and downstream processes.

CO5. The course will ensure enhanced the level of understanding of students in the subject area and provoke them to consider it as a potential career.

T.Y.B.Sc. COURSE OUTCOME (CO) (SEM I & II)

COURSE TITLE: CRYPTOGAMIC BOTANY

CO1. The learner will get acquainted with life cycles of lower and higher cryptogams

CO2. The students will understand details and applications of algae, fungi, bryophytes and pteridophytes.

CO3. The learner of the course will have an understanding of the phylogenetic relationship and role in human welfare.

COURSE TITLE: CELL AND MOLECULAR BIOLOGY

CO1. Organisation of cell its history and type of cells: prokaryotic and eukaryotic

CO2. Physical and chemical nature of cell matrix

CO3. Plant cell cytoplasmic constituents, cell organalles and their structure and function

CO4. Learner will be acquainted with nuclear organization and chromosome structures, types and functions.

CO5. The student will understand central Dogma of molecular biology, and various process involved in it.

CO6. Learner will be acquire knowledge related to genetic material, its nature, forms, various structure models and laws.

CO7. Learners will be enlightened with DNA replication, experiments invoeld in providing it and its mechanism, DNA damage and repair.

CO8. Students will also learn about gene organization, transcription, genetic code and translation, gene activation and regulation.

COURSE TITLE: GENETICS AND EVOLUTION

CO1. Students will learn about concept of heredity and variation along with various branches and application of genetics

CO2. Learners will have basic information and understanding about Mendelism, terminology involved and various laws involved.

CO3. The students will make an understanding about interactions involved in genes Multiple allele using *Nicotiana* and *Drosphila* as model organism.

CO4. The learner of this course will have an understanding of quantitative and cytoplasmic inheritance and sex linked inheritance with reference to *Drosophila*

CO5. The student will learn about ploidy specifically euploidy and aneuploidy. They will be acquainted with chromosomal aberrations.

CO6. The students of the course will be introduced to theories of evolution Darwinism and Lamarckian and modern synthetic theory.

CO7. Students will be well versed with evidences of evolution and population genetics and evolution.

COURSE TITLE: SPERMATOPHYTA AND PALAEOBOTANY

CO1. The learner will understand gymnosperms and angiosperms in details with classification, origin and study of angiosperm families

CO2. The student will be able to identify the plants based on various keys like Latin diagnosis, bracketed keys and also will be able to prepare artificial keys.

CO3. The students will understand importance of learning paleobotany, this will help in comparing the present day plants with primitive fossil plants.

COURSE TITLE: HORTICULTURE AND FLORICULTURE

CO1. The students will be made aware about the introduction, importance and application of horticulture and floriculture.

CO2. The learner of the course will be acquainted with nutritive values of the horticultural important fruits and vegetables.

CO3. The Students will learn and understand various methods of plant propagation in horticultural plants with special practices involved like training and pruning.

CO4. The learner of the course will be able to understand the production technology involved in fruits and vegetables.

CO5. The students will be introduced to ornamental horticulture, its origin and history. Gardens of India, various styles and concept of floriculture its scope and importance.

CO6. The learner will be understating flower industry so as to create an interest to become an entrepreneur.

COURSE TITLE: COMPUTATIONAL BOTANY

CO1. The students of the course will be introduced to biostatistics, its scope and application.

CO2. The learner will be made acquainted with sample and sampling methods used in biostatistics.

CO3. The students will be made available about knowledge on collection and representation of data.

CO4. The learners will be made understand measures of central tendency and dispersion.

CO5. The students will understand correlation and regression, probability and types of theoretical probability distribution.

CO6. The learners of the course will understand the tests of significance of mean, computation of seed testing and plant growth indices.

CO7. The learners will understand the analysis of data on vegetation studies.

COURSE TITLE: PLANT PHYSIOLOGY AND BIOCHEMISTRY

CO1. The learner of the course will understand details on plant physiology, photosynthesis, and different pathways.

CO2. The students will have knowledge on respiration, structure of mitochondrion, and various cycles involved like glycolysis, TCA, ETS and ATP synthesis.

CO3. The learners will understand translocation of organic solutes, and stress physiology.

CO4. The learners of the course will be made available knowledge on carbohydrates, amino acids, proteins, lipids.

CO5. The students will understand definition and nature of enzymes and properties of enzymes.

CO6. The students will be acquainted with definition and types of secondary metabolites and will understand production of secondary metabolites via mevalonic and shikimic acid pathways.

COURSE TITLE: PLANT ECOLOGY AND BIODIVERSITY

CO1. The learner of the course will have an interrelationship between the living world and environment.

CO2. The learners will understand environmental crisis, environmental impact assessment and environmental audit so as to know the responsibility.

CO3. The students of the course will also be acquainted with ecology and economics and remote sensing.

CO4. The students of the course will also be well versed with introduction of biodiversity, its aim, concept and objectives.

CO5. The learners of the course will be taught about characterization of biodiversity, by virtue of which they can understand the concept of endemism and phytogeography.

CO6. The students will be well versed with biodiversity loss, importance, IUCN categories and inventorying and monitoring of biodiversity.

CO7. The students of the course will understand current practices in conservation including in situ, ex situ and social approach to biodiversity conservation.

COURSE TITLE: PLANT PATHOLOGY

CO1. The learners will be made acquainted with fundamentals of plant pathology, and important terminologies and significance.

CO2. The students will be having a wide exposure to various institutes working on such area, concept of disease cycle, disease development and its mechanism.

CO3. The students will be made versed with methods of studying plant diseases, fungal, bacterial, mycoplasma, nematodal, viral plant disease, non parasitic diseases.

CO4. The course will provide insights in principles of plant disease control and molecular diagnostics and transgenic in crop protection.

COURSE TITLE: MEDICINAL AND ECONOMIC BOTANY

CO1. The students will be introduced to pharmacognosy its origin history and scope.

CO2. The learner will be introduced to ayurvedic pharmacy, tridosha concept, ayurvedic principles and formulations

CO3. The students will be made understand analytical medicinal botany along with cultivation, collection and processing of herbal drugs from menthe and eucalyptus.

CO4. The course will also help the students to study the drugs w.r.t. occurrence distribution and cultivation, microscopic characters and constituents.

CO5. The learner of the course will have a in depth knowledge on applied medicinal botany, concepts of major metabolic pathway, ethnobotany.

CO6. The students will be made well versed with economic botany, its scopes and NWFPs with origin evolution source and uses of economically importance botanicals.

COURSE TITLE: PLANT BIOTECHNOLOGY

CO1. The learner of the study will be introduced to biotechnology its history.

CO2. The students will be introduced to brief history and importance of plant tissue culture and its application

CO3. The learner of the course will be introduced to germplasm and cryopreservation strategies.

CO4. The students will be made available with information on transgenic plants as bioreactors.

CO5. The learners of the course will be taught about non symbiotic nitrogen fixation, biological nitrogen fixation.

CO6. The students will be made versed with biotechnology and society.

CO7. The students will be introduced to bioinformatics and its scope and use in plant science. They will also be taught its application.

CO8. The learners will be introduces to methods, types, concepts and applications of genomics and proteomics.

COURSE TITLE: PLANT BREEDING AND SEED TECHNOLOGY

CO1. The learner of the course will understand the scope and importance of plant breeding.

CO2. The student will be introduced to conventional techniques, methods and practices in breeding.

CO3. The students will be taught alternative breeding techniques, breeding for stress tolerance.

CO4. The students will be introduced to seed technology, stages of seed production and role of seed technology.

CO5. The learner of the course will be made understand seed certification, seed processing and seed sampling, storage and packaging.

CO6. The students will understand purity analysis of seeds, seed testing and seed marketing

DEPARTMENT OF ZOOLOGY

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1. To foster curiosity in the students for Zoology.

PSO2. To create awareness amongst students for the basic and applied areas of Zoology.

PSO3. To orient students about the importance of abiotic and biotic factors of environment and their conservation.

PSO4. To provide an insight to the aspects of animal diversity.

PSO5. To inculcate good laboratory practices in students and to train them about proper handling of lab instruments.

PSO6. To understand the Animal diversity around us.

PSO7. To understand the underlying principles of classification of animals.

PSO8. To understand the terminology needed in classification.

PSO9. To understand the differences and similarities in the various aspects of classification.

PSO10. To classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature.

PSO11. To understand our role as a caretaker and promoter of life.

PSO 12. To understand the origin and advancement of higher vertebrates (tetrapoda).

PSO 13. To understandgeneral characters of different groups of higher vertebrates.

PSO 14. To classify vertebrates and to become able to understand the possible group of vertebrates observed in nature.

PSO15. To understand different behaviours and adaptations in higher vertebrates

PSO16. To understand affinities among different groups of higher vertebrates.

PSO17. To provide thorough knowledge about various animal sciences from primitive to highly evolved animal groups.

PSO 18. To make the students aware of applications of Zoology subject in various industries.

PSO19 .To highlight the potential of various branches of Zoology to become an entrepreneur.

PSO 20. To equip the students with skills related to laboratory as well as field based studies.

PSO 21. To make the students aware about conservation and sustainable use of biodiversity.

PSO 22. To inculcate interest and foundation for further studies in Zoology.

PSO 23. To address the socio-economical challenges related to animal sciences.

F.Y.B.Sc. COURSE OUTCOMES (CO) (Sem. I and II):

COURSE TITLE: ANIMAL DIVERSITY –I & II

CO1. The student will be able to understand classify and identify the diversity of animals.

CO 2. The student understands the importance of classification of animals and classifies them effectively using the six levels of classification.

CO 3. 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.

COURSE TITLE: ANIMAL ECOLOGY

CO1. 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.

CO3.The Learner understands and appreciates the diversity of ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community.

CO4. 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.

CO 5. The working in nature to save environment will help development of leadership skills to promote betterment of environment.

COURSE TITLE: CELL BIOLOGY

CO1. Learning outcomes for Cell Biology.

CO2. The learner will understand the importance of cell as a structural and functional unit of life.

CO3.The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development.

CO4. The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life.

CO5. The cellular mechanisms and its functioning depends on endo-membranes and structures. They are best studied with microscopy.

S.Y.B.Sc. COURSE OUTCOMES (CO) (Sem. I and II):

ANIMAL DIVERSITY III & IV

CO1. The students will be able to understand, classify and identify the diversity of higher vertebrates.

CO2. The students will able to understand the complexity of higher vertebrates

CO3. The students will be able to understand different life functions of higher vertebrates.

CO4. The students will be able to understand the linkage among different groups of higher vertebrates.

CO5. 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.

APPLIED ZOOLOGY I AND II

CO1. To understand the basic life cycle of the honeybees, beekeeping tools and equipments.

CO 2. To learnfor managing beehives for honey production and pollination.

CO 3. To understand the basic information about fishery, cultural and harvesting methods of fishes.

CO 4. To understand fish preservation techniques.

CO 5. To understand the biology, varieties of silkworms and the basic techniques of silk production and harvesting of cocoons.

CO 6. To learn the different silkworm species and their host plants.

CO 7. To study types of agricultural pests and Major insect pests of agricultural importance.

CO 8. To study Pest control practices.

CO 9. The learner understands the basics about beekeeping tools, equipment, and managing beehives.

CO10. The learner understands the basic information about fishery, cultural and harvesting methods of fishes and fish preservation techniques.

CO11. The learner understands the biology, varieties of silkworms and the basic techniques of silk production.

CO12. The learner understands the types of agricultural pests, Major insect pests of agricultural importance and Pest control practices.

T.Y.B.Sc. COURSE OUTCOMES (CO) (Sem. I and II):

SEMESTER I:

1) ANIMAL SYSTEMATICS AND DIVERSITY- V

CO1. Familiar with the non-chordate world that surrounds us.

CO2. Able to appreciate the process of evolution (unicellular cells to complex, multicellular organisms)

CO3. Able to identify the invertebrates and classify them up to the class level with the basis of systematic.

CO4. Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.

CO5. Describe the diversity in form, structure and habits of vertebrates.

CO6. Explain general characteristics and classification of different classes of vertebrates

2) MAMMALIAN HISTOLOGY

CO1. Improving proper knowledge about histology of animal tissue & organs.

CO2. Understanding physiology of animals including external features & internal features used in pathology lab for detecting malfunction which leads to disorders, physiology useful for study of normal function of body plan for their molecular level.

CO3. Understanding normal function of cell, organ or tissue.

3) BIOLOGICAL CHEMISTRY

CO1. Understand the chemical nature of life and life process.

CO2. Get an idea on structure and functioning of biologically important molecules.

CO3. Help to explore new developments in biochemistry.

CO4. Enable the students to illustrate various Biochemical pathways.

CO5. Develop an interest in the debates and discussions associated with Lifestyle Diseases.

4) ENVIRONMENTAL BIOLOGY AND TOXICOLOGY

CO1. Understanding on the basic theories and principles of ecology.

CO2. Learn current environmental issues based on ecological principles.

CO3. Gain critical understanding on human influence on environment.

CO4. Expose to the basics and advances in ethology.

CO5. Generate an interest in Ethology in order to understand the complexities of both animal and human behaviour.

CO6. Positive attitude towards Biodiversity conservation.

5) PARASITOLOGY

CO1. To provide students with knowledge concerning biological, epidemiological and ecological aspects of parasites causing diseases to humans.

CO2. To enable students to understand the pathogenesis, clinical presentations and complications of parasitic diseases.

CO3. To enable students to reach diagnosis and know the general outline of treatment, prevention and control of parasitic infections

CO4. To provide students with adequate knowledge about endemic parasites and national parasitic problems as well as re-emerging parasitic infection.

6) CELL BIOLOGY

CO1. Understanding on the details of the basic unit of life at the molecular level.

CO2. Explain the fine structure and functions of cell organelles.

CO3. Understanding the structure and function of cell & cell organelles.

CO4. To study animal tissue to improve knowledge about genetic information.

CO5. To study how organism evolve from a single cell division, get knowledge about unicellular & multi-cellular organisms

CO6. Understanding normal function of cell, organ or tissue.

CO7. Study of structure function, molecular organization, growth, reproduction and genetics of cell.

SEMESTER II:

1) BIOLOGICAL TECHNIQUES

CO1. Understand the importance of Bio-physics to recognize life process.

CO2. Get an idea on tools and techniques available for studying biochemical and biophysical nature of life.

CO3. Equip the learner to use the tools and techniques for project work and research.

CO4. Equip the learner to carry out original research in biology.

CO5. Improve analytical and critical thinking skills through problem solving.

CO6. Training in the use of various tools and techniques.

2) MAMMALIAN PHYSIOLOGY & ENDOCRINOLOGY

CO1. Compare the functioning of organ systems across the animal world.

CO2. Learn more about human physiology and anatomy.

CO3. Outline the basic control processes of the nervous systems and explain how this drives muscle movement and sensory perception.

CO4. Compare the different energy requirements of an animal at rest and during exercise, and how this is reflected in the regulation of the oxygen transporting systems.

CO5. Relate the integration of the cardiovascular and respiratory systems and their overall control.

CO6. Describe the nutrition and energy requirements of animal systems.

3) GENETICS AND MOLECULAR BIOLOGY

CO1. Discuss chromatin structure and how it can be modified to affect gene expression.

CO2. Explain the mechanisms of DNA replication and repair, RNA synthesis and processing, and protein synthesis.

CO3. Describe how gene expression is regulated at transcriptional and post-Transcriptional level.

CO4. Distinguish Classical Genetics and Molecular Genetics

CO5. Apply the principles of genetics to produce a family pedigree from a family history, and to distinguish patterns of inheritance for single gene disorders linked to autosomes, sex chromosomes, and mitochondrial genes.

4) ORGANIC EVOLUTION

CO1. Explain how life might have originated on this planet

CO2. Describe the experiments of Mendel and use Mendel's principles to solve novel problems.

CO3. Describe the Hardy-Weinberg law and explain the conditions that must be met for it to hold true

CO4. Explain the consequence of violating each of the assumptions of the Hardy-Weinberg law and explain when a population is in equilibrium.

CO5. Use cladistic analysis to better understand and explain the phylogenetic relatedness among organisms.

CO6. Describe Darwin's theories and how the principles of natural selection can lead to speciation.

CO7. Contrast alternate models for macroevolution and describe the major patterns in the fossil record.

5) GENERAL EMBRYOLOGY

CO1. Expose to concepts and process in developmental biology.

CO2. Understand and appreciate the genetic mechanisms and the unfolding of the same during development.

CO3. Expose the learner to the new developments in embryology and its relevance to man.

CO4. To identify the formation of foetal membranes in chick embryo and their function.

6) MEDICAL ENTOMOLOGY

CO1. Demonstrate advanced knowledge and understanding of the biology of vectors and intermediate hosts of human pathogens together with methods for their control.

CO2. Describe the biology, life cycles, pathogenesis and diagnosis of parasitic infections in humans and relate these to human health and disease control strategies.

CO3. Demonstrate a range of specialised technical and analytical skills relevant to vectors and vector borne diseases, e.g. sampling, identification dissection, diagnostics, exp

DEPARTMENT OF MATHEMATICS

PROGRAMME OUTCOMES (PO)

PO1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of innumerous power of mathematical ideas and tools and know how to use them by modeling ,solving and interpreting.

PO2. Reflecting the broad nature of the subject and developing mathematical tools for continuing further study in various fields of science and technology.

PO3. Enhancing students' overall development and to equip them with mathematical modeling abilities, problem solving skills , creative talent and power of communication necessary for various kinds of employment .

PO4. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.

PROGRAMME SPECIFICOUTCOMES (PSO)

PSO1. 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.

PSO2. A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.

PSO3. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.

PSO4. A student be able to apply their skills and knowledge ,that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

PSO5. A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.

FACULTY OF ARTS

PROGRAMME OUTCOMES (PO):

The programmes under Arts faculty are broadly categorized into Languages and Social Sciences.

PO:1- Specific, measurable statements of what graduating / existing students should know, be able to do , believe or value after completing the program.

PO:2- Depends on the program mission statements.

PO:3- Students summarize Language acquisition theory and research.

PO:4- Students evaluate pedagogical materials.

PO:5- Students build the multidimensional personality and able to correlate Languages with social sciences.

PO:6- Demonstrate proficiency in a range of techniques and media.

PO:7- Communication: Demonstrate familiarity with and ability to analyze both verbally and in writing issues and forms of contemporary art with a clear understanding of historical precedents.

PO:8- Critical Thinking: Demonstrate the ability to articulate an insightful response and analysis of a work of art in order to participate in discussions and studio critiques.

DEPARTMENT OF MARATHI

F.Y.B.A. COURSE OUTCOMES

Course – मराठी साहित्य कथा एकांकिका आणि भाषिक कौशल्य विकास

Objectives

१) मराठी भाषा, मराठी साहित्य आणि मराठी संस्कृती यांचे अध्येयन करणे.

२) साहित्य विषयक आकलन, आस्वाद आणि मूल्यमापन क्षमता विकसित करणे.

३) साहित्याभ्यासातून जीवनविषयक समज विकसित करणे.

४) मराठी भाषेची उपयोजनात्मक कौशल्य विकसित करणे.

Outcomes

१) मराठी भाषा, मराठी साहित्य आणि मराठी संस्कृती याविषयीचे अभ्यासक्रमाद्वारे विद्यार्थ्यांनी अध्ययन केले.

२) अभ्यासक्रमाद्वारे साहित्य विषयक (कथा व एकांकिका) आकलन आस्वाद आणि मूल्य मापन क्षमता विध्यार्थ्यामध्ये विकसित केली.

३) कथा आणि कविता या साहित्य प्रकाराद्वारे विद्यार्थ्यांमध्ये जीवनविषयक समाज विकसित केली.

