PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

B.Com.– 3 Years Undergraduate programme

Programme Outcomes (PO)

PO1. The students after the completion of this programme will be enabled to overcome the challenges and cash in the opportunities in the field of commerce.

PO2. The students after the completion of this programme will become well prepared to take up various professional assignments, engagements and jobs in medium to large scale business establishments, industries, commercial set-ups and other public/private commercial sectors like banking, stockexchange, insurance, NBFCs as accountants, investment bankers, business analysts, finance officers, business / financial advisors etc.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively throughspeaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people,media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning

Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will become well versed with financial accounting.

PSO2. The students after the completion of this programme will become well versed with business communication.

PSO3. The students after the completion of this programme will be able to understand business mathematics.

PSO4. The students after the completion of this programme will be able to understand business regulatory framework.

PSO5. The students after the completion of this programme will be able to identify a business environment.

PSO6. The students after the completion of this programme will be able to understand the economics of a business.

PSO7. The students after the completion of this programme will be able to understand the essentials of corporate accounting.

PSO8. The students after the completion of this programme will be able to understand the essentials of company law.

PSO9. The students after the completion of this programme will be able to understand the essentials of cost accounting.

PSO10. The students after the completion of this programme will be able to understand the principles of business management.

PSO11. The students after the completion of this programme will be able to understand the essentials of business statistics.

PSO12. The students after the completion of this programme will be able to understand the fundamentals of entrepreneurship.

PSO13. The students after the completion of this programme will be able to understand the principles of direct taxation – income tax.

PSO14. The students after the completion of this programme will be able to recognize the procedures of auditing.

PSO15. The students after the completion of this programme will be able to understand the essentials, principles and procedures of indirect taxation and GST.

PSO16. The students after the completion of this programme will be able to understand the essentials of management accounting.

PSO17. The students after the completion of this programme will be able to understand the fundamentals of insurance.

PSO18. The students after the completion of this programme will be able to understand the essentials of banking and money management.

Course Outcomes (CO)

Course 1: Financial Accounting

CO1. The students after the completion of this course will be able to impart the knowledge of various accounting concepts.

CO2. The students after the completion of this course will be able to instill the knowledge about accounting procedures, methods and techniques & develop skills for computerized Accounting.

Course 2: Business Communication

CO1. The students after the completion of this course will be able to understand the concept, process and importance of communication.

CO2. The students after the completion of this course will be able to develop awareness regarding new trends in business communication.

CO3. The students after the completion of this course will be able to recognize various media of communication.

Course 3: Business Mathematics

CO1. The students after the completion of this course will be able to prepare for competitive exams.

CO2. The students after the completion of this course will be able to improve their calculating power & skills.

CO3. The students after the completion of this course will be able to understand the concept of simple interest, compound interest & concept of EMI etc.

Course 4: Business Regulatory Framework

CO1. The students after the completion of this course will be acquainted with the basic concepts, terms & Provisions of Mercantile & Business Laws.

CO2. The students after the completion of this course will be able to develop the awareness regarding laws affecting business, trade & commerce.

Course 5: Business Environment

CO1. The students after the completion of this course will become aware about the Business Environment.

CO2. The students after the completion of this course will be able to create entrepreneurial awareness. **CO3.** The students after the completion of this course will be able to motivate themselves for taking up entrepreneurship as career.

Course 6: Business Economics

CO1. The students after the completion of this course will be able to use various economic theories. **CO2.** The students after the completion of this course will be able to apply economic reasoning to problems of business.

CO3. The students after the completion of this course will be able to understand the basic micro economic concepts.

Course 7: Corporate Accounting

CO1. The students after the completion of this course will be enabled to develop awareness about corporate accounting with the provisions of companies Act & Accounting as per Indian Accounting standards.

CO2. The students after the completion of this course will be enabled to develop conceptual aspect of corporate accounting & develop skills about accounting standards.

Course 8: Company Law

CO1. The students after the completion of this course will be able to impart the knowledge of fundamentals of company law.

CO2. The students after the completion of this course will be able to update the knowledge of provisions of the companies Act of 2013.