४) मराठी भाषेची उपयोजनात्मक कौशल्ये उदा. श्रवण,वाचन,लेखन,सारांश लेखन, संवाद लेखन,कल्पनाविस्तार इ. विकसित केली.

F.Y. B.COM. COURSE OUTCOMES

Course – भाषा,साहित्या आणि कौशल्य विकास

Objectives

१) विविध क्षेत्रातील भाषा व्यवहाराचे स्वरूप व गरज समजावून देणे.

२) व्यवहार क्षेत्रातील मराठीच्या भाषेचे स्थान स्पष्ट करणे व त्यातील मराठी या प्रत्यक्ष वापराचा अभ्यास करणे.

३) विविध लेखन प्रकारांचा अभ्यास व प्रत्यक्ष लेखनाची कौशल्य वापरण्यास सक्षम करणे.

४) विविध क्षेत्रातील कर्तुत्वान व्यक्तींच्या कार्याची व विचारांची ओळख करून देणे.

५) विद्यार्थ्यामध्ये नैतिक,व्यावसायीक व वैचारिक मुल्यांची जोपासना करणे.

Outcomes

१) विद्यार्थ्यांनी विविध क्षेत्रातील भाषा व्यवहाराचे स्वरूप व गरज समजावून घेतली.

२) विविध क्षेत्रातील मराठी भाषेचे स्थान व प्रत्यक्ष वापर याविषयाची माहिती विद्यार्थ्यांनी करून घेतली.

३) विविध लेखन प्रकारांचा (चरित्र, आत्मचरित्र,वैचारिक) अभ्यास व लेखन कौशल्य विद्यार्थ्यांनी प्राप्त केले.

४) उत्कर्षवाटा या पाठ्यपुस्ताकाद्वारे विविध क्षेत्रातील कर्तुत्वान व्यक्तींच्या कार्याची विचाराची ओळख विद्यार्थ्यांनी करून घेतली आहे.

५) विद्यार्थ्यांचे नैतिक, व्यावसायीक व वैचारिक मुल्यांची जोपासना समजावून घेतली.

S.Y.B.A. COURSE OUTCOMES

1) course (G-2) आधुनिक मराठी साहित्य आणि उपयोजित मराठी

Objectives

१) शुद्धलेखनाची ओळख करून देणे.

२) पारिभाषिक शब्दांची ओळख करून देणे.

३) चरित्र आत्मचरित्र या साहित्य प्रकारांच्या तात्विक घटकांचे ज्ञान करून देणे.

४) आधुनिक मराठी साहित्यातील निवडक चरित्र आत्मचरित्रात्मक वेच्यांचे आकलन आस्वाद आणि मूल्यमापन फरकांची क्षमता विद्यार्थांमध्ये निर्माण करणे.

Outcomes

१) शुद्धलेखनाची ओळख विद्यार्थ्यांनी करून घेतली.

२) पारिभाषिक शब्दांची ओळख विद्यार्थ्यांनी करून घेतली.

३) चरित्र व आत्मचरित्र या साहित्य प्रकारांच्या तात्विक घटकांचे ज्ञान विद्यार्थ्यांनी करून घेतले.

४) जीवनवेध (चरित्र लेख) व माझी जडण घडण (आत्मचरित्र लेखन) याविषयीचे आकलन आस्वाद व मूल्यमापन करण्याची क्षमता विद्यार्थ्यांनी विकसित झाली.

2) Course – (s-1) मराठी साहित्यातील विविध साहित्य प्रकार

Objectives

१) मराठी साहित्य प्रकारांच्या तात्विक घटकांचे ज्ञान देणे.

२) वेगवेगळ्या कालखंडातील अभिजात साहित्य कृतींचा संस्कार घडविणे.

२) साहित्य कृतीचे आकलन आस्वाद व मूल्यमापन करण्याची दृष्टी निर्माण करणे.

४) साहित्याचा सूक्ष्म पातळीवर आभ्यास करण्याची क्षमता विकसित करणे.

Outcomes

१) विद्यार्थांनी मराठी साहित्य प्रकारांच्या तात्विक घटकांचे ज्ञान करून घेतले.

२) वेगवेगळ्या कालखंडातील अभिजात साहित्यकृतींचा संस्कार विद्यार्थ्यांवर केले गेले.

३) 'फकिरा' (कादंबरी) व 'नटसम्राट' (नाटक) या साहित्यकृतींचे आकलन आस्वाद व मूल्यमापन केले गेले.

४) साहित्याचा सूक्ष्म पातळीवर अभ्यास करण्याची क्षमता विद्यार्थ्यांमध्ये विकसित झाली.

3 Course (s-2) अर्वाचीन मराठी वाड:मयाचा इतिहास (इ.स.१८१८ ते १९६०)

Objectives

१) मराठी साहित्याच्या ऐतिहासिक परंपरेचे स्थूल ज्ञान करून देणे.

२) विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा प्रवृतीचे ज्ञान करून देणे.

३) साहित्य प्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान करून देणे.

४) पदव्युत्तर अभ्यास करण्याची पूर्वतयारी करणे.

Outcomes

१) मराठी साहित्याच्या ऐतिहासिक परंपरेचे स्थूल ज्ञान विद्यार्थांनी करून घेतले.

२) विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा प्रवृतीचे ज्ञान विद्यार्थ्यांनी झाले.

३) साहित्य प्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान विद्यार्थ्यांना झाले.

४) पदनुसार अभ्यास करण्याची पूर्वतयारी विद्यार्थ्यांनी केली.

T.Y.B.A COURSE OUTCOMES:

Course (G-3) आधुनिक मराठी साहित्य आणि व्यावसायीक व उपयोजित मराठी

Objectives

१) आधुनिक मराठी साहित्यातील विविध साहित्यप्रकांचा परिचय वाढविणे त्यांचे आकलन व आस्वाद घेण्याची क्षमता वाढविणे व अभिरुची विकसित करणे.

२) नेमलेल्या कलाकृतीचा संदर्भ साहित्य परंपरेचा स्थूल परिचय करून देणे.

३) भाषेचे यथोचित आकलन करण्याची व वापर करण्याची क्षमता विकसित करणे.

४) निबंध व प्रवासवर्णन या साहित्य प्रकारांचे तात्विक विवेचन करणे.

५) विद्यार्थ्यांची वाचन व लेखन क्षमता विकसित करून त्यांना ग्रंथ परीक्षणाची आवड निर्माण व्हावी यासाठी प्रवृत्त करणे.

Outcomes

१) आधुनिक मराठी साहित्यातील विविध साहित्यप्रकांचा विद्यार्थ्यांनी परिचय करून घेऊन त्यांचे आकलन व आस्वार क्षमता विकसित करण्याची व अभिरुची विकसित होण्यासाठी अध्ययन केले.

२) नेमलेल्या कलाकृतींच्या संदर्भात साहित्य परंपरेचा स्थूल परिचय करून घेतला.

३) विद्यार्थ्यांमध्ये भाषेचे यथोचित आकलन व वापर करण्याची क्षमता विकसित केली गेली.

४) निबंध व प्रवासवर्णन या साहित्य प्रकारांचे तात्विक विवेचन करण्याची क्षमता विकसित केली गेली.

५) वाचन लेखन व ग्रंथपरीक्षण याविषयी विद्यार्थ्यांमध्ये आवड निर्माण होण्याची क्षमता विकसित केली गेली.

T.Y.B.A. COURSE OUTCOMES

Course (S-3) साहित्य विचार

Objectives

१) साहित्याचे स्वरूप समजावून घेणे.

२) साहित्य प्रयोजने समजावून घेणे.

३) साहित्य निर्मितीची प्रक्रिया समजावून घेणे.

४) साहित्याची भाषा समजावून घेणे.

५) साहित्याची आस्वाद प्रक्रिया समजावून घेणे.

६) साहित्यिक अभिरुची समजावून घेणे.

७) वाङ्मयीन मूल्य समजावून घेणे.

८) साहित्य आणि समाज यातील परस्परसंबंध समजावून घेणे.

Outcomes

१) विद्यार्थ्यांनी साहित्याचे स्वरूप समजावून घेतले.

२) साहित्य प्रयोजने समजावून घेतली.

३) साहित्य निर्मितीची प्रक्रिया समजावून घेतली.

४) साहित्य भाषा समजावून घेतली.

५) साहित्याची आस्वाद प्रक्रिया समजावून घेतली.

६) साहित्यिक अभिरुची समजावून घेतली.

७) वाङ:मयीन मूल्य समजावून घेतली.

८) साहित्य आणि समाज यातील परस्परसंबंध समजावून घेतला.

Course (S-4) भाषाविज्ञान: वर्णनात्मक व ऐतिहासिक

Objectives

१) भाषेचे स्वरूप / कार्य व महत्व आणि भाषेची प्रमुख अंगे जाणून घेणे.

२) भाषाभ्यास पद्धतींचे स्वरूप व महत्व जाणून घेणे.

३) वागिंद्रीयाची रचना व कार्य आणि स्वननिर्मितीची प्रक्रिया समजावून घेणे.

४) ऐतिहासिक भाषाभ्यास पद्धतीचे स्वरूप व महत्व लक्षात घेणे.

५) मराठी भाषेचा उत्पत्ती काळ व मराठी भाषेची ऐतिहासिक वाटचाल जाणून घेणे.

Outcomes

१) भाषेचे स्वरूप कार्य व महत्व आणि भाषेची प्रमुख अंगे विद्यार्थ्यांनी जाणून घेतली.

२) भाषाभ्यास पद्धतींचे स्वरूप व महत्व जाणून घेतले.

३) वागिंद्रीयाची रचना व कार्य आणि स्वननिर्मितीची प्रक्रिया समजावून घेतली.

४) ऐतिहासिक भाषाभ्यास पद्धतीचे स्वरूप व महत्व लक्षात घेतले.

५) मराठी भाषेचा उत्पत्ती काळ व मराठी भाषेची ऐतिहासिक वाटचाल विध्यार्थ्यांनी जाणून घेतली.

DEPARTMENT OF HINDI

एफ. वाय. बी. ए. तथा बी. कॉम.(वैकल्पिक हिन्दी)

१ . छात्रो को हिन्दी साहित्य से परिचित किया ।

२. हिन्दी कहानी साहित्य से अवगत किया ।

३. हिन्दी भाषा द्वारा संवाद कौशल विकसित किया ।

४. मौलिक लेखन की ओर रूझान बढा दिया ।

५. विज्ञापन लेखन कौशल विकसित किया।

६. अनुवाद संबंधी जानकारी दी ।

७ . हिन्दी कम्प्यूटिंग का परिचय दिया ।

८ . हिन्दी काव्य साहित्य का परिचय दिया।

९. विज्ञापन लेखन कौशल विकसित किया।

एस. वाय. बी. ए.

पेपर G2

१. छात्रो को प्रतिनिधी कहानी कारो तथा कविओ का परिचय काराया ।
२. छात्रो को कहानी तथा कविता की विशेषताओ से परिचय काराया ।
३. छात्रो को व्यावहारिक तथा कार्यालय पत्र लेखन से अवगत काराया ।
४. छात्रो को व्यावहारिक क्षेत्र से परिचित काराया ।
५. छात्रो को शब्द यूग्म ज्ञान का काराया

पेपर S1

१. छात्रो को भाषा की परिभाषा, विशेषताए तथा भाषा के विविध रूपो की जानकारी दी ।
२. छात्रो को बोलीयो तथा भाषा विकास के प्रमुख वाद से परिचित किया।
३. छात्रो में भाषा के वैज्ञानिक अध्ययन की दृष्टी विकसित किया।
४. भाषा विज्ञान के अंगो तथा भाषा विज्ञान के शाखाओ का परिचय काराया ।
५. भाषा विज्ञान अन्य विज्ञान से परिचय काराया ।

पेपर S1

१. छात्रो में नाटक और उपन्यास समीक्षा की क्षमता विकसित की।
२. छात्रो में नाटक और उपन्यास आस्वादन की क्षमता विकसित की।
३. मध्ययुगीन काव्य से परिचित किया ।
४. साहित्य के शिल्प एवं सौदर्य से परिचित किया ।
५. मध्ययुगीन कवियो के योगदान से परिचित किया

टी. वाय. बी. ए.

पेपर G३

१. छात्रो को आत्मकथा विधा तथा काव्य नाटक के स्वरूप का परिचय दिया । छात्रो को पारिभाषिक शब्द तथा संक्षिप्त यो के माध्यम से
२. सरकारी कार्यालयो मे प्रयुक्त की जानेवाली कार्यालयीन हिन्दी का परिचय दिया।
३. छात्रो को सरकारी पत्र लेखन से अवगत काराया।
४. छात्रो को पत्रकारिता के विभिन्न पाहलूओ से परिचित काराया।
५. छात्रो में अंग्रेजी से हिन्दी में अनुवाद की कला को विकसित किया।

पेपर S3 (हिन्दी साहित्य का इतिहास)

१ . हिन्दी साहित्य के इतिहास की लेखन परंपरा से अवगत किया.

२ . हिन्दी साहित्य के इतिहास कालखंडो का परिचय दिया।

३ . हिन्दी साहित्य की प्रति निधी राचनाओ तथा रचना कारो का परिचय दिया ।

४. हिन्दी साहित्य के विकसक्रम तथा साहित्य परिवर्तनो का परिचय दिया।

५ . हिन्दी साहित्य के इतिहास के माध्यम से साहित्य और युग जीवन का संबंध अवगत काराया ।

पेपर S4 (काव्यशास्त्र)

१. छात्रो को काव्य साहित्य की परिभाषा, स्वरूप, काव्य प्रयोजन, काव्य हेतूओ से परिचित किया।
२. छात्रो को काव्य के तत्व, भेद तथा शब्द शक्ति का ज्ञान काराया।

३. छात्रो को छंद और अलंकारो का परिचय दिया।

४. छात्रो को नाटक तथा अन्य गद्य भेदो का परिचय दिया ।

५. छात्रो को रस के विभिन्न अंगो का परिचय दिया।

DEPARTMENT OF ENGLISH

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO:1- Use correct English in oral as well as written form.

PSO:2- Inculcate the human values for one's transformation of behavior.

PSO:3- Interpret the literary works by critical analysis.

PSO:4- Compare literary works of the great writers and philosophers by using their logic and literary competency Nurture themselves in soft skills and develop research aptitude.

PSO:5- Find jobs for their livelihood Be motivated for their further education.

F. Y. B.A. COURSE OUTCOMES (CO) (SEM.I and II)
F.Y.B.A. : COMPULSORY ENGLISH- I AND II

CO1. To expose students to the best examples of prose and poetry in English so that they realize the beauty and communicative power of English

CO2. To instill human values and develop the character of students as responsible citizens of the world

CO3.To develop the ability to appreciate ideas and think critically

CO4.To enhance employability of the students by developing their linguistic competence and communicative skills

CO5.To revise and reinforce structures already learnt in the previous stages of learning.

F. Y. B. A- OPTIONAL ENGLISH (GENERAL PAPER-1)

CO1.To expose students to the basics of literature and language and develop an integrated view about language and literature in them

CO2. To acquaint them with minor forms of literature in English and help them to appreciate the creative use of language in literature

CO3. To introduce them to the basics of phonology of English so that they can pronounce better and speak English correctly.

CO4.To prepare students to go for detailed study and understanding of literature and language
CO5. To enhance the job potential of students by improving their language skills .

S. Y. B. A. COMPULSORY ENGLISH

CO1. To develop competence among the students for self-learning

CO2. To familiarize students with excellent pieces of prose and poetry in English so that they realize the beauty and communicative power of English

CO3.To develop students' interest in reading literary pieces

CO4. To expose them to native cultural experiences and situations in order to develop humane values and social awareness

CO5. To develop overall linguistic competence and communicative skills of the students

S. Y. B. A. GENERAL ENGLISH (G-2) .
Title of the Paper: Study of English Language and Literature

CO1. To expose students to the basics of short story, one of the literary forms.

CO2. To familiarize them with different types of short stories in English.

CO3. To make them understand the literary merit, beauty and creative use of language

CO4.To introduce some advanced units of language so that they become aware of the technical aspects and their practical usage.

CO5. To prepare students to go for detailed study and understanding of literature and language

CO6. To develop integrated view about language and literature in them.

S. Y. B. A. SPECIAL PAPER-I (S-1)
Title of the Paper: Appreciating Drama

CO1.To acquaint and familiarize the students with the terminology in Drama Criticism (i.e. the terms used in Critical Analysis and Appreciation of Drama)

CO2. To encourage students to make a detailed study of a few sample masterpieces of nglish Drama from different parts of the world

CO4.To develop interest among the students to appreciate and analyze drama independently

CO5.To enhance students awareness in the aesthetics of Drama and to empower them to evaluate drama independently

S. Y. B. A SPECIAL PAPER-II (S-2)
Title of the Paper: Appreciating Poetry

CO1.To acquaint and familiarize the students with the terminology in poetry criticism (i.e. the terms used in critical analysis and appreciation of poems)
CO2. To encourage students to make a detailed study of a few sample masterpieces of English poetry
CO3. To enhance students awareness in the aesthetics of poetry and to empower them to read, appreciate and critically evaluate the poetry independently.

T. Y. B. A. COMPULSORY ENGLISH

CO1. To introduce students to the best uses of language in literature.

CO2. To familiarize students with the communicative power of English

CO3. To enable students to become competent users of English in real life situations

CO4.To expose students to varied cultural experiences through literature

CO5. To contribute to their overall personality development by improving their communicative and soft skills.

T. Y. B. A. GENERAL ENGLISH (G-3)
Title of the Paper: Advanced Study of English Language and Literature

CO1. To expose students to some of the best samples of Indian English Poetry

CO2. To make the students see how Indian English poetry expresses the ethos and culture of India

CO3. To make them understand creative uses of language in Indian English Poetry

CO4.To introduce students to some advanced areas of language study

CO5. To prepare students to go for detailed study and understanding of literature and language

CO6. To develop integrated view about language and literature among the students.

T.Y.B.A. SPECIAL PAPER III (S-3)
Title of the Paper: Appreciating Novel

CO1. To introduce students to the basics of novel as a literary form

CO2. To expose students to the historical development and nature of novel

CO3. To make students aware of different types and aspects of novel

CO4. To develop literary sensibility and sense of cultural diversity in students

CO5. To expose students to some of the best examples of novel.

T.Y.B.A. SPECIAL PAPER IV(S-4)
Title of the Paper: Introduction to Literary Criticism

CO1. To introduce students to the basics of literary criticism

CO2. To make them aware of the nature and historical development of criticism

CO3. To make them familiar with the significant critical approaches and terms

CO4. To encourage students to interpret literary works in the light of the critical approaches

CO5. To develop aptitude for critical analysis.

DEPARTMENT OF ECONOMICS

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1. To familiarize the students with the recent developments in the Indian Economy

PSO2 To provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.

PSO3• To help the students to prepare for varied competitive examinations

PSO4. To enable students to understand and comprehend the current business scenario, agricultural scenario and other sartorial growth in the Indian context. To make the student aware of the developments such as MSMEs, Digital Economy, E-Banking, BPO & KPO, etc. Programme Outcome:

F.Y.B.A. COURSE OUTCOMES (CO) (Sem. I and II):

COURSE TITLE: INTRODUCTION TO -Indian Economic Environment–I & II

CO1. Ability to develop an understanding of the economic environment and the factors affectingeconomic environment.

CO2. Ability to develop awareness on the various new developments in the different sectors of aeconomy – agriculture, industry, services, banking, etc.

CO3 Ability to compare and contrast Indian Economy with other world economies.

CO4 At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.

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S.Y.B.A. COURSE OUTCOMES (CO)
COURSE TITLE: INTRODUCTION TO - Financial System

CO1. To provide the knowledge of various financial and non-financial institutions.