Course 9: Cost Accounting

CO1. The students after the completion of this course will be enabled with the knowledge of Basic cost concepts, Elements of cost, Ascertainment of materials, labours costing and cost control.

CO2. The students after the completion of this course will be able to understand various methods of costing & their applications.

Course 10: Principal of Business Management

CO1. The students after the completion of this course will be able to understand about business management concept.

CO2. The students after the completion of this course will be able to understand about various functions of business management.

Course 11: Business Statistics

CO1. The students after the completion of this course will be able to understand & apply the concepts of mean, mode & median.

CO2. The students after the completion of this course will be able to apply various methods of sampling & probability measurement etc.

Course 12: Fundamentals of Entrepreneurship

CO1. The students after the completion of this course will be able to create entrepreneurial temper.

CO2. The students after the completion of this course will be able to take up the cause of entrepreneurship

CO3. The students after the completion of this course will be able to motivate themselves for taking up entrepreneurship as career.

Course 13: Income Tax

CO1. The students after the completion of this course will be able to understand the basic concept & acquire knowledge about computation of Income.

CO2. The students after the completion of this course will be enabled to submit Income Tax Returns, Advance Tax & Tax deducted at source

CO3. The students after the completion of this course will be able to identify the procedures of Tax collection authorities under Income Tax Act.

Course 14: Auditing

CO1. The students after the completion of this course will be able to acquaint themselves about concept & principles of Auditing, Audit process, Assurance standards & Tax Audit and Audit of computerized system.

CO2. The students after the completion of this course will be able to prepare Audit Reports.

Course 15: Indirect Taxes with GST

CO1. The students after the completion of this course will be able to understand and apply the concept of GST.

CO2. The students after the completion of this course will be able to understand and apply the concept of Excise duty, CENVAT.

CO3. The students after the completion of this course will be able to understand and apply the knowledge of Registration under GST including its procedures & the liable person for GST registration.

Course 16: Management Accounting

CO1. The students after the completion of this course will be able to understand and apply the basic knowledge of management accounting & its relevance in a business organization.

CO2. The students after the completion of this course will be able to understand and apply managerial behavior & control structures prevalent under varied business environment.

Course 17: Principles of Marketing

CO1. The Objective of this course is to help students to understand the concept of marketing and its applications.

Course 17: International Marketing

CO1. This course aims at acquainting student with the operations of marketing in international environment.

B.Sc. (Maths Group) – 3 years Undergraduate programmeProgramme Outcomes (PO)

PO1. The undergraduate programme in Mathematics / Physics / Chemistry/Computer Science is aimed at providing the students necessary inputs so as to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in Mathematics / Physics / Chemistry/Computer

Science becomes in tune with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. It is desired that undergraduate programme in Mathematics/Physics /Chemistry/Computer Science besides teaching the basic concepts of Mathematics / Physics/Chemistry/Computer Science should in addition have broader vision for students so that the students therefore be exposed to societal interface of Mathematics/Physics/Chemistry/Computer Science and the role of Mathematics/Physics /Chemistry/Computer Science in the development of physical, chemical and mathematical sciences &technologies.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively throughspeaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people,media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will be able to understand and apply the fundamentals of Mechanics, Oscillation and Properties of Matter.

PSO2. The students after the completion of this programme will be able to understand and apply the fundamentals of Electricity, Magnetism and Electromagnetic Theory.

PSO3. The students after the completion of this programme will be able to understand and apply the fundamentals of Thermodynamics, Kinetic Theory and Statistical Physics.

PSO4. The students after the completion of this programme will be able to understand and apply the fundamentals of Wave, Acoustics and Optics.

PSO5. The students after the completion of this programme will be able to understand and apply the fundamentals of Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics.

PSO6. The students after the completion of this programme will be able to understand and apply the

fundamentals of Solid State Physics, Solid State Devices and Electronics.

PSO7. The students after the completion of this programme will be able to understand and apply the fundamentals ofAlgebra & Trigonometry.

PSO8. The students after the completion of this programme will be able to understand and apply the fundamentals of Calculus.

PSO9. The students after the completion of this programme will be able to understand and apply the fundamentals of Vector Analysis & Geometry.

PSO10. The students after the completion of this programme will be able to understand and apply the fundamentals of Advanced Calculus.

PSO11. The students after the completion of this programme will be able to understand and apply the fundamentals of Differential Equations.

PSO12. The students after the completion of this programme will be able to understand and apply the fundamentals of Mechanics.

PSO13. The students after the completion of this programme will be able to understand and apply the fundamentals of Analysis.

PSO14. The students after the completion of this programme will be able to understand and apply the fundamentals of Abstract Algebra.

PSO15. The students after the completion of this programme will be able to understand and apply the fundamentals of Advanced Discrete Mathematics.

PSO16. The students after the completion of this programme will be able to understand and apply the fundamentals of Inorganic Chemistry.

PSO17. The students after the completion of this programme will be able to understand and apply the fundamentals of Organic Chemistry.

PSO18. The students after the completion of this programme will be able to understand and apply the fundamentals of Physical Chemistry.

Course Outcomes (CO)
Course 1: Mechanics, Oscillation and Properties of Matter

CO1. The students after the completion of this course will be able to understand laws of motion and their application to various dynamical situations, notion of inertial frames and concept of Galilean invariance. Learn the concept of conservation of energy, momentum, angular momentum and apply them to basic problems.

CO2. The students after the completion of this course will be able to understand expression for the moment of inertia about the given axis of symmetry for different uniform mass distributions.

CO3. The students after the completion of this course will be able to understand and apply the principles of elasticity, viscosity and surface tension.

CO4. The students after the completion of this course will be able to understandand apply Kepler's law to

describe the motion of planets and satellite in circular orbit, through the study of law of Gravitation.

CO5. The students after the completion of this course will be able to explain the phenomena of simple harmonic motion and the properties of systems executing such motions.

Course 2: Electricity, Magnetism and Electromagnetic Theory

CO1. The students after the completion of this course will be able todemonstrate Gauss law, Coulomb's law for the electric field, and apply it to systems of point charges as well as line, surface, and volume distributions of charges.

CO2. The students after the completion of this course will be able to demonstrate a working understanding of capacitors.

CO3. The students after the completion of this course will be able to describe the magnetic field produced by magnetic dipoles and electric currents and explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields.

CO4. The students after the completion of this course will be able to apply various network theorems and their applications.

Course 3: Thermodynamics, Kinetic Theory and Statistical Physics

CO1. The students after the completion of this course will be able to describe the basic concepts of laws of thermodynamics, the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.

CO2. The students after the completion of this course will be able to describe about Maxwell's thermodynamic relations.

CO3. The students after the completion of this course will be able to describe the basic aspects of kinetic theory of gases, Maxwell-Boltzmann distribution law, equitation of energies, mean free path of molecular collisions etc.

CO4. The students after the completion of this course will be able to describe the about the real gas equations, Vander Waal equation of state, the Joule- Thompson effect etc.

Course 4: Wave, Acoustics and Optics

CO1. The students after the completion of this course will be able to describe the principle of superposition of waves and thus describe the formation of standing waves.

CO2. The students after the completion of this course will be able to apply basic knowledge of principles and theories about the behavior of light and the physical environment to conduct experiments.

CO3. The students after the completion of this course will be able to use the principles of wave motion and superposition to explain the physics of polarization, interference and diffraction.

CO4. The students after the completion of this course will be able to describe the working of selected optical instruments like biprism, interferometer, diffraction grating, and holograms.

CO5. The students after the completion of this course will be able to describe the spontaneous and stimulated emission of radiation, optical pumping and population inversion as well as Ruby laser and HeNe

laser.

Course 5: Relativity, Quantum Mechanics, Atomic, Molecular and Nuclear Physics

CO1. The students after the completion of this course will be able to describe the main aspects of the inadequacies of classical mechanics and understand historical development of quantum mechanics and ability to discuss and interpret experiments thatreveal the dual nature of matter.

CO2. The students after the completion of this course will be able to describe the theory of quantum measurements, wave packets and uncertainty principle.

CO3. The students after the completion of this course will be able to describe the central concepts of quantum mechanics and the Schrodinger equations.

CO4. The students after the completion of this course will be able to describe the properties of nuclei and structure of atomic nucleus.