CO2. To provide the students the intricacies of Indian financial system for better financial decision making

Micro Economics

PSO1 To develop an understanding about subject matter of Economics.

PSO2 To impart knowledge of microeconomics.

PSO3 To clarify micro economic concept

PSO4 To analyze and interpret charts, graphs and figures

COURSE TITLE: INTRODUCTION TO MICRO ECONOMICS

CO1 To develop an understanding of basic theories of micro economics and their application.

CO2 To demonstrate that the theories discussed in class will usually be applied to real-life situations.

CO3 To help the students to prepare for varied competitive examinations

CO4 : To introduce students to the role of money in an economy.

CO5: To introduce students to the conceptual and theoretical frameworks of inflation, deflation and stagflation, Business Cycle .

CO6 : To familiarize students with the conceptual and theoretical framework of business cycles

CO7 : To introduce students to the role of monetary and fiscal policies in fulfilling the macroeconomic objectives of stability, full employment and growth.

ECONOMIC DEVELOPMENT & PLANNING

In recent times, besides hard core economic prescriptions to development, concern hitherto relegated to background, like education, health, sanitation and infrastructural development, have found place of pride in explaining the preference of various economies incorporated in this paper are devoted to the theories of economic development, approaches to economic development, social and institutional aspects of development, constraints on development process, macroeconomic policies, roll of foreign capital and economic planning etc. in developing countries.

INTERNATIONAL ECONOMICS

PSO 1: Besides this, the contents prepare the students to know the impact of free trade and tariffs on the different sectors of the economy as well as at the macro level.

F.Y.B.Com. BUSINESS ECONOMICS (MICRO) - I:

PSO 1. To impart knowledge of business economics

PSO 2. To clarify micro economic concepts

COURSE TITLE: INTRODUCTION TO: BUSINESS ECONOMICS (MICRO) - I

CO1: To analyze and interpret charts and graphs

CO2 :To understand basic theories, concepts of micro economics and their application

BUSINESS ECONOMICS (MICRO) - II

PSO1. To understand the basic concepts of micro economics.

PSO2. To understand the tools and theories of economics for solving the problem of decision making by consumers and producers.

DEPARTMENT OF HISTORY

PROGRAMME SPECIFIC OUTCOMES (PSO):

PSO1. Demonstrate thinking skills by analyzing, synthesizing, and evaluating historical information from multiple sources.

PSO2. Develop the ability to distinguish between fact and fiction while understanding that there is no one historical truth.

PSO 3. To Learn foundation of Delhi Sultanate and Sultanate Administration.

PSO 4. It will enable students to develop the overall understanding of the Modern World.

PSO 5. The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.

PSO 6. It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.

COURSE OUTCOMES (CO):

F.Y.B.A. History [Semester system]

1] Semester-I Early India: From Prehistory to the Age of the Mauryas [G-1]

COURSE OUTCOMES (CO):

1. The history of Early India is a crucial part of Indian history.
2. It is a base for understanding the entire Indian history.
3. The course is aimed at helping the student to understand the history of early India from the prehistoric times to the age of the Mauryas.
4. 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.
5. It also attempts to help the students to understand the contribution of Early Indians to polity, art, literature, philosophy, religion and science and technology.
6. It also aims to foster the spirit of enquiry among the students by studying the major developments in early Indian history.

2] Semester-I I Early India: Post Mauryan Age to the Rashtrakutas [G-1]

COURSE OUTCOMES (CO)::

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 student

3] Semester-I History of Civilization: Indian Civilization and Heritage [Special]

COURSE OUTCOMES (CO)::

1. The present course will make an effort to increase a sense of awareness and affection towards the nation and its historic heritage among the students.
2. This course communicates knowledge about the Indian culture, Civilization and its heritage with its sources like Archeological, Numismatic and Epigraphic and Literary from pre- historic period to early period of Indian history and civilization.
3. It also discuss the importance and methods of conservation of Historical Heritage

4] Semester-I I History of Civilization: Indian Civilization & Heritage [Special]

COURSE OUTCOMES (CO):

1. The present course aims at introducing the students to various aspects of Ancient India like development of Script, Language and literature.
2. The course also introduces the students to the various schoolsof art in Indian Civilization, so as to help the student to understand architecture in India from the ancient to the modern period.

S.Y.B.A History SEM-III [Semester system]

1] Semester -III-Medieval India - Sultanate Period [S-

COURSE OUTCOMES (CO):

1. Provides examples of sources used to study various periods in history. 2. Relates key historical developments during medieval period occurring in one place with another. 3. Analyses socio - political and economic changes during medieval period 4. Estimate the foreign invasion and the achievement of rulers Pedagogy: Lectures/Visual presentation/ Role play/ Critical analysis/Assignments/

2] Semester -III-Glimpses of the Modern World - Part I [S-2]

COURSE OUTCOMES (CO):

1. This paper is designed to introduce the students to the history of the Modern World with its socio- religious, political and economic developments.

2. It will enable students to study interesting historical developments in the countries other than India, which had a significant impact on almost all over the Modern World.

3. It will enable students to understand the significant impact of the modern concepts such as Renaissance, Nationalism, Communism, Imperialism, etc.

4. It will get students acquainted with the major revolutions, and political developments which led to the World War I and its consequences.

3] Semester -III- History of the Marathas: (1630-1707) [G-2]

COURSE OUTCOMES (CO):

1. To introduce the students to the regional history of medieval Maharashtra and India.
2. To study political, social and conceptual history of the Marathas in an analytical way with the help of primary sources.
3. To evaluate contribution of Chhatrapati Shivaji Maharaj to the establishment of Swarajya, contribution of successors and later development of the Maratha kingdom.
4. To study administrative Institutions of the Maratha.
5. Student will develop the ability to analyse sources for Maratha History.
6. Student will learn significance of regional history and political foundation of the region.
7. It will enhance their perception of 17th century Maharashtra and India in context of Maratha history.
8. Appreciate the skills of leadership and the administrative system of the Marathas.

Skill Enhancement Course Semester III

1] Art and Architecture of Early India (From 3000 B.C. to 12th Century A.D.)

COURSE OUTCOMES (CO):

1. Students will get an overall understanding of the emergence and development of the art and architecture in Early India.

2. They will understand the emergence of the Pottery, Terracotta figures, Ornaments, Town Planning, preparation of seals and coins.

3. They will have an understanding of the art and architecture in early India

S.Y.B.A History SEM-IV [Semester system]

1] Semester -IV-Medieval India: Mughal Period [S-1]

COURSE OUTCOMES (CO):

1. Produce well researched written work that engages with both primary sources and the secondary literature.
2. To learn the Mughal ruler and incidents regarding Deccan policies.
3. To understand the analytical studies of Medieval South India.
4. Maps- important centers in Mughal Empire under Akbar and Aurangzeb

2] Semester -IV-Glimpses of the Modern World - Part II [S-2]

COURSE OUTCOMES (CO):

1. This paper is designed to introduce the students to the political history of the Modern World.
2. It will enable students to study remarkable historical developments in the various countries including India, which had a significant impact on almost all over the Modern World.
3. It will enable students to understand the significant impact of the modern concepts such as Dictatorship, Cold War, Nationalism, Communism, Imperialism, Polarization, etc.
4. It will get students acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences.
5. It will enable students to develop the overall understanding of the Modern World.
6. The students will get acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequences.
7. It will enhance their overall perception of the history of the Modern World.
8. It will enable students to understand the significance of the strategic political developments in the Modern World.

3] Semester -IV- History of the Marathas: (1707-1818) – [G-2]

COURSE OUTCOMES (CO):

1. To understand changed nature of Maratha Polity during the Peshwa Period.
2. To examine the dynamics of Maratha Confederacy and reciprocity.
3. To examine role of Marathas and regionality in National politics of 18th Century India.
4. To study administrative system, society and economy of the Peshawa period
5. Students will be able to analyze the Marathas policy of expansionism and its consequences.
6. They will understand the role played by the Marathas in the 18th century India.
7. They will be acquainted with the art of diplomacy in the Deccan region.

8. It will help to enrich the knowledge of the administrative skills and profundity of diplomacy.

SKILL ENHANCEMENT COURSE SEMESTER IV

1] Medieval Indian Arts and Architecture (1206 To 1857) Course

COURSE OUTCOMES (CO):

1. Students will get an overall understanding of the development of the Medieval Art and Architecture.

2. They will understand the changing patterns of the Art and Architecture during the Medieval India.

3. They will have an understanding of the impact of Persian Art on Islamic

T.Y.B.A History [Old Pattern]

1] Sub :- INTRODUCTION TO HISTORY [S-3]

COURSE OUTCOMES (CO):

1. To orient students about how history is studied, written and understood.
2. To explain methods and tools of data collection
3. To understand the meaning of Evolution of Historiography.
4. To study the Various Views of Historiography.
5. To study the approaches to Historiography.
6. To study the types of Indian Historiography.
7. To describe importance of inter-disciplinary research.
8. To introduce students to the basics of research.
9. To acquaint the student with the recent research in History.
10. Learn how to use sources in their presentation.

2] HISTORY OF ASIA HISTORY OF ASIAIN 20TH CENTURY (1914 –1992) [S-4]

COURSE OUTCOMES (CO):

1. To orient the students with political history of Asia.

2. To enable students to understand the economic transition in Asia during 20th Centuries.

3. Understand the important developments in the 20th century Asia in a Thematic approach.

4. To provide students with an overall view and broad perspective different movements connected with Nationalist aspirations in the region of Asia in general.

5. To empower students to cope with the challenges of globalization.

3] HISTORY OF THE WORLD IN 20TH CENTURY 1914-1992) [G-3]

COURSE OUTCOMES (CO):

1. To help the student to know Modern World. To acquaint the student with the Socio-economic & Political developments in other countries. And understand the contemporary world in the light of its background History.

2. To orient the students with political history of Modern World.

3. To acquaint Students about the main developments in the Contemporary World (To understand to important development in 20th century World.

4. Impart knowledge about world concepts.

5. To enable students to understand the economic transition in World during the 20th Century.

6. Become aware of the principles, forces, processes and problems of the recent times.

7. To acquaint the students with growth of various political movements that shaped the modern world.

8. To highlight the rise and growth of nationalism as a movement in different parts of the world.

DEPARTMENT OF POLITICAL SCIENCE

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1. To foster curiosity in the students for Political Science.

PSO2. To creates awareness amongst students for the basic of Political Science.

PSO3. To orients students about the importance of Indian Constitution.

PSO4. To provides an insight to the aspects of Political Theory.

PSO5. To understand the Local Self Government of Maharashtra.

- **F.Y.B.A. COURSE OUTCOMES (CO) (Sem. I and II):**

COURSE TITLE: INTRODUCTION TO INDIAN CONSTITUTION –I & II

CO1. To acquaint students with the important features of the Constitution of India and with The basic framework of Indian government.

CO 2. To familiarize students with the working of the Constitution of India.

- **S.Y.B.A. COURSE OUTCOMES (CO)**

COURSE TITLE:- POLITICAL THEORY& CONCEPTS

CO1. This is an introductory paper to the concepts, ideas and theories in political theory. It seeks to explain the evolution and usage of these concepts, ideas and theories with reference to individual thinkers both historically and analytically.

CO2. The different ideological standpoints with regard to various concepts and theories are to be critically explained with the purpose of highlighting the differences in their perspectives and in order to understand their continuity and change.

CO3.Furthermore there is a need to emphasize the continuing relevance of these concepts today and explain how an idea and theory of yesteryears gains prominence in contemporary political theory.

COURSE TITLE:- WESTERN POLITICAL THOUGHT

CO1. This paper studies the classical tradition in political theory from Plato to Marx with the view to understand how the great Masters explained and analyzed political events and problems of their time and prescribed solutions.

CO2. The texts are to be interpreted both in the historical and philosophical perspectives to understand the universality of the enterprise of political theorizing. The limitations of the classical tradition, namely its neglect of women's concerns and issues and the non-European world are critically examined.

CO3.The legacy of the thinkers is explained with the view to establish the continuity and Change within the Western political tradition.

COURSE TITLE:- POLITICAL SOCIOLOGY

CO1.To introduces students to the basic social processes of society, social institutions and patterns of social behaviour.

CO2. To train students to understand and to interpret objectively the role of social processes, social institutions and social interactions in their lives.

- **T.Y.B.A. COURSE OUTCOMES (CO)**

COURSE TITLE:-LOICAL SELF GOVERNMENT IN MAHARASHTRA

CO1. To introduce the students to the structure of Local Self Government of Maharashtra.
CO2. To make students aware of the various Local Self Institutions, their functions, Compositions and importance.
CO3. To identity the role of Local Government and Local Leadership in development.

DEPARTMENT OF GEOGRAPHY

PO.1. Ability of Problem Analysis: Student will be able to analyses the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.

PO.2.Conduct Social Survey Project: They will be eligible for conducting social survey project, which is needed for measuring the status of development of a particular group or section of the society.

PO.3. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO.4. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data.

PO.5. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map-making techniques.

PO.6. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions from different perspectives.

PO.7. Development of Observation Power: As a student of Geography Course, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.

PO.8. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

PO.9. Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.

PO.10. Enhancement of the ability of Management: Demonstrate knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO.11. Ethics: Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them.

PO.12. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PO.13. Self-directed and Life-long Learning: Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes.

PROGRAMME SPECIFIC OUTCOMS GEOGRAPHY (PSO)

PSO1.Acquireing Knowledge of Physical Geography: Student will gain the knowledge of physical geography. Student will have a general understanding about the geomorphological and geotechnical process and formation. They will be able to correlate the knowledge of physical geography with the human geography.

PSO2.Acquireing Knowledge of Human Geography: They will be able to acquire the knowledge of Human Geography and will correlate it with their practical life.

PSO3. Ability of Problem Analysis: Student will be able to analyse the problems of physical as well as cultural environments of both rural and urban areas. Moreover they will try to find out the possible measures to solve those problems

. PSO4.Conduct Social Survey Project: They will be eligible for conducting social survey project which is needed for measuring the status of development of a particular group or section of the society.

PSO5. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these they will be able to collect primary data.

PSO6. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map making techniques.

PSO7. Development of Observation Power: As a student of Geography Course they will be capable to develop their observation power through field experience and in future they will be able to identify the socioenvironmental problems of a locality.

PSO8. Development of Communication Skill and Interaction Power: After the completion of the project they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.

PSO9.Enhancement of the ability of Management: Demonstrate knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PSO10. Understand Environmental Ethics and Sustainability: Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development.

PSO11.Life-long learning: Identify the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of societal and environmental change

COURSE OUTCOMES (CO) GEOGRAPHY (UG)

GEOMORPHOLOGY (GEO- SEM-I)

CO1. Develop an idea about geomorphology and different types of fundamental concepts.

CO2. Explain different types of geomorphic processes like weathering and mass wasting and cycle of erosion.

CO3. Understand the processes of erosion, deposition and resulting landforms.

CO4. Acquire knowledge about slope forms and processes.

PRACTICALS (GEO- SEM-I)

CO1. Gain knowledge about topographical maps and apply this knowledge in ground surface. CO2. Identification of different types of rock and minerals.

HUMAN GEOGRAPHY (GEO- SEM-II)

CO1. Gain knowledge about major themes of human geography.

CO2. Develop an idea about space and society.

CO3. Build an idea about population growth and distribution of population.

CO4. . Know about population –resource relationship.

PRACTICALS (GEO-, SEM-II)

CO1. Know about diagrammatic data presentation like line, bar and circle.

CO2. Develop an idea about different types of thematic mapping techniques

SETTLEMENT GEOGRAPHY (GEO-, SEM-II)

CO1. Build an idea about urban and rural settlements, and its relationship with environment and also different theories related to settlement geography.

CO2. Know about classification and morphology of settlements.

CO3. Understand the trends and patterns of world urbanization.

CO4. Know about different theories of urban growth.

PRACTICALS (GEO- SEM-II)

CO1. Brings direct interaction of different types of surveying instruments like Dumpy level and Theodolite with environment.

CO2. Develop an idea about different types of thematic mapping technique

PHYSICAL GEOGRAPHY- PART I

CO1. Understand different theories of the earth.

CO2. Develop history of geomorphic ideas of different schools.

CO3. Gain knowledge about earth's interior.

CO4. Develop an idea about concept of earth's movements and related topography

CO5. Acquire knowledge about different process of denudation.

PHYSICAL GEOGRAPHY - PART II

CO1. Understand the processes of erosion, deposition and resulting landforms.

CO2. Explain the development of drainage system in uniclinal and folded structure.

CO3. Understand concept of normal cycle of erosion and its interruption.

CO4. Develop an idea about types of coastal landforms.

CO5. Acquire knowledge about hydrology.

FACULTY OF COMMERCE

PO-1: This program could provide Industries, Banking Sectors, Insurance Companies, Financing.

PO-2 :After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.

PO-3: Capability of the students to make decisions at personal professional level will increase after completion of this course.

PO-4:Students can independently start up their own Business.

PO-5:Students can get thorough knowledge of finance and commerce.

PO-6:The knowledge of different specializations in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.

PROGRAM SPECIFIC OUTCOMES (PSO):

PSO 1 : The students can get the knowledge, skills and attitudes during the end of the B.com degree course.

PSO 2 : By goodness of the preparation they can turn into a Manager, Accountant , Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government employments and so on

PSO 3 : Students will prove themselves in different professional exams like C.A. , C S, CMA, MPSC, UPSC. As well as other coerces

PSO 4 : The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities

PSO 5 : Students will gain thorough systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication, computer.

PSO 6 : Students can also get the practical skills to work as accountant, audit assistant, tax consultant, and computer operator. As well as other financial supporting services.

PSO 7 : Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO 8 : Students will be able to do their higher education and can make research in the field of finance and commerce.

COURSE OUTCOMES (COs):

SEMESTER – I

FINANCIAL ACCOUNTING- I

CO 1. To impart knowledge of basic accounting concepts

C O 2. To create awareness about application of these concepts in business world

C O 3. To impart skills regarding Computerised Accounting

C O 4. To impart knowledge regarding finalization of accounts of various establishments.

BUSINESS MATHEMATICS & STATISTICS- I

C O 1. To introduce the basic concepts in Finance and Business Mathematics and Statistics

C O 2. To familiar the students with applications of Statistics and Mathematics in Business

C O 3. To acquaint students with some basic concepts in Statistics.

C O 4. To learn some elementary statistical methods for analysis of data.

C O 5. The main outcome of this course is that the students are able to analyze the data by using some elementary statistical methods

ORGANIZATIONAL SKILLS DEVELOPMENT- I

C O 1. To introduce the students to the emerging changes in the modern office environment

C O 2. To develop the conceptual , analytical , technical and managerial skills of students efficient office organization and records management

C O 3. To develop the organizational skills of students

C O 4. To develop Technical skills among the students for designing and developing effective means to manage records , consistency and efficiency of work flow in the administrative section of an organsation C O 5. To develop employability skills among the students

MARKETING AND SALESMANSHIP- I

CO 1. To introduce the basic concepts in Marketing.

CO 2. To give the insight of the basic knowledge of Market Segmentation and Marketing Mix

CO 3. To impart knowledge on Product and Price Mix.

CO 4. To establish link between commerce, business and marketing.

CO 5. To understand the segmentation of markets and Marketing Mix.

CO 6. To enable students to apply this knowledge in practicality by enhancing their skills in the field of Marketing.

CONSUMER PROTECTION AND BUSINESS ETHICS – I

CO 1. To develop general awareness of consumerism among the students.

CO 2. To understand the consumers rights, responsibility and role of United Nations.

CO 3. To have a comprehensive understanding about the existing law on consumer protection in India. CO 4. To create awareness among the students about dispute redresses machinery and basic procedures for handling consumer dispute.