CO5. The students after the completion of this course will be able to calculate the decay rates and lifetime of radioactive decays.

CO6. The students after the completion of this course will be able to describe the fission and fusion as well as nuclear processes to produce nuclear energy in nuclear reactor and stellar energy in stars.

Course 6: Solid State Physics, Solid State Devices and Electronics

CO1. The students after the completion of this course will be able to describe the crystalline and amorphous substances and diffraction of X-rays by crystalline materials.

CO2. The students after the completion of this course will be able to describe the lattice vibrations, phonons and in depth of knowledge of Einstein and Debye theory of specific heat of solids.

CO3. The students after the completion of this course will be able to describe the band theory of solids and must be able to differentiate insulators, conductors and semiconductors.

CO4. The students after the completion of this course will be able to describe the N- and P- type semiconductors, P-N junctions, application of PN junction for different type of rectifiers and voltage regulators.

CO5. The students after the completion of this course will be able to describe the PNP and NPN transistors and their applications as amplifiers and oscillators.

Course 7: Algebra & Trigonometry

CO1. The students after the completion of this course will be able to describe Group theory, Ring theory, Vector Space, Modules.

CO2. The students after the completion of this course will be able tofind the inverse of matrix, Canonical form and apply the Clayey – Hamilton theorem.

CO3. The students after the completion of this course will be able to describe that every problem can be solved as every theorem in Group theory and Ring theory has its proof and solution.

CO4. The students after the completion of this course will be able to apply de-moivre's theorem to solve related problems.

Course 8: Calculus

CO1. The students after the completion of this course will be able to test the continuity and differentiability of functions of one variable.

CO2. The students after the completion of this course will be able to calculate and solve the definite and indefinite integrals.

CO3. The students after the completion of this course will be able to find the Maclaurin and Taylor's series of functions at any value.

Course 9: Vector Analysis & Geometry

CO1. The students after the completion of this course will be able to determine &calculate vector and scalars, dot and cross products.

CO2. The students after the completion of this course will be able to solve and verify Gauss, Creeno and Stokes theorem.

CO3. The students after the completion of this course will be able to solve Vector Integration and differentiation.

CO4. The students after the completion of this course will be able to describe Cone, Sphere, Cylinder, Generating Lines, Straight line, Plane etc.

Course 10: Advanced Calculus

CO1. The students after the completion of this course will be able to determine the series and alternating series. Different types of tests to solve the series.

CO2. The students after the completion of this course will be able to determine Jacobian of two and three variables.

CO3. The students after the completion of this course will be able to find the limit of a function of one and two and test its continuity and differentiability.

CO4. The students after the completion of this course will be able to determine the Beta – Gamma functions and solve the double and triple integrations.

Course 11: Differential Equations

CO1. The students after the completion of this course will be able to solve the ordinary and partial differential equations.

CO2. The students after the completion of this course will be able to compute the Laplace and Inverse Laplace transformation of the given equation.

CO3. The students after the completion of this course will be able to describe and solve differential equations.

Course 12: Mechanics

CO1. The students after the completion of this course will be able to find the velocity and acceleration of a moving particle.

CO2. The students after the completion of this course will be able to compute the equilibrium condition of particle.

CO3. The students after the completion of this course will be able to describe the attraction and potential of different particles (Moving and Static)

Course 13: Analysis

CO1. The students after the completion of this course will be able to determine the Fourier series of full and half range of any function of one variable.

CO2. The students after the completion of this course will be able to apply Schwarz and Young's theorem on various functions.

CO3. The students after the completion of this course will be able to analyze all type of trigonometric real functions.

Course 14: Abstract Algebra

CO1. The students after the completion of this course will be able to use various forms of "Sylow theorem" to identify the whole structure of group.

CO2. The students after the completion of this course will be able to analyze Groups, Sub-groups, Normal Sub-groups, and Semi-groups etc.

CO3. The students after the completion of this course will be able to determine inner product of two Vectors, and Inner product space.

CO4. The students after the completion of this course will be able to analyze Vector space, Ring, their types, modules, ideals etc.

Course 15: Advanced Discrete Mathematics

CO1. The students after the completion of this course will be able to describe Graphs, Trees, Spanning Trees, Circuits, finite state machine and their types.

CO2. The students after the completion of this course will be able to describe the difference between Mealy and Moore machine.

CO3. The students after the completion of this course will be able to compute the output of a finite state machine corresponding to their next state of the given input.

Course 16: Inorganic Chemistry

CO1. The students after the completion of this course will be able to describe Atomic Structure, Periodic Properties.

CO2. The students after the completion of this course will be able to describe Chemical Bonding.

CO3. The students after the completion of this course will be able to describe S-Block Elements, Chemistry of Noble Gases.

CO4. The students after the completion of this course will be able to describe P-Block Elements, Inorganic Chemical Analysis.

CO5. The students after the completion of this course will be able to describe Chemistry of Elements of First Transition Series.

CO6. The students after the completion of this course will be able to describe Chemistry of Elements of Second & Third Transition Series.

CO7. The students after the completion of this course will be able to describe Oxidation and Reduction, Coordination Compounds.

CO8. The students after the completion of this course will be able to describe Chemistry of Lanthanide Elements, Chemistry of Actinides.

CO9. The students after the completion of this course will be able to describe Acids and Bases, Non Aqueous Solvents.

CO10. The students after the completion of this course will be able to describe Metal-Ligand Bonding in Transition Metal Complexes.

CO11. The students after the completion of this course will be able to describe Magnetic Properties of Transition Metal Complexes.

CO12. The students after the completion of this course will be able to describe Organometallic Chemistry.

CO13. The students after the completion of this course will be able to describe Bioinorganic Chemistry.
CO14. The students after the completion of this course will be able to describe Hard and Soft Acids and Bases (HSAB).

Course 17: Organic Chemistry

CO1. The students after the completion of this course will be able to describe Electronic structure & bonding, mechanism of organic reactions.

CO2. The students after the completion of this course will be able to describe Stereochemistry of organic compounds.

CO3. The students after the completion of this course will be able to describe Aliphatic and aromatic ring compounds.

CO4. The students after the completion of this course will be able to describe Alkenes, dienes and alkynes.

CO5. The students after the completion of this course will be able to describe Arenes and aromaticity.
CO6. The students after the completion of this course will be able to describe Alcohols, phenols,epoxides.

CO7. The students after the completion of this course will be able to describe Aldehydes and ketones.
CO8. The students after the completion of this course will be able to describe Carboxylic acids, substituted carboxylic acids, and carboxylic acid derivatives.

CO9. The students after the completion of this course will be able to describe Organic compounds of nitrogen.

CO10. The students after the completion of this course will be able to describe Heterocyclic compounds, amino acids and peptides.

CO11. The students after the completion of this course will be able to describe organometallic compounds, organosulphur compounds, and organic synthesis via enolates.

CO12. The students after the completion of this course will be able to describe Biomolecules, carbohydrates, proteins and nucleic acids.

CO13. The students after the completion of this course will be able to describe Synthetic polymers, synthetic dyes.

CO14. The students after the completion of this course will be able to describe Spectroscopy, mass spectroscopy, infra-red spectroscopy, uv-visible spectroscopy, nmr-spectroscopy, cmr-spectroscopy, magnetic resonance imaging (MRI).

Course 18: Physical Chemistry

CO1. The students after the completion of this course will be able to describe Mathematical concepts for chemist and computer.

CO2. The students after the completion of this course will be able to describe Molecular velocities.

CO3. The students after the completion of this course will be able to describe Liquid state.

CO4. The students after the completion of this course will be able to describe Liquid crystals, colloidal state, and solid state.

CO5. The students after the completion of this course will be able to describe Chemical kinetics, catalysis.

CO6. The students after the completion of this course will be able to describe Thermo chemistry.

CO7. The students after the completion of this course will be able to describe Laws of thermodynamics.
CO8. The students after the completion of this course will be able to describe Phase equilibrium.

CO9. The students after the completion of this course will be able to describe Electrochemistry.

CO10. The students after the completion of this course will be able to describe Electrochemical cell or galvanic cell.

CO11. The students after the completion of this course will be able to describe Quantum mechanics.

CO12. The students after the completion of this course will be able to describe Quantum mechanical approach of molecular orbit theory.