CO 5. To understand the issues relating to e-commerce, e-Banking emerging issues and internet regulations.

BUSINESS ENVIRONMENT & ENTREPRENEURSHIP – I

CO 1) To understand the concept of Business Environment and its aspects

CO 2) To make students aware about the Business Environment issues and problems of Growth

CO 3) To examine personality competencies most common to majority of successful entrepreneurs and to show how these competencies can be developed or acquired

CO 4) To understand the difference between Entrepreneurial and non-Entrepreneurial behaviour

CO 5) To provide knowledge of the significance of Entrepreneurship in economy

CO 6) To familiarize the students with the contribution of selected institutes working to promote Entrepreneurship

CO 7) To generate entrepreneurial inspiration through the study of successful Entrepreneurs

SEMESTER- II

FINANCIAL ACCOUNTING- II

CO 1. To impart knowledge of various software used in accounting

CO 2. To impart knowledge about final accounts of charitable trusts

CO 3. To impart knowledge about valuation of intangible assets

CO 4. To impart knowledge about accounting for leases

BUSINESS MATHEMATICS AND STATISTICS – II

CO 1. To introduce the basic concepts in Finance and Business Mathematics and Statistics

CO 2. To familiar the students with applications of Statistics and Mathematics in Business

CO 3. To acquaint students with some basic concepts in Statistics.

CO 4. To learn some elementary statistical methods for analysis of data.

CO 5. The main outcome of this course is that the students are able to analyze the data by using some elementary statistical methods

ORGANIZATIONAL SKILL DEVELOPMENT- II

CO 1. To imbibe among the students the qualities of a good manager and develop the necessary skill sets

CO 2. To develop the technical skills of the students to keep up with the technological advancements and digitalization

CO 3. To develop the communication skills of students and introducing them to the latest tools in communication

CO 4. To develop writing, presentation, interpersonal skills of the students for effective formal corporate reporting.

CO 5. To educate the students on the recent trends in communication technology and tools of office automation

MARKETING AND SALESMANSHIP- FUNDAMENTAL OF MARKETING- II

CO 1. To help the students to prepare themselves for opportunities in marketing field.

CO 2. To study elaborately the process of salesmanship.

CO 3. To know about Rural Marketing which is an important sector in modern competitive Indian Scenario.

CO 4. To educate the students about the sources and relevance of Recent trends in Marketing

BUSINESS ETHICS – II

CO 1. To enhance students' general awareness of ethical dilemmas at work.

CO 2. To understand differing perceptions of interests in business-related situations

CO 3. To introduce the concept of Corporate Social Responsibility, corporate Governance and explore its relevance to ethical business activity

CO 4. To examine whether ethics set any boundaries on Accounting, marketing, IT, Social Media and workplace.

CO 5. To prepare students to play a constructive role in improving the sustainable development with which they may become involved

S.Y.B.COM

BUSINESS COMMUNICATION

CO 1. To understand the concept, process and importance of communication.

CO 2. To acquire and develop good communication skills requisite for business correspondence.

CO 3. To develop awareness regarding new trends in business communication.

CO 4. To provide knowledge of various media of communication.

CO 5. To develop business communication skills through the application and exercises.

CORPORATE ACCOUNTING

CO 1. To acquaint the student with knowledge about various Concepts , Objectives and applicability of some important accounting standards associated with to corporate accounting.

CO 2. To develop understanding among the students on the difference between commencement and incorporation of a company and the accounting treatment for transactions during the two phases.

CO 3. To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013

CO 4. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision making process.

CO 5. To acquaint the student with knowledge about various Concepts , Objectives and applicability of some important accounting standards associated with to corporate accounting.

CO 6. To develop understanding among the students on the difference between commencement and incorporation of a company and the accounting treatment for transactions during the two phases.

CO 7. To update the students with knowledge for preparation of final accounts of a company as per Schedule III of the Companies Act 2013

CO 8. To empower to students with skills to interpret the financial statements in simple and summarized manner for effective decision making process.

BUSINESS MANAGEMENT

CO 1. To provide basic knowledge and understanding about various concepts of Business Management. CO 2. To help the students to develop cognizance of the importance of management principles.

CO 3. To provide an understanding about various functions of management.

CO 4. To provide them tools and techniques to be used in the performance of the managerial job.

ELEMENTS OF COMPANY LAW

CO 1. To develop general awareness of Elements of Company Law among the students.

CO 2. To understand the Companies Act 2013 and its provisions.

CO 3. To have a comprehensive understanding about the existing law on formation of new company in India.

CO 4. To create awareness among the students about legal environment relating to the company law.

CO 5. To acquaint the students on e-commerce, E governance and e-filling mechanism relating to Companies.

CO 6. To enhance capacity of learners to seek the career opportunity in corporate sector.

MARKETING MANAGEMENT

CO 1. To create awareness and impart knowledge about the basics of Marketing Management which is the basic foundation of Marketing subject.

CO 2. To orient the students in Marketing Strategy and Consumer Behaviour.

CO 3. To help students understand how to craft Marketing Plan which help the organisation outline their marketing goals and objectives.

CO 4. To enable students to apply this knowledge in practicality by enhancing their skills in the field of Marketing.

T.Y.B.COM

BUSINESS REGULATORY FRAMEWORK (MERCANTILE LAW)

CO 1. To acquaint students with the basic concepts, terms & provisions of Mercantile and Business Laws.

CO 2. To develop the awareness among the students regarding these laws affecting business, trade and commerce.

ADVANCED ACCOUNTING

CO 1.To impart the knowledge of various accounting concepts

CO 2.To instill the knowledge about accounting procedures, methods and techniques.

CO 3.To acquaint them with practical approach to accounts writing by using software package.

AUDITING & TAXATION

CO 1. To acquaint themselves about the concept and principles of Auditing, Audit process, Assurance Standards, Tax Audit, and Audit of computerized Systems.

CO 2. To get knowledge about preparation of Audit report.

CO 3. To understand the basic concepts and to acquire knowledge about Computation of Income, Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection Authorities under the Income Tax Act, 1961.

MARKETING MANAGEMENT. II

CO 1. To understand the concept and functioning of marketing planning and sales management

CO 2. To know marketing strategies and organization

CO 3. To inform various facets of marketing with regulatory aspects

CO 4 To understand marketing in globalize scenario

MARKETING MANAGEMENT. III

CO 1. To know detailing of Marketing Research

CO 2. To understand the role Brand and Distribution Management in marketing

CO 3. To inform about Marketing and Economic Development

CO 4. To Know of the importance of control on marketing activities

DEPARTMENT OF BACHLOR OF COMPUTER APPLICATIONS (BBA/CA)

PROGRAM : BBA (COMPUTER APPLICATION) DEPARTMENT OF COMPUTER APPLICATIONS

PROGRAM OUTCOMES (PO)

PO1: Apply knowledge of computing fundamentals, mathematics and domain knowledge appropriate for the conceptualization of computing models. (Computational Knowledge). PO2: Identify, analyze, formulate, Design and develop the real world requirements by critical thinking for complex problems in IT enabled services. (Critical Thinking & problem solving approach).

PO3: Recognize the need and adopt appropriate tools and techniques for modern computing practices. (Usage of modern tools)

PO4: Make use of ethical practices and cyber regulations in the computing field for managing software projects in diverse environments. (Ethics & Management)

PO5: Understand the societal, environmental and moral values and its impact with respect to computing, communication, literary and professional practice.(social responsibility)

PO6: Communicate effectively with society at large, such as, being able to comprehend and write effective reports, design documentation and make effective presentations.(communication & team work)

P07: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change (Life long learning)

PSO – PROGRAM SPECIFIC OBJECTIVES:

1. To produce skill oriented human resource.

2. To import practical skills among students.

3. To make industry ready resource.

4. To bring the spirit of entrepreneurship. Course Outcome

Class:FYBBA(CA) Semester - I

COURSE: BUSINESS COMMUNICATION SKILLS BBA(CA) 101 CC: 3

Course Outcomes (COs):

CO1 Concept of Communication Apply communication theories. Show an understanding of opportunities in the field of communication.

CO2 Methods and types of Communication Demonstrate critical and innovative thinking. Display competence in oral, written, and visual communication

CO3 Business Correspondence Use current technology related to the communication field. Demonstrate positive group communication exchanges

Course : Principles of Management BBA(CA) (102) CC : 3

CO1 Nature of management To learn basic aspects of management thinking Develop ability of managerial thinking & cultivate business acumen

CO2 Evolution of management thought To understand different approaches of management scientist to management thought & philosophy To help to understand various approaches of management thinking

CO3 Major managerial functions To understand different functions of management & their roles. Develop ability to organise various programs & events.

CO4 Recent trends in management To understand the themes in modern management & changes in the business To learn about new systems of management.

Course : C Programming BBA(CA) 103 CC : 3

CO1 Introduction Explore algorithmic and flowchart approaches to problem solving.

CO2 Managing I/O Operations To Familliar with Fundamentals(character set ,Input Output etc.)

CO3 Decision Making and looping Developing Conditional and Itertative statement

CO4 Programs through conditional and looping statements Practice on Program to develop logical thinking.

CO5 Arrays and Strings Ability to work with Advance concept.(arrays,Strings).

CO6 Functions Understanding a concept of functional(modular concept).

CO7 Introduction to pointer Ability to work with Pointerin c.

CO8 Structures To learn User define datatype (structure,union)

Course : DBMS (DATABASE MANAGEMENT SYSTEMS BBA(CA) (104) CC:3

CO1 File Structure and Organization To understand the file structure and its organization. CO2 Database Management System Students get the knowledge of Relational Database concepts which is the basic requirements of every organization.

CO3 Relational Model Give a description of the Database Management structure.

CO4 SQL (Structured Query Language) Students are able to Compare relational model with the Structured Query Language (SQL)

CO5 Relational Database Design Students are able to Normalize the complex data into simple tables.

Course: Statistics BBA(CA) (105) CC :3

CO1 Concept of statistics. To Explains the history, definition and scope of Statistics and Differentiates population and sample.

CO2 Measures of central tendency and dispersion To Recognizes central tendency and various measures of central tendency To learn how to Explains and evaluates various measures of central tendency.

CO3 Measures of Dispersion : To Recognizes the importance of measuring dispersion and Explains and evaluates the measures of dispersion.

Course : Principles of Programming and Algorithm BBA(CA) 107 CC :2

CO1 Algorithms To understand importance of algorithm, program development cycle, how programs are been developed sequentially with help of algorithm.

CO2 Flowchart To learn designing of algorithm and flow of programs with the help of flowchart

CO3 Function To understand the use of function, library function and recursion with its syntax

CO4 Array To understand definition, characteristics and types of array .

SEM II Course: Organisational Behaviour& Human Resource Management BBA(CA) (201) CC :3

CO 1 Introduction to OB To understand the basic concept of OB and to will also acquaint about major trends in OB

CO 2 Introduction to HRM To get basic knowledge of HRM practices carried out in today's scenario.

CO 3 Procurement To know the process of recruitment and selection of employees in an organization.

CO 4 Training & Development To know the training and development methods and evaluation of employees skills in organization.

Course: Financial Accounting BBA(CA) (202) CC :3

CO1 Financial Accounting- definition and Scope, objectives, Accounting concepts, principles and conventions To understand role and importance of accounting in Business and how accounting concept can be implemented in business

CO2 Voucher system; Accounting Process, To understand how to record different financial Journals, Ledger, Cash Book , subsidiary books ,Trial Balance preparation of Final Accounts of Sole Proprietorship(Trading and Profit & Loss Account and Balance Sheet transactions and their financial implications

CO3 Meaning, importance and preparation of Bank Reconciliation Statement To understand the kind of accounting relationship between customer and bank.

CO4 Computerized Accounting- Role of computers and Financial application, Accounting Software packages To understand growing importance of software and to know how to use software and to write books of accounts Ability to use software like tally for writing of accounts

Course Name: Business Mathematics BBA (CA) 203 CC: 3

CO 1 Ratio, Proportional and Percentage To learn how to apply the various concepts in business situation.

CO 2 Profit and loss To understand how to examine concept of discounts in different business solutions

CO 3 Interest and Annuity Shares and Mutual Fund To learn how to Work with simple and compound interest, annuities, invoice preparation, trade discounts, taxes,

CO 4 Matrix and Determinant To understand how to Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form 2.determine whether or not a given matrix is invertible and if it is, find its inverse .

CO 5 Linear programming Problem To learn how to Develop linear programming (LP) models.

CO 6 Transportation Problem To Understand the mathematical tools that are needed to solve optimization problems. Use mathematical software to solve the proposed models.

Course : RDBMS (RELATIONAL DATABASE MANAGEMENT SYSTEMS) BBA (CA) (204)

CO1 Introduction To RDBMS Understanding of various RDBMS products, Use of relational database

CO2 PL-SQL To understand various data types , operators , functions and control statements To understand concept of compact program writing by making use of functions and procedure

CO3 Transaction Management To brief about the Database Management structure. To Understanding use of transaction and effect on database

CO4 Concurrency Control & Recovery System To understand concept of shared and exclusive lock To learn how to prevent deadlock situation

Course: Web Technology(HTML- JS-CSS) BBA (CA) (205) CC :3

CO1 1. Introduction Learn client and server, HTTP, FTP, IP protocols, WWW, Response and Request mechanism.

CO2 Web Design Details how to design a website its look and feel, its planning etc.

CO3 HTML All html tags and how to create webpage using html.

CO4 Style Sheets CSS in detail with its implementation for creating website.

CO5 JavaScript Understand how to develop web based applications.

Course: Advance C BBA (CA) 207 CC:2

CO1 Pointer To Design and develop pointer program

CO2 File handling To Understand the concept of File Handling

CO3 Graphics To Design and develop graphics program

Class: SY BBA (CA) Semester III

Course: Relational Database Management System BBA (CA) 201

CO1 Introduction to RDBMS To Understand RDBMS produt,relationaldatabase,knowledge of front end and back end

CO2 PL/SQL To Understanding the programming aspects, writing of triggers,procedure ,function and package program

CO3 Transaction management To Understanding use of transactiob and effect on database and understanding various states

CO4 Concurrency Control To understand concept of shared and exclusive lock , Understand what deadlock is and how it can occur when giving mutually exclusive access to multiple resources

CO5 Recovery System To learn concepts related to hardware failures, Data recovery with different techniques and Data recovery with different techniques

Course : Data Structure using 'C' BBA(CA) 202

CO1 Basic Concept and Introduction to Data Structure To understand need and types of data structure. Ability to analyze algorithms and a algorithm correctness.

CO2 Searching and Sorting Techniques To understand and implement different searching and sorting techniques

CO3 Linked List To efficiently implement the linked list data structures and solution for specific problems.

CO4 Stack and Queue To efficiently implement the stack and queue data structures and solution for specific problems.

C05 Trees To efficiently implement the tree data structures and solution for specific problems.

CO6 Graph To efficiently implement the graph data structures and solution for specific problems.

Course: Operating Systems BBA (CA) 303

CO1 Introduction to OS System Structure To explain the fundamental components of a computer operating system.

CO2 Process Management Process Scheduling Process Synchronization To Define, restate, discuss, and explain the policies for scheduling, To Understand the process management policies and scheduling of processes by CPU.

CO3 Multithreaded Programming To Define thread and to learn how to Analyze and design the applications to run in parallel either using process or thread models of different OS.

CO4 Deadlocks To Define, restate, discuss, and explain the concept of deadlocks in real life. To Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system

CO5 Memory Management To Define, restate, discuss, and explain the policies for memory management, To Describe and analyze the memory management and its allocation policies.

CO6 File System To Define, restate, discuss, and explain the policies for file systems.

CO7 I/O System To Define, restate, discuss, and explain the policies for file systems.

Course: Business Mathematics BBA (CA) 304

CO 1 Ratio, Proportional and Percentage Ability to apply the various concepts in business situation.

CO 2 Profit and loss Ability to examine concept of discounts in different business solutions CO 3 Interest and Annuity To Work with simple and compound interest, annuities, invoice preparation, trade discounts, taxes.

CO 4 Matrix and Determinant To Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form

CO 5 Linear programming Problem To Develop linear programming (LP) models.

CO 6 Transportation Problem To Understand the mathematical tools that are needed to solve optimization problems. Use mathematical software to solve the proposed models.

Course : Software Engineering BBA (CA) (305)

CO1 Introduction to System Concepts To learn about basic concepts of systems, Characteristics of system and it's types.

CO2 Requirement Analysis To learn about system analysis, Feasibility study and it's type and Fact finding techniques.

CO3 Introduction to Software Engineering To understand definition of software engineering and It's goals. To learn about how to measure quality of software.

CO4 Software Development Methodologies To understand the strength and weakness of models.

CO5 Analysis and Design Tools To understand designing of system using various types of diagrams. To learn about ER diagram, DFD,Decision table and tree,Data dictionary.

CO6 Structured System Design To learn about module concepts,coupling and cohesion To understand how to construct structure chart.

CO7 Software Testing To learn characteristics of testing . To learn about types of testing and its use.

Semester : IV Course: Object Oriented Programming Using C++ BBA (CA) (401)

CO1 Introduction to C++ To understand the features of C++ and object oriented programming language.

CO2 Tokens, Expressions and Control structures To Understanding the basic concepts.

CO3 Functions in C++ To Implement and built modules in C++.

CO4 Classes and Objects To Understand how to build object oriented software using C++. CO5 Inheritance and Polymorphism. (object oriented concepts) To Understand how to apply the major object-oriented concepts like inheritance, polymorphism.

CO6 Managing console I/O operations , Working with Files and Templates(Advantage of c++) To Understand advanced features of C++ specifically stream I/O and templates.

Course : Visual Basic BBA (CA) (402)

CO1 Getting started with VB To learn about basic concepts of visual basic and application area of VB.

CO2 Constant,variable,opertators,controstructur e,looping and array To learn programming skill. To learn basic syntax of VB.

CO3 Working with controls To understand various control, properties and events. To develop application using controls.

CO4 With withActivex control and Menus To understand the use of active control To learn how to create menus and submenus

CO5 Working with database To learn connectivity between VB and database. To understand report generation using Data Environment.

Course : Computer Networking BBA(CA) 403

CO1 Basics of Computer Networks To know about Network Administrator in any organization.

CO2 Network Models To learn how noise, attenuation, and distortion affect signal traveling through a transmission medium; discuss the factors affecting data rate as well as the theoretical limits on data rate over a noiseless and a noisy channel. To Identify the different types of network topologies and protocols

CO3 Transmission Media To Understand the concept of reliable and unreliable transfer protocol of data and how protocol based on socket programming.

CO4 Wired and Wireless LANs To Understand connecting LAN's, backbone networks, and virtual LAN's.

CO5 Network Connectivity Devices To learn with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

CO6 Internet Basics To learn basics of internet.

Course :Enterprise Resource Planning and Management BBA (CA) (404)

CO1 ERP :An overview To introduce ERP.

CO2 Enterprise Modelling and Integration for ERP To understand Business Model and Architecture about ERP systems.

CO3 ERP and Related Technologies To Know about Technologies related ERP for Ex-CRM,BPR etc.

CO4 ERP Implementation To know implementation of ERP And the Obstacles in that.

CO5 Technologies In ERP system To learn about EDI and IDoc application .

CO6 The ERP Domain To know about SAP and Other ERP domain Tool.

CO7 ERP present and Future To know Current Working ERP system and future Requirements of ERP system

COURSE: HUMAN RESOURCE MANAGEMENT BBA (CA) (405)

CO1 Introduction To HRM To develop the understanding of the concept of human resource management and to understand its relevance in organizations.

CO2 Performance Appraisal, Training and development To develop necessary skill set for application of various HR issues. To analyse the strategic issues and strategies required to select and develop manpower resources.