CO13. The students after the completion of this course will be able to describe Spectroscopy, electromagnetic radiation, vibrational spectra, and Raman spectra.

CO14. The students after the completion of this course will be able to describe Electronic spectra, photochemistry.

CO15. The students after the completion of this course will be able to describe Thermodynamics,physical properties and molecular structure, magnetic properties. the program's student outcomes and to the discipline. ⬚ After studying one will be able to find a root of a given equation and will be able to find a numerical solution for a given differential equation.

Course 19: Computer Science

The objective of department is to provide quality education to the students in the field of computer science. At the same time, department also supports the students to do versatile projects which helps them in their future research. Department also tries to form a bridge between Computer technology and institute. The faculties of department actively participate in all activities of college and encourage students to increase their participation as well. The department provides academic and non- academic support to the students. The department tries to penetrate the scientific principles of mathematics in the students as well as provides them complete placement assistance.

Course Outcome (CO):

CO.1 To develop in the students, the ability to acquire knowledge of Mathematics, Science and computer technology

CO.2 An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

CO.3 An ability to design, implements, and evaluate a computer-based system, process, component, or program to meet desired needs.

CO.4 An ability to function effectively on teams to accomplish a common goal.

CO.5 An understanding of professional, ethical, legal, security and social issues and responsibilities. An ability to communicate effectively with a wide range of audiences.

CO.6 An ability to apply knowledge of computing and mathematics appropriate to the discipline.

CO.7 After studying one will be able to find a root of a given equation and will be able to find a numerical solution for a given differential equation.

B.Sc. (Bio Group) – 3 years Undergraduate programme
Programme Outcomes (PO)

PO1. The undergraduate programme in Zoology / Botany / Microbiology is aimed at providing the students necessary inputs so as to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in Zoology / Botany / Chemistry becomes in tune

with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. The undergraduate programme in Zoology / Botany / Chemistry besides teaching the basic concepts of Zoology / Botany / Chemistry should in addition have broader vision for students so that thestudents therefore be exposed to societal interface of Zoology / Botany / Chemistry and the role of Zoology / Botany / Chemistry in the development of biological sciences.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively throughspeaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people,media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will be able to understand and apply the knowledge of Cell Biology & Invertebrates.

PSO2. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrates & Embryology.

PSO3. The students after the completion of this programme will be able to understand and apply the knowledge of Anatomy & Physiology.

PSO4. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrate Endocrinology, Reproductive Biology Behavior, Evolution and Applied Zoology.
PSO5. The students after the completion of this programme will be able to understand and apply the knowledge of Ecology, Environmental biology; Toxicology; Chemistry and Medical Zoology.

PSO6. The students after the completion of this programme will be able to understand and apply the knowledge of Genetics, Cell Physiology.

PSO7. The students after the completion of this programme will be able to understand and apply the knowledge of General Diversity of Microbes and Cryptogams.

PSO8. The students after the completion of this programme will be able to understand and apply the knowledge of Cell Biology and Genetics.

PSO9. The students after the completion of this programme will be able to understand and apply the knowledge of Diversity of Seed Plants and their Systematics.

PSO10. The students after the completion of this programme will be able to understand and apply the knowledge of Structure Development and Reproduction in Flowering Plants.

PSO11. The students after the completion of this programme will be able to understand and apply the knowledge of Plant Physiology, Biochemistry and Biotechnology.

PSO12. The students after the completion of this programme will be able to understand and apply the knowledge of Ecology and Utilization of Plants.

PSO13. The students after the completion of this programme will be able to understand and apply the fundamentals of Biochemistry and Immunology.

Course Outcomes (CO)
Course 1: Cell Biology & Invertebrates

CO1. The students after the completion of this course will be able to describe Prokaryotic & Eukaryotic Cells.

CO2. The students after the completion of this course will be able to describe Cell divisions (Mitosis & Meiosis).

CO3. The students after the completion of this course will be able to describe general characteristics &classification of invertebrates.

CO4. The students after the completion of this course will be able to describe Helminthes & Annelida.

CO5. The students after the completion of this course will be able to describe Mollusca, Protochordata.

Course 2: Vertebrates & Embryology

CO1. The students after the completion of this course will be able to describe the origin and classification of Chordates.