CO3 Wages and Salary Administration To Apply the factors determining pay rates Ability to implement Employee benefits and Welfare measures

CO4 Grievance and discipline To learn how to implement practices related employee separation

CO5 The E-HR To Evaluate the functions, methods and ways of eHRM .

Class:TY BBA (CA) SEM :V Course: Java Programming BBA (CA) (501)

CO1 Introduction to Java To understand the basic fundamentals and important terminologies of java.

CO2 Classes and Objects To understand how to create classes and objects and new functionalities like Interface, Packages etc.

CO3 Collection Get detailed knowledge of collection, map, Iterator etc.

CO4 File and Exception Handling Understand exception and file handling in detailed

CO5 Applet, AWT and Swing Programming To understand how to create small internet applications using applet and know how to create GUI in java using AWT and Swing.

Course : Web Technology BBA (CA) (502)

CO1 Web Essentials To understand how things work in the Web world from the technology point of view as well as to give the basic overview of the different technologies. To introduce about Clients- Servers and Communication &Internet-Basic ,Internet Protocols

CO2 Markup languages To Understand how to develop static web based applications. To know about different HTML tags & CSS style sheet.

CO3 Javascript To Introduce client scripting language which is used for creating web page along with HTML and validating data accepted in HTML pages.

CO4 Introduction of PHP basics To Understand server side scripting language that is embedded in HTML.

CO5 Functions &string in PHP To Explaining different functions & string built in functions in php.

CO6 Arrays in PHP To Explaining different types & built in functions of arrays in php.

Course: VB.Net BBA (CA) (503)

CO1 Introduction to .Net Framework To introduce .Net framework.

CO2 Introduction to VB.Net To understand how to use various controls,methods and event of those controls.

CO3 Object Oriented Programming in VB .Net To understand how to create class and object and know to know about object oriented programming language.

CO4 Architecture Of ADO.Net To know Architecture of ADO.Net

CO5 Crystal Report To understand how to reports.

Course :Object Oriented Software Engineering BBA (CA) (504)

CO1 Object Oriented Concepts , Modeling and UML Students should be aware about the OO concepts and Overview of UML.

CO2 Basic and Advanced Structural Modeling Students should be aware about the Structural diagrams of UML.

CO3 Basic behavioral and Architectural Modeling Students Should be able to Know Behavioral diagram of UML.

CO4 Object Oriented Analysis Students should be able to know Iterative type of SDLC .

CO5 Object Oriented Design Student should be able to know various type of Designing Methods.

SEM VI Course: Advanced Web Technology BBA (CA) (601)

CO1 Introduction to Object Oriented Programming in PHP To Explain class, object, inheritance & interface concepts in php.

CO2 Web Techniques To introduce about Clients- Servers and Communication & Web server and Web browser

CO3 Databases Tolearn PHP and MYSQL database connectivity

CO4 XML To Learn styling, formatting and various XML parsers used for websites.

CO5 Web services To Explain concept of Web service.

CO6 Ajax To understand Design of dynamic and interactive web sites 3)Students learn various recent web technologies viz. PHP, XML, AJAX etc used for client side and server side scripting

Course : Advanced Java BBA (CA) 602

CO1 JDBC To understand database connectivity with MS access and SQL server.

CO2 Networking To understand client server technology.

CO3 JSP To understand creation of dynamic web pages.

CO4 Servlet To understand creation of dynamic web pages through server.

CO5 Multithreading To understand concepts of thread and develop application using multithreading.

CO6 Java Beans To introduce Java beans and Beans development Kit.

CO7 RMI To introduce RMI, Stubs and Skeleton

Course : Recent Trends in IT BBA (CA) 603

CO1 Software Process And Project Metrics, Analysis Concepts And Principles To study Eco friendly software development.

CO2 Distributed Databases Main objective is to understand the principles and foundations of distributed databases.

CO3 Data Warehouse To learn architecture of Data Warehouse

CO4 Network Security To understand data security and its importance

CO5 Computing and Informatics To learn concept of cloud computing.

Course: Software Testing BBA (CA) (604)

CO1 Software Testing Fundamentals of testing

CO2 Approaches to Testing – I Types of testing in details

CO3 Testing for Specialized Environments Able to test on GUI's and all real time systems

CO4 Software Testing Strategies &Software metrics Types of testing in details

DEPARTMENT OF BACHLOR OF COMPUTER SCIENCE (BCS)

PROGRAMME OUTCOMES (POs):

B. Sc. Computer Science is a systematically designed three year course that prepares the student for a career in Software Industry. The syllabus of computer Science subject along with that of the three allied subjects (Mathematics, Electronics and Statistics) forms the required basics for pursuing higher studies in Computer Science. The Syllabus also develops requisite professional skills and problem solving abilities for pursuing a career in Software Industry.

PO-1: To develop problem solving abilities using a computer

PO-2: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.

PO-3: To imbibe quality software development practices. To create awareness about process and product standards

PO-4: To prepare necessary knowledge base for research and development in Computer Science.

PO-5: To train students in professional skills related to Software Industry.

PROGRAMME SPECIFIC OUTCOMES(POs):

PSO1: To help students build-up a successful career in Computer Science

PSO2: Apply computer science theory and software development fundamentals to produce computing-based solutions

PSO3: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

PSO4: Communicate effectively in a variety of professional contexts.

PSO5: An ability to apply design and development principles in the construction of software systems of varying complexity.

PSO6: An understanding of professional, ethical, legal, security, and social issues and responsibilities for the computing profession.

F.Y.B.SC. (COMPUTER SCIENCE) COURSE OUTCOMES (COS)

SEMESTER I

COURSE: PROBLEM SOLVING USING COMPUTER AND 'C' PROGRAMMING – I:

CO1: Explore algorithmic approaches to problem solving

CO2: Develop modular programs using control structures and arrays in 'C'

COURSE TITLE : DATABASE MANAGEMENT SYSTEMS:

CO1: Solve real world problems using appropriate set, function, and relational model.

CO2: Design E-R Model for given requirements and convert the same into database tables.

CO3: Use SQL.

SEMESTER II

COURSE TITLE : ADVANCED 'C' PROGRAMMING:

CO1: Develop modular programs using control structures, pointers, arrays, strings and structures.

CO2: Design and develop solutions to real world problems using C.

COURSE TITLE : RELATIONAL DATABASE MANAGEMENT SYSTEMS:

CO1: Design E-R Model for given requirements and convert the same into database tables.

CO2: Use database techniques such as SQL & PL/SQL.

CO3: Explain transaction Management in relational database System.

CO4: Use advanced database Programming concepts

S.Y.B.SC. (COMPUTER SCIENCE): SEMESTER I

TITLE : DATA STRUCTURES AND ALGORITHMS – I

CO1: To use well-organized data structures in solving various problems

CO2: To differentiate the usage of various structures in problem solution

CO3: Implementing algorithms to solve problems using appropriate data structures.

Title : Software Engineering

CO1: Compare and chose a process model for a software project development.

CO2: Identify requirements analyze and prepare models.

CO3: Prepare the SRS, Design document, Project plan of a given software system.

S.Y.B.SC. (COMPUTER SCIENCE): SEMESTER II

Title : DATA STRUCTURES AND ALGORITHMS-II

CO1: Implementation of different data structures efficiently

CO2: Usage of well-organized data structures to handle large amount of data

CO3: Usage of appropriate data structures for problem solving
Title : Computer Networks-I

CO1: . Have a good understanding of the OSI and TCP/IP Reference Models and in particular have a good knowledge of Layers

CO2: Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies

T.Y.B.Sc. COMPUTER SCIENCE:

Computer Network

1. Understanding the concepts, vocabulary and techniques currently used in the area of computer networks.
2. Getting known with wireless networking concepts.
3. Understanding classification of network, transmission impairments, Data transmission methods etc.
4. Understanding installation of Windows Server 2008 and managing active directory.

Visual programming using C# (B. Sc III):

1. Design, document, code and test C# console and GUI applications
2. Building and using classes, events, methods, properties.
3. Design and implement Web Applications using ASP.NET.
4. Understand and use of different validation controls.
5. ADO.NET database application.

Linux Operating System (B. Sc III):

1. Understanding the Linux Architecture, use of basic command and to explain administrator privileges, super user basic command to add, modify and delete users and to understand basics of File systems.
2. Understanding the Directory commands, File related commands and changing file permission and directory permission. To understand VI editor basics. Pattern searching and search and replace commands.
3. Understanding shell basics, connecting commands and Basics and Extended regular expressions, the grep and egrep and shell programming.
4. Understanding shell programming, logical Operators, File Links and to understand process creation and decision making looped control structures.

POST-GRADUATE SECTION

DEPARTMENT OF PHYSICS

Preamble of the Syllabus:

Master of Science (M.Sc.) in Physics is a post graduation course of University of Pune.

The credit system to be implemented through this curriculum, would allow students to develop a strong footing in the fundamentals and specialize in the disciplines of his/her liking and abilities. The students pursuing this course would have to develop in depth understanding various aspects of the subject. The principles in Physics will be studied in depth. Students will have deeper understanding of laws of nature through the subjects like classical mechanics, quantum mechanics, electrodynamics, statistical physics etc. Students' ability of problem solving will be enhanced. Students can apply principles in physics to real life problems.

- **COURSE OUTCOMES (COS)**

SEMESTER-I

COURSE CODE AND TITLE: PHYUT501: CLASSICAL MECHANICS
CO1: Define basic terms Constrained Motion and Lagrangian formulation
CO2: Explain the applications of Variational Principle and Hamilton's formulation.
CO3: Explain the structure and functions of Canonical Transformations and Poisson Brackets
CO4: Explain the importance of tools and techniques Non inertial frames of References , Central Force

COURSE CODE AND TITLE: PHYUT502: ELECTRONICS:

CO1: Label the Applications of special function ICs
CO2: Explain Regulated power supply
CO3: Explain the ultrastructure and functions of various cell organelles.
CO4: Explain the concepts Digital Logic circuits I: Combinational Logic
CO5: Illustrate the Digital Logic circuits II: Sequential Logic:
CO6: Illustrate the types, development and causes of Data Converters

COURSE CODE AND TITLE: PHYUT503: MATHEMATICAL METHODS IN PHYSICS:

CO1: Define the : Linear spaces and operators
CO2: Identify Matrix representation, Similarity transformations,
CO3: Discuss Special Function
CO4: Explain the principles Fourier series and Integral transforms

COURSE CODE AND TITLE: PHYUT504: ATOMS AND MOLECULES

CO1: Explain the Atomic structure and atomic spectra :.

CO2: Explain Molecular Spectra – Rotational and vibrational spectra for diatomic molecules, Electronics spectra of diatomic molecules.

CO3: Explain the concept ESR- Principles of ESR, ESR spectrometer

CO4: Explain Crystal Diffraction and Lattice Vibrations of Solids.

COURSE CODE AND TITLE: PHYUT505: EXPERIMENTAL TECHNIQUES IN PHYSICS I

CO1 : Signal and Signal Analysis

CO2 :important and fields applications of vacuum

CO3 :Principles of pumping concept,

CO4 :Vacuum Measurements and Low Temperature Technique

SEMESTER-II

COURSE CODE AND TITLE: PHYUT601: ELECTRODYNAMICS

CO1: : Multipole expansions and time varying fields

CO2: Energy, force, momentum relations and electromagnetic wave equations 1

CO3: : Inhomogeneous wave equations.

CO4: Relativistic Mechanics and Covariance

COURSE CODE AND TITLE: PHYUT602: SOLID STATE PHYSICS

CO1: : Band Theory of Solids

CO2 Diamagnetism and Paramagnetism

CO3: Ferromagnetism, Antiferromagnetism and Ferrimagnetism 1 C

CO4: Superconductivity.

COURSE CODE AND TITLE: PHYUT 603: QUANTUM MECHANICS I

CO1 To do Revision and general formalism

CO2: to understand Representation of States – Dirac notation.

CO3: To study and verify Approximation Methods

CO4: To Introduction to WKB approximation,

COURSE CODE AND TITLE: PHYUT604: LASERS

CO1: To understand Interaction of radiation with matter

CO2 To study Different types of gas lasers

CO3: To discuss ndustrial applications:

COURSE CODE AND TITLE: PHYUT605: EXPERIMENTAL TECHNIQUES IN PHYSICS II

CO1: To understand Radiation Sources, Detectors and Sensors

CO2: To discuss Structural Characterization and Thermal Analysis.

CO3: To verify Morphological and Magnetic Characterization
CO4: To discuss Spectroscopic Analysis

PROPOSED STRUCTURE OF M. SC. (PHYSICS) SYLLABUS (C. B. C. S.)

From Academic Year 2019-2020

Preamble: The curriculum for the M. Sc. (Physics) programme is designed to cater to the requirement of Choice Based Credit System following the University Grants Commission (UGC) guidelines. In the proposed structure, due consideration is given to Core and Elective Courses (Discipline specific - Physics), along with Ability Enhancement (Compulsory and Skill based) Courses. Furthermore, continuous assessment is an integral part of the CBCS, which will facilitate systematic and thorough learning towards better understanding of the subject. The systematic and planned curricula divided into two years (comprised of four semesters) shall motivate the student for pursuing higher studies in Physics and inculcate enough skills for becoming an entrepreneur. Objectives: To foster scientific attitude, provide in-depth knowledge of scientific and technological¬ concepts of Physics. To enrich knowledge through problem solving, minor/major projects, seminars, tutorials,¬ review of research articles/papers, participation in scientific events, study visits, etc.

PO 1 : To familiarize with recent scientific and technological developments

PO 2 : To create foundation for research and development in Physics

PO3 : To help students to learn various experimental and computational tools thereby developing¬ analytical abilities to address real world problems.

PO4 : To train students in skills related to research, education, industry and market

PO 5 : To help students to build-up a progressive and successful career in Physics.

COURSE CODE AND TITLE: PHCT-111: MATHEMATICAL METHODS IN PHYSICS

CO1: Explain Complex Analysis

CO2: Explain Vector Space and Matrix Algebra

CO3: Explain the concept Special Functions and Fourier Series and Integral Transforms

COURSE CODE AND TITLE: PHCT-112: CLASSICAL MECHANICS
CO1: To do Analytical Dynamics (Lagrangian and Hamiltonian Dynamics
CO2: To understand Lagragian formulation of motion under central forces. Kepler problem.
CO3: To study and verify Moment of inertia tensor. Euler angles. Euler equation of motion for rigid body motion,

COURSE CODE AND TITLE: PHCT-113: QUANTUM MECHANICS
CO1 Inadequacy of classical Physics, wave packets and uncertainty relations
CO2: To understand Representation of States – Dirac notation.
CO3: To study Angular Momentum
CO4: To Introduction Approximation Methods,

COURSE CODE AND TITLE: PHCT-114 ELECTRONICS
CO1 To understand Semiconductor Devices and its Applications
CO2: To understand Special Function ICs and their Applications.
CO3: To study Digital Logic Circuits I: Combinational Logic
CO4: To Introduction Data Converters

COURSE CODE AND TITLE: PHCT-121, ELECTRODYNAMICS
CO1 Inadequacy of Multiple expansions and time varying fields
CO2: To understand Energy, Force, Momentum relations and Electromagnetic wave equations
CO3: To study Inhomogeneous Wave Equations
CO4: To Introduction Relativistic Mechanics and Covariance

COURSE CODE AND TITLE: PHCT-122 SOLID STATE PHYSICS
CO1 : Inadequacy of Crystal Structure of Solids
CO2: To understand Electronic Structure of Solids
CO3: To study Magnetism and Superconductivity
CO4: To Introduction Dielectric Properties of Solids

COURSE CODE AND TITLE: PHCT-123 STATISTICAL MECHANICS
CO1 : Brief discussion on probability distributions
CO2: To understand Classical Statistical Mechanics
CO3: To study Applications of Statistical Mechanics and Quantum Distribution Functions
CO4: To Introduction Ideal Bose and Fermi Systems

COURSE CODE AND TITLE: PHCT-124 :ATOMS AND MOLECULES
CO1 : Brief discussion on Atomic models, Hydrogen atom, and quantum numbers.
CO2: To understand Molecules

CO3: To study Spectroscopic Techniques
CO4: To study Resonance spectroscopy

COURSE CODE AND TITLE: PHCT-231 PHYSICS OF SEMICONDUCTOR DEVICES
CO1 : Brief discussion Properties of semiconductor
CO2: To understand Types of semiconductor, direct and indirect band gap semiconductors
CO3: To study : Junction Transistor and Field Effect Devices
CO4: To study Metal and Metal Insulator semiconductor devices

COURSE CODE AND TITLE: PHCT-232 LASER FUNDAMENTALS AND APPLICATIONS
CO1 : Brief discussion Interaction of radiation with matter
CO2: To understand Types Three and four level system and rate equations
CO3: To study Principle, Construction, Energy level diagram and working
CO4: To study Industrial applications

COURSE CODE AND TITLE: PHCT-233: EXPERIMENTAL TECHNIQUES IN PHYSICS-I
CO1 : Inadequacy of Signal, Signal Analysis and Sensors
CO2: To understand Vacuum Physics and Vacuum Techniques
CO3: To study Vacuum Measurement and Low Temperature Techniques

COURSE CODE AND TITLE: PHOP234-L: PHYSICS OF THIN FILMS
CO1 : To overview Introduction to Thin Films
CO2: To understand Deposition Techniques and Measurement of Thickness
CO3: To study Properties of Thin Films
CO4: To study Applications of Thin Films

DEPARTMENT OF CHEMISTRY

PROGRAMME OUTCOMES (POs):

After successful completion of two year degree program in Chemistry a student should be able to

PO-1: Determine molecular Structure by using UV, IR, H^1NMR, C^{13}NMR, Mass, ESR, Raman, Electronic, Microwave, XRD, Mossbauer, etc. Spectroscopic Techniques.

PO-2: Study of Medicinal Chemistry of different drugs Substances and their adverse effect on Human being and their Synthesis.

PO-3: Develop research oriented skills.

PO-4: Solve the reaction mechanism and assign the final product of different Organic Compounds.

PO-5: To Determine the aromaticity and Stability of different organic Compounds.

PO-6: Synthesis of Natural Products by using their proper route and their disconnection.

PO-7: Study of Symmetrical and asymmetrical Synthesis of organic compounds and its Stereochemistry.

PO-8: To develop interest in organic chemistry world.

PO-9: To develop skill in Organic practical handing.

PO-10: To make good industrialist.

ROGRAMME SPECIFIC OUTCOME (PSOs)

PSO-1. Know the structure and bonding in molecules/ ions and predict the Structure of molecule/ions.

PSO-2. Understand the various type of aliphatic, aromatic, nucleophilic substitution reaction.

PSO-3. Understand and apply principles of Organic Chemistry for understanding the scientific phenomenon in Reaction mechanisms.

PSO-4. Learn the Familiar name reactions and their reaction mechanisms.

PSO-5. Understand good laboratory practices and safety.

PSO-6. Study of organometallic reactions.

PSO-7. Study of free radical,bycyclic compound, conjugate addition of Enolates and pericyclic reactions.

PSO-8. Study of biological mechanisms using amino acids.

PSO-9. Use modern chemical tools, Models, Chem-draw, Charts and Equipments.

PSO-10. Gain the knowledge of Chemistry through theory and practicals.

PSO-11. Understand good laboratory practices and safety.

PSO-12 .make aware and handle the sophisticated instruments/equipments.

M.SC.PART I (ORGANIC CHEMISTRY):

Sr .No.		Course	Outcomes
1	M.Sc.Part I Organic Chemistry. Semester-I (Theory)	CHP-110 Physical Chemistry	*Realize the terms ionic strength, activity coefficient, DHO equation. *Know the eign function, eign value, operator and postulates of quantum mechanics. *Learn two and three dimensional box, mechanics of particle. * Understand the adsorption of gases by solid type of isotherms * Recognized the Fricke and cerric sulphate Dosimeter. * Learn parent-daughter relationship, application of radioactivity, NAA, IDA. Effect of radiation and units of radiation.
2		CHI-130 Inorganic Chemistry	*Determine and Learn about Dipole moment and bond order of the inorganic molecule. *Learn about geometry and shape of the molecule. *Known the preparation and properties of transition metal carbonyls * To understand the 18 electron rule and its application. * Find out the point group of inorganic molecules. * Learn molecular orbital and its orientation. *learn concept of symmetry elements in molecules.
3		CHO-150 Organic Chemistry	*Learn SN1, SN2 and SNi Mechanism and stereochemistry. *Learn classical and non-classical carbocation, NGP by pi and sigma bonds. *Solve the elimination problems. *Distinguish between type of addition, elimination and substitution reaction. Learn E and Z nomenclature inC,N,S,P containing compound ,Stereo chemical principal, enantiomeric relationship R and S.
4		CHA-190 General Chemistry	*study the importance of safety and security, responsibility types of hazards and risk in chemical laboratory. *Understand the use of personal protective and other safety equipments, handling of chemical in laboratory. *Understand the route of exploser for toxic chemicals. *Learn good laboratory practices and its applications.
5	M.Sc.Part I Organic Chemistry. Semester-I (Practical's)	CH-P-1 Physical chemistry practical's	*Calculate molar and normal solution of various concentrations. *determine specific rotations and percentage of to optically active substances by polorimetrically. * Study the energy of activation and second order reaction. *study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. Find out the acidity, Basicity and PKa Value on pH meter.
6		CH-I-1 Inorganic chemistry practical's	*Study the gravimetric and volumetric analysis of ores and alloy. *Prepare a various inorganic complexes and determine its % purity. *Preparation of nonmaterial. *To understand the chromatographic techniques.
7		CH-O-1 Organic chemistry practical's	*perform the ternary mixtures. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.

Sr .No.		Course	Outcomes
1		CHP-210 Physical Chemistry	*Learn the thermodynamic description of exact, inexact differential and state function. *Know the qualitative properties of solution, the depression in freezing point, elevation in boiling point and osmotic pressure. *Know the statistical thermodynamics and various partition function. *Study the steady state approximation michaelis- menten mechanism, lindemann-hinshelwood mechanism, chain reaction, Rate determining stapes and consecutive elementary reactions. *Learn the molecular spectroscopy, R.Raman , Electronic and Mossbauer and its application.
2	**M.Sc.Part I Organic Chemistry.** **Semester-II (Theory)**	CHI-230 Inorganic Chemistry	*Understand the mechanism in transition metal complexes, Born Haber cycle to calculate lattices energy. *Learn the use of catalyst, radius ratio rule of coordination number 3,4. *study the structure of atom, Hunds rule, term symbol, calculation of microstate and selection rule. *Understand the metal complexes in biological system.
3		CHO-250 Name reaction ,synthetic Organic Chemistry and spectroscopy	*Studied the various name reaction with examples. *Learn the mechanism of rearrangement reaction, use synthetic reagent of oxidation and reduction for solving the problems. *Understand the factors affecting UV-absorption spectra, Interpret IR-spectra on basic values of IR-frequencies. *Discuss the problem of UV, IR and NMR.
4		CHA-290 General Chemistry	*Study the instrumentation, sample injection system, columns for HPLC and GC, Solvent treatment system and choice of mobile phase. *Learn instrumentation of mass spectrometry, fragmentation, structure determination. *Solve mean and standard deviation problems. *Understand the accuracy and precision and classification error. *Learn distillation, solvent extraction, crystallization, and other separation techniques.
5	**M.Sc.Part I Organic Chemistry.** **Semester-II (Practical's)**	CH-P-1 Physical chemistry practical's	*Calculate molar and normal solution of various concentrations. *determine specific rotations and percentage of to optically active substances by polorimetrically. * Study the energy of activation and second order reaction. *study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. Find out the acidity, Basicity and PKa Value on pH meter.
6		CH-I-1 Inorganic chemistry practical's	*Study the gravimetric and volumetric analysis of ores and alloy. *Prepare a various inorganic complexes and determine its % purity. *Preparation of nonmaterial. *To understand the chromatographic techniques.
7		CH-O-1 Organic chemistry practical's	*perform the ternary mixtures. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.

M.SC.PART II (ORGANIC CHEMISTRY):

Sr .No.		Course	Outcomes
1	M.Sc.Part II Organic Chemistry. Semester-III (Theory)	CHO-350 Organic reaction mechanism	*Study of carbanion-formation, stability and related name reaction, enamies and its applications. *Understand the NGP. *Learn the carbines and nitrenes. * Study of free radicals: generation of radicals, Nucleophilic electrophilic radicals, inter and intra molecular C-C bond formation via mercuric hydride. *study of oxidative coupling and SNAr reaction.
2		CHO-351 Spectroscopic methods in structure determination.	*Study ^{1}H NMR Spectroscopy: Chemical Shift, deshielding, correlation for protons bonded to carbon and other nuclei. *Study of ^{13}C NMR spectroscopy: FT- NMR, type of ^{13}C NMR spectra, proton decoupled , off resonance, APT, INEPT, DEPT, Chemical shift, nuclear and hetero nuclear coupling constant *2D NMR techniques: COSY, homo and hetero nuclear 2D resorts spectroscopy, NOESY and the applications *Study of mass spectrometry: Instrumentation, various methods of ionization, SIMS, FAB, MALDI. Different detectors rules of fragmentations of different functional groups.
3		CHO-352 Organic stereochemistry	*Study of stereochemistry of six member ring. *Learn the stereochemistry of rings other than six members. *Understand fused bridge and Caged rings. *Learn resolution of racemic modification, stereochemistry of organic compound using NMR. *Determine geometrical isomerism and stereochemistry of olefins.
4		CHO-353 Photochemistry, Pericyclic reaction and heterocyclic chemistry.	*Study of photochemistry: Carbonyl compounds, alkenes, dienes, polyenes and aromatic compounds. *Study photo rearrangement Barton reaction, application of photochemical reaction. * Learn Pericyclic reaction: Electro cyclic, Cycloaddition, Ene Reaction, analysis by correlation diagram, FMO approach and ATS concept. *Study of heterocyclic chemistry: Five and six member heterocyclic with one or two hetero atoms. *Understand condensed five and six member's heterocyclic. *Study the synthesis, reactivity, aromatic character and importance of heterocyclic compounds.
5	M.Sc.Part II Organic Chemistry. Semester-III (Practical's)	CH-O-347 Single stage preparations	*Spectral analysis best on instrumental techniques. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.
6		CH-O-447 Two stage preparation	* Spectral analysis best on instrumental techniques *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.
7		CH-O-448 Single stage preparations by Green synthesis.	* Spectral analysis best on instrumental techniques. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.

Sr .No.		Course	Outcomes
1		CHO-450 Chemistry of natural product	*Study structure and stereochemistry of hardwickiic acid, camptothecin and podothyllotoxin. *Study the synthesis of taxol, estorne and mefepristone, fredericamycin A. *Learn biogenesis tepenoides, alkolodes and shikimmte pathway.
2		CHO-451 Advance synthetic organic chemistry.	*Study of transition metal complexes in organic synthesis. * Learn C=C formation reaction, multi compound reaction, ring formation reaction. *Study of sharpless azides Cycloaddition, use of boron and silicon in organic synthesis.
3	**M.Sc.Part II Organic Chemistry.** **Semester-IV (Theory)**	CHO-452 Carbohydrate and chiral approach, chiral drugs and medicinal chemistry.	*Study of carbohydrates: Introduction of sugar, structure of triose tetrosa, panctose ,hexoes, stereochemistry of glucose. *Understand the chiral approach, concept of chiral templates, and utilization of the basic concept for reterosynthetic strategy. *Study of chiral drug. *Learn medicinal chemistry, the action and discovery. *Study the structure activity and drug targets. *Study of antimicrobial drugs, antibacterial, antifungal, antiviral, antimalerial etc.
4		CHO-453 Designing organic synthesis and asymmetric synthesis.	*Study the design of organic synthesis, protection deprotation of hydroxyl, amino carboxyl, ketones and aldehyde. *Learn reterosynthesis. *Understand the principle and application of asymmetric synthesis. *Study of cram's rule, felkin-Anh rule, Cram's chelate model asymmetric synthesis using chiral reagent.
5	**M.Sc.Part II Organic Chemistry.** **Semester-IV (Practical's)**	CH-O-347 Single stage preparations	*Spectral analysis best on instrumental techniques. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.
6		CH-O-447 Two stage preparation	* Spectral analysis best on instrumental techniques *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.
7		CH-O-448 Single stage preparations by Green synthesis.	* Spectral analysis best on instrumental techniques. *Preparation of organic compounds, their purifications and run TLC. * Determination of physical constant: Melting point, Boiling point. * Different separation techniques.

PROGRAMME SPECIFIC OUTCOMES (PSO)

Plant science is now an amalgamation of basic and applied science. Plants besides being the unique capability of plants to trap solar energy and provide food to all cannot be replicated by any system. Conventional studies like plant identification are now being supplemented with molecular techniques like DNA Barcoding. The courses have been designed to benefit all Botany students to study various aspects of plant science including its practical applications. Keeping in mind that these students can take up teaching at different levels, research work in research institutes and or industry, doctoral work environment impact assessment, biodiversity studies, entrepreneurship, scientific writing relevant topics have been included in the curriculum.

PSO 1: Understanding the classification of plants from cryptogams to Spermatophyte. Identification of the flora within field enhances basics of plants. Study of biodiversity in relation to habitat will correlates with climate change, land and forest degradation. Application of Botany in agriculture is through study of plant pathology.

PSO 2: Understand the ultra-structure and function of cell membranes, cell communications, signaling, genetics, anatomy, taxonomy, ecology and plant Physiology and biochemistry. To understand the multi functionality of plant cells in production of fine chemicals and their wide spread industrial applications.

PSO 3: Molecular and Physiological adaptations in plants in response to biotic and abiotic stress. Genes responsible for stress tolerance genetic engineering of plants.

M.Sc. COURSE OUTCOME (COS) (SEM I & II)

COURSE NAME: PLANT SYSTEATICS I

CO1. Systematics and taxonomy its principles, concepts and classification of algae

CO2. Algological studies, habits pigments, reserve food, modes of perennation in algae.

CO3. Study of various groups of algae, cyanophyta, chlorphyta, charophyta, euglenophyta, xanthophyta, bacillariophyta and chrysophyta, phaeophyta, rhodophyta

CO4. Application of algae

CO5. Thallus structure nutrition, and classification of fungi

CO6. Study of distinghishing characters of myxomycotina, mastigomycotina, zygomycotina, ascomycotina, basidiomycotina, deuteromycotina.

CO7. Application of fungi

CO8. Introduction, characters and affinity with thallophytes and pteridophytes. Classification

CO9. Distribution and distinguishing characters of selected orders of bryophytes

CO10. Application of bryophytes.

COURSE NAME: CELL BIOLOGY

CO1. Dynamic organization of the cell

CO2. Internal organization of the cell, cell wall, cell membrane, biogenesis, ultrasture of cell organalles

CO3. Giant chromosomes

CO4. Cellular signalling, transport and trafficking

CO5. Types of receptors, G Protein, phospholipid signalling,

CO6. Diversity in protein kinases and phosphates

CO7. Specific signalling mechanisms

CO8. Nuclear organelle signalling during plastid development

CO9. Receptor serine/threonine kinases, ethylene mediated two component systems

CO10. Molecular mechanisms of membrane transport

CO11. Cellular process, cell cycle and its regulation

CO12. Genome instability and cell transformation

CO13. Mutations, types of mutations, transpositions, tumour suppressor genes, activation and suppression of tumour suppressor genes.

COURSE NAME: CYTOGENETICS AND PLANT BREEDING AND EVOLUTION

CO1. Principles of Mendelian inheritance and interaction of genes

CO2. Cytoplasmic inheritance, maternal effect, plastid inheritance, mitochondrial inheritance

CO3. Quantitative inheritance, multiple factor hypothesis, quantitative traits, QTL mapping

CO4. Linkage, recombination and crossing over, sex linkages

CO5. Mutation, types, germinal vs somatic mutatns, intentional mutagenesis

CO6. Microbial genetics and cytogenetics, mapping of bacterial genome by interrupted mating

CO7. Karyotype and chromosome banding, B chromosome and accessory chromosomes

CO8. Numerical alterations of chromosomes, aneuploids, polyploids, human genetic disorders

CO9. Structural alterations of chromosomes, deletion, duplication, inversion, Robertsonian translocations

CO10. Introduction to model systems in genetics

CO11. Plant breeding, plant genetic resources, methods of plant breeding

CO12. Experimental designs of plant breeding and registration of variety

CO13. Selection and hybridization methods, breeding for stress tolerance

CO14. Applications of molecular markers in plant breeding

CO15. Evolution its theories, origin of cells and cellular evolution, molecular evolution, palaeontology and evolutionary history

COURSE NAME: BIOFERTILIZER AND ALGAL TECHNOLOGY

CO1. Biofertilizer its introduction, significance of biofertilizers in agriculture

CO2. Types and scope of biofertilziers, production technology, methods of applications and use of genetically engineered microorganisms.

CO3. Algal technology, its introduction, potential food and feed,

CO4. Algal biofertilziers biodiesel

CO5. Biohydrogen production from algae

CO6. Algal products, SCP spirulina mass cultivation and applications

COURSE NAME: PLANT SYSTEATICS II

CO1. Pteridophytes, distinguishing characters, distribution, application of pteridophytes,

CO2. Gymnosperms, its classifications, affinities to pteridophytes and angiosperms,

CO3. Distribution of gymnosperms its economic aspects

CO4. Comparative account, morphology, seed development

CO5. Angiosperms characteristics, hierarchical classifications

CO6, Phylogenetic systems, APGIII, phylogeny of angiosperms, study of plant families

COURSE NAME: MOLECULAR BIOLOGY

CO1. Technique and tools in molecular biology, its scope and applications

CO2. Enzymes in molecular biology,

CO3. Minor equipment

CO4. Major equipment, PCR, Gel doc, ELISA, Millipore, Lyophilizer, Refractometer, sequencer

CO5. Molecular techniques, Sequencing techniques

CO6. DNA Structre, functions and damage

CO7. Gene structure and functions, transcription, translation

CO8. Gene regulation, transposable elements,

CO9. Genomics and proteomics

COURSE NAME: BIOCHEMISTRY

CO1. Fundamental aspects, water, buffers, solutions, bioenergetics

CO2. Biomolecules, carbohydrates, lipids, nucleic acids

CO3. Protein biochemistry, amino acids, proteins, enzymology, nitrogen metabolism

CO4. Phytochemistry and metabolomics, phytochemical investigations

COURSE NAME: FLORICULTURE AND NURSERY MANAGEMENT

CO1. Floriculture, pre-requisites of commercial floriculture, harvesting and processing of flowers, commercial production of flowers.

CO2. Nursery management, nursery sites, preparation of sites, design and layout, producing plants from seed

CO3. Producing plants vegetative

CO4. Growing media

M.Sc. COURSE OUTCOME (COS) (SEM III & IV)

COURSE NAME: SPERMATOPHYTIC BOTANY

CO1. Outline classification of spermatophyta

CO2. Gymnosperm classification and afficinites with pteridophytes and angiosperms

CO3. Distribution of gymnosperms, pteridospermales, cycadeoidales, Pentoxylales, Cordaitales

CO4. Living gymnosperms

CO5. Systematics and classification of angiosperms

CO6. International code of botanical nomenclature

CO7. Systems of angiosperm classification

CO8. Recent systems of classifications

CO9. Taxonomic aspects of angiosperms, morphological variations, Phytogeography

COURSE NAME: DEVELOPMENTAL AND ECONOMIC BOTANY

CO1.Process of plant development, processes of development,

CO2. Factors affecting development, vegetative development, seed germination

CO3. Phenomenon of development

CO4. Embryological aspects of development

CO5. Transition, gametophyte, fertilization, embryo development, polyembryony

CO6. Physiology and molecular basis of plant development

CO7. Case study on organ culture, anther, pollen and protoplast culture

CO8. Economic botany, cereals, millets, legumes, vegetables fruits, plants, wood and cork, rubber and its products

CO9. Fatty oils, essential oils, sugar industry byproducts, spices

COURSE NAME: INDUSTRIAL BOTANY I

CO1. Introduction to algal technology, resource potential

CO2. Algal products, SCP, fertilizers

CO3. Bio pesticide technologyHerbal, insect predators, fungal, bacterial, viral,

CO4. Biofuel technology, environmental implications of fossil fuel,

CO5. Bioethanol technology, sources, production, distillation, standardization

CO6. Lipid derived biofules, bio-hydorgen, methanogenesis

CO7. Fermentation technology, History and introduction

CO8. Alcohol and beverage industry, organic acid industry

CO9. Antibiotic industry and food industry

CO10. Entrepreneur, concept and characteristics

CO11. Entrepreneurship development programmes, project identification and selection

CO12. Institutional finance to entrepreneurs, institutional support of entrepreneurs

CO13. The business, its nature and scope, fundamentals of management

COURSE NAME: ADVANCED ANGIOSPERMS

CO1. Modern trends in angiosperm taxonomy, embryology in relation to taxonomy

CO2. Anatomy in relation to taxonomy, palynotaxonomy

CO3. Phytogeography, ecology, genetics and taxonomy, numerical taxonomy, cytotaxonomy

CO4. Chemotaxonomy, ultrastructural systematics, Molecular systematics

CO5. Taxonomic aspects, morphological variations, systematic positions, interrelationships, phylogeny and economic importance

COURSE NAME: COMPUTATIONAL BOTANY

CO1. Introduction to statistics, measures of central tendency, measures of dispersion,

CO2. Correlation and regression

CO3. Experimental statistics, Design of experiments and analysis of variance, Testing of hypothesis,

CO4. Bioinformatics, introduction to databases, molecular tools in protein and nucleotide sequence

CO5. Sequence similarities, FASTA, BLAST, Multiple sequence alignments

CO6. Biomathematics, types of measurement and their units, ions and electrical potential

CO7. pH measurements and preparation of buffers, measuring concentration

CO8. Enzyme activity, cell counting, radioisotopes

COURSE NAME: PLANT ORGANISM INTERACTION

CO1. Plant interactions, allelopathy, parasitic association, competitive mechanisms

CO2. Herbivore and carnivore plants, plant signalling, defence, genetic engineering

CO3. Symbiotic associations, lichens, mycorrizae, entophytic association, nodulating bacteria, algae and coral relationship

CO4. Pollination and dispersal biology, pollinators, co-evolution, seed dispersal mechanism

COURSE NAME: INDUSTRIAL BOTANY II

CO1. Herbal technology, concept and prospects

CO2. Phytotechnology, medicinal plats mentioned in Arharva veds

CO3. Medicinal mushrooms, natural dyes and aromatic plants

CO4. Gardening and forest botany

CO5. Floriculture its significance, importance, scope and prospects and role

CO6. Principles of garden design, styles of gardening, indoor gardening, landscape gardening

CO7. Industrial plant tissue culture, laboratory design, maintenance

CO8. Case studies of micro propagation of banana, sugarcane, lilium, orchids and gerbera

CO9. Transpiring, economics and preparation of bankable techno commercial reports of microproagtion of banana sugarcane and lilium

CO10. Post harvest technology of fruits,

CO11. Post-harvest biology of tropical subtropical fruits.

CO12. Post-harvest technologies of fruits, preservation and processing of fruits.