CO2. The students after the completion of this course will be able to describe Fishes, Amphibia & Reptilia.

CO3. The students after the completion of this course will be able to describe Aves & Mammals.

CO4. The students after the completion of this course will be able to describe Gametogenesis, Fertilization &Parthenogenesis, and Development of frog upto formation of three germ layers.

CO5. The students after the completion of this course will be able to describe development of Chick upto formation of three germ layers, Extra embryonic membranes, Placenta in mammals.

Course 3: Anatomy & Physiology

CO1. The students after the completion of this course will be able to describe anatomy of various organ systems of vertebrates - Integument and its derivatives, structure of scales, hair and feathers; Alimentary canal and digestive glands in vertebrates; Respiratory Organs, Gills and lungs; Air-Sac in birds.

CO2. The students after the completion of this course will be able to describe endoskeleton-limbs, girdles and vertebrae; Circulatory System - Evolution of heart and aortic arches; Urogenital System - Kidney and excretory ducts.

CO3. The students after the completion of this course will be able to describe nervous system - general plan of brain and spinal cord; Endocrine glands - classification and histology; Gonads and genital ducts.

CO4. The students after the completion of this course will be able to describe digestion and absorption of dietary components; physiology of heart, cardiac cycle and ECG; blood coagulation; respiration mechanism and control of breathing.

CO5. The students after the completion of this course will be able to describe physiology of excretion, osmoregulation; physiology of muscle contraction; physiology of nerve impulse; synaptic transmission; ear and eye - structure and function.

Course 4: Vertebrate Endocrinology, Reproductive Biology Behavior, Evolution and Applied Zoology

CO1. The students after the completion of this course will be able to describe general characters of hormones, hormone receptors, biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones, endocrine disorder due to hormones and other glands.

CO2. The students after the completion of this course will be able to describe reproductive cycle in vertebrates, menstruation, lactation and pregnancy, mechanism of parturition, hormonal regulation of gametogenesis, extra embryonic membrane.

CO3. The students after the completion of this course will be able to describe evidences of organic evolution, theories of organic evolution, variation, mutation, isolation and natural selection, evolution of horse.

CO4. The students after the completion of this course will be able to describe ethology, patterns of behavior taxes, reflexes, drives and stereotyped behavior, reproductive behavioral patterns, hormones, drugs and behavior.

CO5. The students after the completion of this course will be able to describe aquaculture, sericulture, apiculture, pisciculture, poultry keeping, elements of pest control - chemical control &biological control.

Course 5: Ecology, Environmental biology; Toxicology; Microbiology and Medical Zoology

CO1. The students after the completion of this course will be able to describe aims and scopes of ecology, major ecosystems of the world, population- characteristics and regulation of densities, communities and ecosystems, biogeochemical cycles, air and water pollution, ecological succession.

CO2. The students after the completion of this course will be able to describe environmental biology, laws of limiting factors, food chain in a freshwater ecosystem, energy flow in ecosystem-trophic levels, conservation of natural resources, environmental impact assessment.

CO3. The students after the completion of this course will be able to describe toxicology, definition of toxicity, classification of toxicants, principle of systematic toxicology, toxic agents and their actionmetallic and inorganic agents, animal poisons - snake-venom, scorpion and bee poisoning, food poisoning.

CO4. The students after the completion of this course will be able to describe microbiology, general and applied microbiology, microbiology of domestic water and sewage, microbiology of milk and milk products, industrial microbiology.

CO5. The students after the completion of this course will be able to describe medical microbiology, brief introduction to pathogenic micro-organisms, rickettsia, spirochaetes and bacteria, brief account of lifehistory and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment - pathogenic protozoans - entamoeba, trypanosoma, and giardia, pathogenic helminths– schistosoma, nematode pathogenic parasites of man, vector insects.

Course 6: Genetics, Cell Physiology, Biochemistry, Biotechnology and Bio-techniques

CO1. The students after the completion of this course will be able to describe genetics, linkage and linkage maps, varieties of gene expression - multiple alleles; lithogenesis; pleiotropic genes; gene interaction; epistasis, sex-chromosome systems, and sex-linkage, mutation and chromosomal alterations; meiotic consequences, human genetics - chromosomal and single gene disorders (somatic cell genetics).