COURSE NAME: PLANT PATHOLOGY

CO1. Plant pathology, introduction, objectives and milestones

CO2. Nature and concept of plant disease, classification of diseases

CO3. Causes of plant diseases, bacterial viral and nematodal

CO4. Effect of plant diseases on human affairs

CO5. Pathogenesis, effect of pathogen on plant physiological functions

CO6. Enzymes and toxins in plant disease, pathogenicity of bio trophic and necrotrophic pathogens

CO7. Disease development, environmental factors and disease development

CO8. Genetics of plant pathogen interactions

CO9. Plant defence mechanism, molecular biology

CO10. Concept of post-harvest disease of fruits, vegetables and seeds

CO11. Disease management and related aspects, Diagnosis, breeding for improvement, control

CO12. Bio-control agents, disease control, plant disease assessment, biotechnology and its role in plant pathology

COURSE NAME: RESEARCH METHODOLOGY AND SUMMER TRAINING REPORT

CO1. Projects will be allotted in third semester and students will submit project work having introduction, review of literature, well defined material and methods, results and discussion, conclusions and references.

CO2. Reviewed based on review of literature on some advanced techniques in Botany and its presentation.

CO3. Report submission based on one summer training in research institutes/laboratory/industry for atleast one month with certificate from respective authority.

CO4. Techno-commercial case study of any four units

DEPARTMENT OF ZOOLOGY

- **PROGRAM SPECIFIC OUTCOMES (PSOs):**

After successfully completing the M.Sc. Zoology program students will be able to:

PO1. Zoology knowledge: Apply the knowledge of Zoology, Life Sciences and allied subjects to the understanding of complex life processes and phenomena.

PO2. Problem analysis: Identify, review research literature, and analyse complex situations of living forms.

PO3. Design/development of solutions: Design processes/strategies that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in real situations.

PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and ICT tools for understanding of the subject.

PO6. The Postgraduate and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7. Environment and sustainability: Understand the impact of the natural and anthropogenic activities in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. Identify a range of invertebrates and vertebrates and justify their conservation.

PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work/research practice.

PO9. Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10. Communication: Communicate effectively on complex life activities with the scientific community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11. Project management and finance: Demonstrate knowledge and understanding of Zoology and management principles and apply these to one's own work, as a member and leader in a team.

PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

- **COURSE OUTCOMES (COS)**

SEMESTER-I

1) **BIOCHEMISTRY & BIOCHEMICAL TECHNIQUES:**

CO1: Define basic terms in biochemistry and biochemical techniques.
CO2: Explain the applications of the various biochemical techniques.
CO3: Explain the structure and functions of various Biomolecules.
CO4: Explain the importance of tools and techniques in biology.
CO5: Illustrate the importance of pH, buffer and water in living systems.
CO6: Illustrate the principle, working and applications of basic techniques used in biology.
CO7: Draw the structures of various carbohydrates and amino acids.
CO8: Classify enzymes with examples.
CO9: Explain the importance and applications of techniques in biochemistry.
CO10: Explain the principle and applications of various chromatographic techniques with examples.
CO11: Explain the principle, working, materials used and applications of electrophoresis.
CO12: Describe the concept of light, electromagnetic spectrum and its application in absorption spectroscopy.
CO13: Illustrate the importance of radioactive compounds and radioactivity in biology.
CO14: Demonstrate the principle and working of Warburg's apparatus.
CO15: Demonstrate the principle, working, applications of centrifugation.
CO16: Justify the applications of radioactivity compounds in biology.

2) **CELL BIOLOGY & DEVELOPMENTAL BIOLOGY:**

CO1: Label the various cell parts
CO2: Sketch and label various types of cells and cell organelles.
CO3: Explain carbon as backbone of Biomolecules.
CO4: Explain the ultrastructure and functions of various cell organelles.
CO5: Explain the concepts of cell signalling.
CO6: Illustrate the chemistry and organization of cytoskeleton.
CO7: Illustrate the types, development and causes of tumor.
CO8: Diagrammatically represent the cell cycle phases and its regulation.
CO9: Define the terms in developmental biology
CO10: Explain the significance of model organism for developmental studies.
CO11: Explain the types of eggs, concept of fertilization and cleavage pattern.
CO12: Explain the concept of mesoderm induction and pattern formation with examples.
CO13: Describe neural competence and induction.

CO14: Explain the concept of growth and differentiation.
CO15: Illustrate postembryonic development.
CO16: Compare and contrast spermatogenesis and Oogenesis.

3) GENETICS & ENGLISH IN SCIENTIFIC COMMUNICATION:

CO1: Define the basic terminologies in genetics.
CO2: Identify genetic disorders based on Karyotypes and traits.
CO3: Explain the concept of Mendelian genetics, gene, gene regulation and multiple alleles.
CO4: Discuss Linkage and crossing with their types and significance.
CO5: Explain the principles of Population genetics.
CO6: Illustrate the modified Mendelian laws of inheritance.
CO7: Justify the inheritance of qualitative and quantitative traits.
CO8: Solve the problems based on gene frequency.
CO9: Write the outline of a scientific paper.
CO10: Write the title, abstract, discussion and citations of a given scientific article.
CO11: Prepare a scientific presentation using PowerPoint.
CO12: Explain language as a tool for effective scientific communication.
CO13: Use the formal elements of specific types of scientific writing.
CO14: Critically analyze data from research; incorporate it into assigned writing clearly, concisely, and logically; and attribute the source with proper citation.
CO15: Practice the unique qualities of professional rhetoric and writing style.
CO16: Justify the importance of plagiarism check and Proof-read given article.

4) BIOSTATISTICS:

CO1: Explain the application of sampling in biological sciences.
CO2: Explain standard Probability distributions.
CO3: Explain the concept and types of central tendency.
CO4: Explain the concept of correlation and regression with their properties.
CO5: Classify the given data.
CO6: Graphically represent the given data.
CO7: Illustrate the measures of dispersion with examples.
CO8: Solve statistical problems.

SEMESTER-II

1) MOLECULAR BIOLOGY AND BIOINFORMATICS.

CO1: Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization.
CO2: Discuss genome organization, DNA and Protein sequencing with their application in evolutionary studies.

CO3: Explain the mobile DNA elements.
CO4: Explain mechanism of DNA damage and repair.
CO5: Illustrate the process of DNA replication, transcription, translation and their regulations.
CO6: Illustrate the database tools with their significance.
CO7: Schematically represent the processes of central dogma.

2) ENDOCRINOLOGY:

CO1: Discuss the roles of Pituitary gland and pineal body.
CO2: Explain hormonal regulation of biomolecules and mineral metabolism.
CO3: Describe the role of osmoregulatory and gastrointestinal hormones.
CO4: Explain the role of hormones in moulting, change in body colour of crustaceans; yolk synthesis in amphibians; insect development.
CO5: Explain the hormonal regulation of metabolism.
CO6: Illustrate the mechanism of hormone action and role of hormone receptors.
CO7: Justify hormones as coordination molecules.
CO8: Justify the significance of biological clocks and rhythms.

3) PARASITOLOGY:

CO1: Define the terminologies of parasitology.
CO2: Explain the concepts of animal association with examples.
CO3: Describe the role of parasites in public health and hygiene.
CO4: Explain the morphology and life cycle of common parasites.
CO5: Explain the pathogenicity and control measures of common parasites.
CO6: Illustrate the process of parasitic infections to human.
CO7: Justify the importance of control strategies against parasitic infections.
CO8: Justify the significance of vectors and disease transmission.

4) COMPARATIVE ANIMAL PHYSIOLOGY:

CO1: Explain the physiology of processes like digestion, respiration, muscle contraction and excretion.
CO2: Describe the mechanism of thermoregulation in both poikilotherms and homeotherms.
CO3: Explain the mechanism of chemical communication in vertebrates.
CO4: Comment on the structure and functions of various sense organs.
CO5: Illustrate the concept of osmotic regulation in various animals with suitable examples.
CO6: Compare the physiology of regulatory mechanisms in various groups of animals.
CO7: Justify the survival strategies of organism in varied climatic conditions.
CO8: Justify the evolution of various life processes in living forms.

5) ENVIRONMENTAL BIOLOGY:

CO1: List the endangered, endemic and extinct animal species of India.
CO2: Identify various types of natural resources, human impact on these resources, and common resource management practices.
CO3: Explain the structure and impact of biogeochemical cycles, ecosystems and energy transformation across trophic levels.
CO4: Describe concepts in population ecology and their significance.
CO5: Discuss environmental hazards and risks and the socio-economic implications.
CO6: Illustrate the impact of climate and anthropogenic factors on biodiversity with reference to India.
CO7: Illustrate the wildlife management practices and their significance.

6) METABOLIC PATHWAYS.

CO1: Define basic terminologies of metabolic pathways.
CO2: Explain the laws of thermodynamics, concept of free energy and ATP as currency molecule.
CO3: Describe the Concepts and regulation of metabolism.
CO4: Discuss the oxidation of fatty acids and its significance.
CO5: Illustrate the electron transport chain and oxidative phosphorylation.
CO6: Illustrate the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, TCA cycle, Purine and Pyrimidine metabolism
CO7: Write the general reactions of various metabolic pathways.
CO8: Justify the role of enzymes in metabolism.

7) ICHTHYOLOGY

CO1: Identify the common fishes in India.
CO2: Explain the general characters and evolution of fishes.
CO3: Explain the fish morphology and anatomical modifications.
CO4: Illustrate the physiology of reproductive and endocrine organs in fish.
CO5: Discuss the signs, symptoms and control measures of common diseases in fish.
CO6: Justify the role of respiratory and excretory organs in survival of fishes.
CO7: Classify fishes upto order level.

SEMESTER- III

1) ANIMAL PHYSIOLOGY- I (SPECIAL PAPER)

CO1: Explain the membrane physiology and its dynamics.
CO2: Explain the concept of nutrition and digestion.
CO3: Explain the structure, contraction and types of contraction of muscle.
CO4: Illustrate bioluminescence and animal electricity with examples and its significance
CO5: Correlate the organisms Internal and external environments with homeostasis and biological Clocks.
CO6: Diagrammatically represent the mechanism of respiration, gas exchange and transport of O2 and CO2.

2) FUNDAMENTALS OF SYSTEMATICS AND ECONOMIC ZOOLOGY

CO1: Explain principles, methods of biological classification and diversity in kingdom Animalia.
CO2: Explain the importance of taxonomic keys and taxonomic characters.
CO3: Explain the principles of zoological classification and nomenclature
CO4: Discuss the various taxonomic procedures and molecular phylogenetics & phylogeography.
CO5: Illustrate the methodologies used in systematics.
CO6: Illustrate the lac culture, apiculture, prawn culture, vermiculture, Poultry, dairy industry and Piggery.
CO7: Explain the role of insects of economic importance.
CO8: Explain parasitic roundworms of animal and plants.
CO9: Signify the role of parasitic and soil protozoan in human welfare.
CO10: Justify the use of animals in pharmaceutical research.
CO11: Explain coral reef and its significance.

3) RESEARCH METHODOLOGY AND INSECT PHYSIOLOGY AND BIOCHEMISTRY

CO1: demonstrate knowledge of research processes (reading, evaluating, and developing)
CO2: perform literature reviews using print and online databases.
CO3: select and define appropriate research problem and parameters to prepare a project proposal.
CO4: identify, explain, compare, and prepare the key elements of a research proposal/report.
CO5: compare and contrast quantitative and qualitative research paradigms
CO6: Use sampling methods, measurement scales and instruments, and appropriate uses of each.

CO7: Justify the rationale for research ethics.

CO8: Explain the structure, Chemistry of integument and sclerotization.

CO9: Describe the process of digestion and metabolism

CO10: Explain the characteristics of haemolymph and types of haemocytes.

CO11: illustrate the structure, physiology and biochemistry of flight muscle.

CO12: Demonstrate the process of excretion, detoxification and water balance

CO13: Justify the role of insect hormones in physiological processes.

4) IMMUNOLOGY

CO1: List the primary and secondary immune organs.

CO2: Explain the concepts of immunity, self-nonself immune response, autoimmune disease.

CO3: Explain the theories of antibody synthesis and generation of antibody diversity.

CO4: Explain the principle and application of the common techniques used in Immunology

CO5: Illustrate the events and dynamics of inflammation

CO6: Compare the MHC molecules and diseases associated with HLA.

CO7: Differentiate between active and passive immunization

CO8: Compare the three pathways of complement fixation pathway.

5) GENETIC TOXICOLOGY

CO1: Define genotoxicity test systems.
CO2: Describe basic toxicological principles and describe how different chemicals are taken up by, processed in and eliminated from the body
CO3: Inspect physical and chemical genotoxic agents being exposed in his/her environment
CO4: Illustrate physical and chemical genotoxic agents.
CO5: Explain efficiency mechanisms of physical chemical genotoxic agents
CO6: Relate genotoxicity and DNA repair mechanisms and relate types of mutation and DNA repair
CO7: Judge about proper genotoxicity test for mutation types

SEMESTER-IV:

1) ANIMAL PHYSIOLOGY- II (SPECIAL PAPER)

CO1: Explain the composition of blood, types of blood cells, vascular dynamics and clotting.

CO2: Illustrate the anatomy and physiology of heart and cardiac cycle

CO3: Describe the excretory system, nitrogenous wastes and renal regulation

CO4: Illustrate the osmoregulatory mechanism in Invertebrates and Vertebrates

CO5: Discuss the neuronal physiology and various potentials.

CO6: Justify the location and structure of eye, ear and taste buds to their functions.

CO7: Justify energy utilization in physiological and metabolic activities.

2) MAMMALIAN REPRODUCTIVE PHYSIOLOGY AND AQUACULTURE

CO1: Explain the male and female reproductive systems and sexual dimorphic characteristics
CO2: Explain the sexual cycles with examples
CO3: Illustrate the reproductive dysfunctions.
CO4: Diagrammatically represent the hormonal regulation of reproductive processes like pregnancy, lactation and parturition.
CO5: Prepare the flow chart to demonstrate the hormonal coordination of reproductive Processes
CO6: Justify the artificial control of reproduction.
CO7: Identify the fish diseases and the causative organisms
CO8: Mention the various composite fish culture with significance of each type.
CO9: Describe the methods of freshwater prawn culture and its management.
CO10: Explain the methods of pearl culture and pearl harvesting.
CO11: Illustrate the preparation and management of fish culture ponds.
CO12: Demonstrate the methods of packaging and transport of fish and brood fish.
CO13: Illustrate techniques of fish harvesting, preservation & processing.
CO14: Compare the techniques used in fishery development.

3) HISTOLOGY AND HISTOCHEMISTRY

CO1: Explain the fundamental tissues in details.

CO2: Describe the process of histological preparations.

CO3: Illustrate the tools used in histological preparations.

CO4: Justify the use of various stains and dyes used in histochemical detection of biomolecules.

CO5: Justify the importance of Immunohistochemistry.

4) PEST CONTROL

CO1: Explain the Pest, nature of damage caused by pests and pest control.

CO2: Explain medical, veterinary, Household and stored grain pests.

CO3: Explain the Principles and methods of pest control including Biological control measures.

CO4: Explain the Integrated pest management (IPM)

CO5: Explain the Non- insect pest and their control: Rat, Bandicoots, Crabs, Snails, Slugs, Birds and Squirrels.

CO6: Explain the principle and working of pesticide appliances.

5) POLLUTION BIOLOGY

CO1: Explain the organization of biosphere.

CO2: Explain in details the types of pollution.

CO3: Describe the pollution monitoring strategies.

CO4: Illustrate the bioassay methods.

CO5: Elucidate the methods to study the impact of pollutants.

CO6: Justify the importance of biomedical waste management.

6) APICULTURE

CO1: Explain the basic concepts of apiculture like systematics, colony organization, polymorphism, morphology and foraging.

CO2: Explain the tools and management of apiary.

CO3: Explain the importance of institutions pertinent to apiculture.

CO4: Discuss the setup of beekeeping business.

CO5: Illustrate the bee keeping as occupation.

CO6: Justify the presence of bees to increase the agriculture productivity.

DEPARTMENT OF GEOGRAPHY

STATISTICAL TECHNIQUES IN SPATIAL ANALYSIS

1) The students will learn various statistical skills.

2) The students will know how the statistical theories and functions will be applied in geography.

3) The students will learn about the significance test to strengthen their argument with facts and represent data.

PRINCIPLES OF CLIMATOLOGYY

1) Dynamics of climate and related theories.

2) Understanding of Vegetation as an index of climate.

3) Assessment of different aspects of floral and faunal provinces.

PRINCIPLES OF ECONOMIC GEOGRAPHY.

1) Understand the concept of economic activity, factors affecting location of economic activity.

2). Gain knowledge about different types of primary activities.

3) Develop an idea about different types of secondary activities.

4) Acquire knowledge about different types of tertiary activities.

REMOTE SENSING AND GIS

1. They can know about concepts, components, development, platforms and types of remote sensing and GIS.

2. They understand about Aerial photography and Satellite Remote Sensing.

3. Know about GIS data structures.

4. Develop an idea about interpretation and application of remote sensing and GIS.

GEOGRAPHY OF DISASTER MANAGEMENT

1. Understand the definition, classification of hazards and disasters

2. Gain knowledge about approaches to hazard study.

3. Develop an idea about factors, consequences and management of earthquake, landslide, and flood and riverbank erosion.

4. Acquire knowledge about human induced disaster.

PRINCIPLES OF POPULATION & SETTLEMENT GEOGRAPHY

1. Understand the nature of population. Know about composition of population, like- age, sex marital status, family, economic composition and language

2. Analyze the global trend and patterns of population growth in developing countries, and migration patterns.

3. Evaluate the population growth theory and migration theories.

4. Understand the population policies in different countries.

DEPARTMENT OF ENGLISH

PROGRAMME OUTCOMES (POs):

PO1: Critical Thinking: Apply various important critical approaches and their canons to various texts. The students will be able to implement literary critical theories and discuss literary texts among their peers. They will be able to familiarize themselves with the glossary used in criticism.

PO 2: Analytical Skills: The students will be able to analyse and evaluate different categories of literature such as short story, drama, poetry, fiction and non-fiction.

PO 3: Effective Communication: The students will be able to develop oral and written communication skills in English. They will be able to enrich their vocabulary and its usage in communication. The students will be able to apply grammatical rules to day to day spoken and written language.

PO 4: Social Interaction: The students will be able to use interpersonal and intrapersonal communication skills to interact effectively in social situations like interviews, group discussions, seminars etc.

PO 5: Effective Citizenship: The students will be able to accomplish their duties and responsibilities as citizens successfully by being a part of larger community.

PO 6: Ethics: The students will be able to identify the intricacies of human psyche through various themes and genres of literature. They will be able to develop a profound understanding of human values such as righteousness, morality, responsiveness, goodness etc.

PO 7: Environment and Sustainability: The students will become aware about the issues related to environment and the steps needed to be implemented for it sustainability through the study of Eco-Critical texts.

PO 8: Self-directed and Life-long Learning: The students will be able to grasp brilliant segments of prose and poetry in English whereby each and every unit will be a lesson in life-long learning.

PO9: Cognitive Skills: The students will be able to comprehend, learn, process and apply knowledge in day to day life.

PO10: Research Oriented Learning: Students will be able to demonstrate high-level aptitude in literary research.

PROGRAMME SPECIFIC OUTCOMES (PSOs):

PSO 1: Students will be able to understand the evolution of criticism and its application in English literature.

PSO 2: Students will be able to comprehend excellent pieces of Indian Writing in Eng.
PSO 3: Students will be able to apply knowledge of English language to improve skills in Listening, Speaking, Reading and Writing.

PSO4: Students will be able to explain different theoretical and practical aspects of language and literature teaching.

COURSE OUTCOMES (COs)

M.A. Part- I SEM- I & II
Paper : English Literature from 1550-1798

CO1. To enable learners to appreciate and enjoy a wide range of literary or creative texts and other related cultural forms.

CO2. To broaden students' awareness of the general culture of different places where English is used and enhance their appreciation and understanding of culturally diverse societies.

CO3. To sharpen students critical, creative and analytical skills and enhance their proficiency in English language.

CO4. To acquire vital employability skills and employment opportunities in the fields like teaching, media, journalism, free lance writing, film, drama etc.

Paper : English Literature from 1798-2000

CO1.To introduce students to major movements and figures of English Literature through study of selected literary texts

CO2.To create literary sensibility for appreciation in students and expose them toartistic and innovative use of language by writers and to various worldviews.

CO3. To instill values and develop human concern in students through exposure to literary texts.

CO4.To enhance literary and linguistic competence of students.

Paper : Contemporary Studies in English Language

CO1.To introduce students to the basic tools essential for systematic study of language

CO2. To acquaint students with the basic concepts and issues in linguistics

CO3. To introduce them to various sub-disciplines of linguistics

CO4. To initiate them into theoretical perspectives and enable them to apply the acquired linguistic skills in real life situations.

Paper : Literary Criticism and Theory

CO1. To introduce students to the nature, function and relevance of literary criticism and theory

CO2. To introduce them to various important critical approaches and their tenets

CO3. To encourage them to deal with highly intellectual and radical content and thereby develop their logical thinking and analytical ability

CO4. To develop sensibility and competence in them for practical application of critical approach to literary texts

M.A. Part-II- (Semester- III&IV)

Paper- Indian Writing in English

CO1. To introduce students to major movements and figures of Indian Literature in English through the study of selected literary texts

CO2. To create literary sensibility and emotional response to the literary texts and implant sense of appreciation of literary text

CO3. To expose students to the artistic and innovative use of language employed by the writers

CO4. To instill values and develop human concern in students through exposure to literary texts

CO5. To enhance literary and linguistic competence of students.

Paper : English Language and Literature Teaching

CO1. To acquaint the students with different theoretical and practical aspects of language and literature teaching.

CO2. To acquaint them with different approaches, methods and techniques of teaching English language and literature.

CO3. To sensitize the students to the major issues in ELLT in the Indian context.

Paper : Poetry in English

CO1. To introduce students to major movements related to poetry in English, works and poet through study of selected texts

CO2. To create literary sensibility for appreciation in students and expose them to artistic and innovative use of language by writers and to various worldviews

CO3 .To instill values and develop human concern in students through exposure to literary texts

CO4. To enhance literary and linguistic competence of students.

Paper : Drama in English

CO1. To introduce students to major movements related to drama, works and dramatists through study of selected texts

CO2 .To create literary sensibility for appreciation in students and expose them to artistic an innovative use of language by writers and to various worldviews

CO3. Toinstil values and develop human concern in students through exposure to literary texts

CO4. To enhance literary and linguistic competence of students.

Paper- : Research Methodology

CO1. To introduce the students to the concept of research

CO2.To enable them to understand the stages of research

CO3. To familiarize the learners to the procedures involved in research

CO4. To sensitize them to the requirements of cohesion and coherence in continuous composition.

CO5. To highlight the significance of systematic planning and execution of research activity.

CO6. To give the students practice in the use of various tools and techniques of research.

CO7. To prepare them for undertaking research.

DEPARTMENT OF HINDI

एम .ए भाग १

पेपर -१ मध्ययुगीन काव्य

१. मध्ययुगीन काव्य प्रवृतियो का परिचय दिया ।
२. मध्ययुगीन कवियो का परिचय दिया।
३. मध्ययुगीन काव्य भाषा का परिचय दिया।
४. सर्जनात्मक कौशल्य विकसित करना ।

पेपर -२ कथा साहित्य

१. उपन्यास विधा से अवगत किया ।
२. कहानी विधा से अवगत किया।
३. जीवन मूल्य से परिचित किया।
४. आलोचनात्मक दृष्टी विकसित की ।

पेपर -३ भारतीय काव्यशास्त्र

१. भारतीय काव्यशास्त्र विकास क्रम का परिचय दिया ।
२. भारतीय काव्यशास्त्र प्रमुख संप्रदायो से परिचित किया।
३. आलोचनात्मक दृष्टी विकसित की ।
४. मूल्य बोध की दृष्टी विकसित की।

पेपर ४ -नाटककार मोहन राकेश

१. नाटक के स्वरूप एवं संरचना का परिचय दिया ।
२. रंगमंच विधान का परिचय दिया ।
३. मोहन राकेश के नाटकों का परिचय दिया ।
४. नाट्य अभिनय कौशल् विकसित किये **।**

पेपर -५ कथेतर गद्य साहित्य

१. व्यंग्य निबंध रेखाचित्र और संस्मरण विधा से अवगत किया।
२. पाठ्य विधओ का भाषिक अध्ययन काराया ।
३. मौलिक लेखन कौशल विकसित किया ।

पेपर -६ शोध प्राविधि

१. छात्रो को शोध प्राविधि से अवगत किया।
२. शोध दृष्टी विकसित की ।
३. नये शोध प्रवाह का परिचय दिया।
४. शोध प्रबंध लेखन कौशल विकसित करना ।

७ . पाश्चात्य काव्यशास्त्र

१. पाश्चात्य काव्यशास्त्र के विकास क्रम का परिचय काराया।
२. पाश्चात्य चिंतको के चिंतन से अवगत काराया।
३. छात्रो को आलोचना दृष्टी दिया ।

८. हिन्दी उपन्यास साहित्य

१. हिन्दी उपन्यास साहित्य के विकासक्रम से परिचय दिया.

२. उपन्यास के आस्वादन की अध्ययन की क्षमता विकसित किया।

३. पाठ्य रचना के माध्यम से मूल्य संप्रेषित किये ।

४. मूल्यांकन की दृष्टी विकसित की ।

एम .ए भाग २

पेपर -१५ हिन्दी साहित्य का इतिहास

१ . छात्रो को गद्य निर्माण की परिस्थितियो से परिचित किया ।

२. गद्य के विकास क्रम का परिचय दिया ।

३. प्रमुख गद्याकरो का परिचय दिया ।

४. आधुनिक कविता का परिचय दिया ।

१६ लोकसाहित्य

१. छात्रो को लोकसाहित्य से परिचित किया ।
२. लोकसाहित्य के विविध विधा की जानकारी दी ।
३. लोकसाहित्य का महत्त्व विशद किया ।
४. महाराष्ट्र के लोकसाहित्य से अवगत किया।

DEPARTMENT OF HISTORY

M.A.- I : HISTORY (SEM- I):

1] History: Theory and Method

COURSE OUTCOMES (CO):

1. The paper is designed to provide adequate conceptual base, bring better understanding of history andits forces.
2. Help interrogate existing paradigms and challenge the outdated, help in developing critique.
3. Help research in terms of formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of Interdisciplinary approach.

2] Evolution of Ideas and Institutions in Early India

COURSE OUTCOMES (CO):

1. The course intends to provide an understanding of the social, economic and institutional basesof early India.
2. It is based on the premise that an understanding of early Indian history is crucialto understand Indian history as a whole.

3] Maratha Polity

COURSE OUTCOMES (CO):

1. The purpose of the course is to study the administrative system of the Marathas in an analyticalway, to acquaint the student with the nature of Maratha Polity,
2. to understand basic components ofthe Maratha administrative structure, to enable the student to understand the basic concepts of theMaratha polity.

4] History of Deccan – Pre History to Chalukyas

COURSE OUTCOMES (CO):

1. The paper is designed to make the student aware of the background of the history of the region.
2. A broad survey of the pre-history which connects with the early history is aimed at emphasising the continuities and changes in terms of geographical and cultural conditions created by the rulers.

M.A .-I (SEM-II)

1] Approaches to History

COURSE OUTCOMES (CO):

1. The paper is designed to make the student aware about the various approaches to the discipline of History.
2. With its roots in Indian history, the paper provides a historical review of the salientapproaches that have developed over the last few centuries.
3. It is hoped that the student will becomeaware of the idea that the same set of historical source materials can be interpreted in different waysdepending upon the approach one takes in studying them.

2] Ideas and Institutions in Medieval India

COURSE OUTCOMES (CO):

1. The course examines the nature of medieval Indian society, economy, state formations, and the main religious currents of the time.

2. It is seen as a continuation of the course on ancient India. It is also seen to be crucial to an understanding of the nature of society, and the problems of thechallenge to that society, through colonialism, at a later stage.

3] Socio-Economic History of the Marathas

COURSE OUTCOMES (CO):

1. The purpose of the course is to study socio-economic history of the Marathas in an analytical way.
2. To acquaint the student with the components of social structure and their functions, tounderstand the relationship between religion, caste, customs, traditions, class in 17th and 18thcentury Maratha Society, to enable the student to understand aspects of economic life, to tracethe determinants of changes in social and economic life.

4] Marathas in 17th and 18th Century: Power Politics

COURSE OUTCOMES (CO):

1. The course intends to study the role played by the Marathas in the context of India, the changingnature of Maratha State.
2. To understand and analyse the Maratha expansionism and itssignificance in various spheres.

M.A .-II, (Semester III)

1] Course Title: Cultural History of Maharashtra

COURSE OUTCOMES (CO):

1. This paper is designed to help the student situate and interpret the cultural manifestations across historical memory which have contributed to the creation of the geopolitical region of Maharashtra.

2] Course Title: Intellectual History of Modern World

COURSE OUTCOMES (CO):

1. The paper is seen as a prerequisite for understanding the concepts that are used in history, to acquaint the student with the intellectual activity that played an important role in shaping events; the transition from medieval to modern times.

3] Course Title: Economic History of Modern India

COURSE OUTCOMES (CO):

1. To acquaint the student with structural and conceptual changes in Indian economy after coming of the British, to make them aware of the exploitative nature of the British rule.
2. To help them understand the process of internalization by Indians of new economic ideas, principles and practices. Content 1. European economic interests in India and

4] Title: Dissertation

COURSE OUTCOMES (CO):

1. The students will select a theme for their dissertationin consultation with the teacher.
2. They will work throughout the semester on the chosen topic. The Departmental Committee will assign a teacher to the student.

M.A .-II, (Semester IV):

1] Modern Maharashtra: A History of Ideas (1818-1960)

COURSE OUTCOMES (CO):

1. The paper aims to let the students explore the ideas which have given Maharashtra its unique character.

2. It also hopes to offer a specialized knowledge of the Intellectual History of Maharashtra based on a critical reading of the original textual sources.

2] Debates in Indian Historiography

COURSE OUTCOMES (CO):

1. The course is designed to introduce the student to some of the issues that that have been debated by historians and to introduce some perspectives with reference to Indian History.

3] World after World War II (1945-2000)

COURSE OUTCOMES (CO):

1. To acquaint the student with the post-World War II scenario and to enable them to understand contemporary world from the historical perspective.

4] History of Modern India (1857-1971)

COURSE OUTCOMES (CO):

1. The purpose of this course is to enable the student to study the history of 'Modern India' from an analytical perspective; to make the student aware of the multi-dimensionality of Modern India.
2. To highlight the ideas, institutions, forces and movements that contributed to the shaping of Indian modernity; to acquaint the student with various interpretative perspectives.
3. To help them in articulating their own ideas and views leading to research orientation.

DEPARTMENT OF ECOMOMICS

M.A.I and II ECONOMICS:

MACRO ECONOMICS ANALYSIS

CO1. To provide a thorough understanding of the principles of macroeconomics and the application of macroeconomic concepts in real-life situations.

CO 2. To discuss the modern developments in macroeconomics.

CO3 Ability to analyze and demonstrate knowledge of the basic theories/laws in macroeconomics.

CO4 At the end of the course, the student should be able to evaluate macroeconomic concepts, models and its use in real life situations.

GROWTH AND DEVELOPMENT

CO 1. To enable learning and understanding of the basic concepts and process to measure the growth and economic development etc.

CO 2 To analyze and evaluate the obstacles in the process of economic growth and development

CO3 Ability to apply the concepts of economic growth and compare international comparison of economic development, etc.

CO4 Ability to analyze and demonstrate knowledge of the economic growth and development theories of economic growth and development

RESEARCH METHODOLOGY

CO1. To enable an understanding of Research and its methods under various areas of economics.

CO 2 To demonstrate the practical and the applied aspects of research in relation to Economics.

CO3 Ability to develop, demonstrate and examine topics under Economics to pursue research.

CO4 Ability to evaluate and examine subject areas in economics and explore possibilities of research.

INDUSTRIAL ECONOMICS

CO1. To provide an understanding of Industry, Industrial sector and growth and its relation to various economic issues and challenges.

CO2. To demonstrate the practical and the applied aspects of Industrial economics and the study of Industry and its relation to Economics.

CO3. Ability to develop, demonstrate and examine various topics under Industrial Economics.

CO4. Ability to evaluate and examine subject areas in economics bringing out the relation to industry and industrial development.

DEPARTMENT OF COMMERCE

BUSINESS ADMINISTRATION

PROGRAMME OUTCOMES:

PO-1 :To equip and train Post Graduate students to accept the challenges of business world by providing opportunities for study and analysis of advanced commercial and business methods and processes.

PO-2 : To develop independent logical thinking and facilitate personality development.

PO-3 : To equip the students to seek suitable careers in management and entrepreneurship.

PO -4 :To acquaint students with significance of research in business.

PO-5 : To impart skills regarding methods of data collection and their interpretations.

PO- 6 : To develop communication and analytical skills among students.

PROGRAMME SPECIFIC OUTCOMES:

PSO 1 : The students can get the knowledge, skills and attitudes during the end of the B.com degree course.

PSO 2 : By goodness of the preparation they can turn into a Manager, Accountant , Management Accountant, cost Accountant, Bank Manager, Auditor, Company Secretary, Teacher, Professor, Stock Agents, Government employments and so on

PSO 3 : Students will prove themselves in different professional exams like C.A. , C S, CMA, MPSC, UPSC. As well as other coerces

PSO 4 : The students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities

PSO 5 : Students will gain thorough systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication, computer.

PSO 6 : Students can also get the practical skills to work as accountant, audit assistant, tax consultant, and computer operator. As well as other financial supporting services.

PSO 7 : Students will learn relevant Advanced accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

PSO 8 : Students will be able to do their higher education and can make research in the field of finance and commerce.

COURSE OUTCOME (COS)

Management Accounting

CO 1 To enhance the abilities of learners to develop the concept of management accounting and its significance in the business.

CO 2 To enhance the abilities of learners to analyze the financial statements.

CO 3 To enable the learners to understand, develop and apply the techniques of management accounting in the financial decision making in the business corporates.

CO 4 To make the students develop competence with their usage in managerial decision making and control

Strategic Management

CO 1 To introduce the students to the emerging changes in the modern business environment

CO 2 To develop the analytical , technical and managerial skills of students in the various areas of Business Administration

CO 3 To empower to students with necessary skill to become effective future managers and leaders

CO 4 To develop Technical skills among the students for designing and developing effective Functional strategies for growth and sustainability of business

Production & Operation Management

CO 1 To understand and develop deep insight of Production & Operation Management.

CO 2 To understand & identity business problems involving operational function, planning and control, design development and quality management.

CO 3 Demonstrate awareness and importance of application, operation and supply chain management. CO 4 To develop skills necessary to effectively analyze and synthesize the many inter relationship inherent in complex socio-economic productive systems.

CO 5 To increase the knowledge and perspective to gain from emerging trends in production and operation management.

Financial Management

CO 1 To acquaint the student with knowledge of various Financial Management terminologies (Investment ,Credit Planning , Working Capital Management

CO 2 To understand the concepts relating to Financing & Financial Statement Analysis

CO 3 To utilize the information gathered to reach an optimum conclusion by a process of reasoning

CO 4 To enable the students to use their learning to evaluate , make decisions and provide recommendations

Financial Analysis & Control

CO 1 To enable the students to acquire knowledge of financial analysis and control tools

CO 2 To Make appropriate application and uses of financial analysis and control

Industrial Economics

CO 1 To make the students understand concepts of industrial economics

CO 2. To help the students know theories of industrial economics

CO 3. To impart students' knowledge about sources of industrial finance and Indian industrial growth

Business Ethics & Professional Values

CO 1 To raise the students general awareness on the ethical dilemmas at work place

CO 2. To understand the differing perceptions of interest in business related solutions

CO 3. To present the concept of Corporate Social Responsibility and explore its relevance to ethical obligations and ethical ideals present in the relationship between employers and employees

CO 4. To investigate whether ethics set any boundaries on competition , marketing, sales and advertising

CO 5. To enable students to validate or correct , personal ideas about various ethical perspectives

CO 6. To enable students to develop their own considered judgment about issues in Business Ethics

CO 7. To foster more careful, disciplined thinking in trying to resolve issues in business ethics

CO 8. To prepare students to play a constructive role in improving the sustainable development with which they may become involved

Elements of Knowledge Management

CO 1To develop Analytical and Research oriented skills among the students.

CO 2 To understand value application and relevance of Knowledge management in today's corporate world.

CO 3 To promote research and innovation ideas based on Knowledge Management.

CO 4 To enhance knowledge level and practice of linking theoretical background with applied Social Science.

BUSINESS FINANCE

CO 1 To acquaint the students with corporate finance required for Indian Industries.

CO 2. To make the students aware about the latest developments in the field of corporate finance.

CO 3. To enable the students to understand the traditional theories of capitalization and dividend distribution practices.

CO 4. To give detail exposure of working capital management practice of finance to students Skills to be developed:

RESEARCH METHODOLOGY FOR BUSINESS

CO 1 To acquaint the students with the areas of Business Research Activities

CO 2 To enhance capabilities of students to conduct the research in the field of business and social sciences

CO 3 To enable students in developing the most appropriate methodology for their research studies

CO 4 To make them familiar with the art of using different research methods and techniques

Human Resource Management

CO 1 To understand the basic concepts of Human Resource Management and changing role of HRM in business.

CO 2 To impart adequate knowledge and analytical skills in the field of HRM, HRP and development, Recruitment and Selection Process.

CO 3 To understand the concepts of Training and Development, Performance Appraisal and Merit Rating.

CO 4 To expose the students to the concept, significance and uses of the concepts like Retirement/ Retrenchment Strategies and Recent Trends in HRM

CO 5 To know the concept of Competency mapping

CO 6 To understand the E-HR and recent trends in Human Resource management.

Organizational Behaviour

CO 1 To make the students understand various concepts of organization behaviour

CO 2. To provide in depth knowledge about process of formation of group behaviour in an organization set up

CO 3 To know the motivational process and emotional intelligence.

CO 4 To understand the concept of stress and conflict and effects of work culture

Capital Market and Financial Services

CO 1. To acquaint the students with working of capital market.

CO 2. To make the students aware about the latest developments in the field of capital market in India. CO 3. To enable the students to understand various transactions in stock exchanges and agencies involved in it.

CO 4. To give exposure of financial services offered by various agencies and financial adviser to students.

Industrial Economic Environment

CO 1 To provide knowledge about basic issues in Industrial Economic Environmentto students.

CO 2. To make students aware about Industrial patternand growth in India and Industrial policies of India since independence.

CO 3. To study the progress and current problems of major industries in India

Recent Advances in Business Administration

CO 1. To familiarize the students with the recent advancements in business administration

CO 2. To develop an understanding about tools and their application in the business.

CO 3. To understand the basic concepts of Change Management and their approaches.

CO 4.To impart adequate knowledge and analytical of cross cultural Management.

CO 5. To impart the basic concept and strategies of customer centric Management.

CO 6. To expose the students to the concept, Innovation Management