CO2. The students after the completion of this course will be able to describe cell physiology, general idea about pH and buffer, transport across membrane - cell membrane; mitochondria and endoplasmic reticulum, active transport and its mechanism; active transport in mitochondria and endoplasmic reticulum, hydrolytic enzymes - their chemical nature, activation and specificity.

CO3. The students after the completion of this course will be able to describe biochemistry, amino acids and peptides - basic structure and biological function, carbohydrate and its metabolism - glycogenesis; gluconeogenesis; glycolysis, glycogenolysis; Kreb's cycle, lipid metabolism - oxidation of glycerol; oxidation of fatty acid, protein metabolism - deamination,transamination, transmethylation; biosynthesis of protein.

CO4. The students after the completion of this course will be able to describe biotechnology - scope and importance, recombinant DNA and gene cloning,cloned genes and other tools of biotechnology, applications of biotechnology in pharmaceutical industry, and food processing industry.

CO5. The students after the completion of this course will be able to describe biotechniques principles and techniques of pH meter, colorimeter, microscopy-light microscopes, phase contrast and electron microscopes, centrifugation, separation of biomolecules by chromatography and electrophoresis, biochemical methods for determination of protein, lipids, and carbohydrates.

Course 7: General Diversity of Microbes and Cryptogams

CO1. The students after the completion of this course will be able to describe Viruses and Bacteria: General account of viruses and mycoplasma; bacteria structure; nutrition, reproduction and economic importance; general account of cyanobacteria.

CO2. The students after the completion of this course will be able to describe Algae: General characters, classification and economic importance; important features and life history of Chlorophyceae-Volvox, Oedogonim, Coleochaete; Xanthophyceae- Vaucheria; Phaeophyceae- Ectocarpus, Sargassum; Rhodophyceae- Polysiphonia.

CO3. The students after the completion of this course will be able to describe Fungi: General characters, classification and economic importance; important features and life history of MastigomycotinaPythium, Phytophthora; Zygomycotina- Mucor, Ascomycotina-Saccharomyces, Eurotium, Chaetomium, Peziza; Basidiomycotina- Puccinia, Agaricus; Deuteromycotina-Cercospora, Colletotrichum; general account of Lichens.

CO4. The students after the completion of this course will be able to describe Bryophyta: Amphibians of plant kingdom displaying alternation of generations; structure, reproduction and classification of Hepaticopsida (e.g. Riccia Marchantia); Anthocerotopsida (e.g. Anthoceros), Bryopsida (e.g. Funaria)

CO5. The students after the completion of this course will be able to describe Pteridophyta: The first vascular plants; important characteristics of Psilopsida, Lycopsida, Sphenopsida and Pteropsida; structure, Reproduction in Rhynia, Lycopodium Selaginella, Equisetum, Pteris and Marsilea.

Course 8: Cell Biology and Genetics

CO1. The students after the completion of this course will be able to describe the Cell: Envelope; Plasma membrane; bilayer lipid structure; functions; the cell wall, Ultra structure and function of nucleus: nuclear membrane; nucleolus and other organelles: Golgi bodies, ER, peroxisomes, Vacuoles.

CO2. The students after the completion of this course will be able to describe Chromosome organization: Morphology; centromere and telomere; chromosome alterations; deletions, duplications, translocations, inversions; variations in chromosome number aneuploidy, polyploidy; sex chromosomes, Cell division: Mitosis; meiosis.

CO3. The students after the completion of this course will be able to describe DNA the genetic material: DNA structure; replication; DNA- protein interaction; the nucleosome model; genetic code; satellite and repetitive DNA, Extra nuclear genome: Presence and function of mitochondrial and plastid DNA; plasmids.

CO4. The students after the completion of this course will be able to describe Gene expression: Structure of gene; transfer of genetic information; transcription, translation, protein synthesis; t RNA; ribosomes; regulation of gene expression in prokaryotes and eukaryotes; proteins - 1D, 2D and 3D structures.

CO5. The students after the completion of this course will be able to describe Genetic Variations: Mutations, spontaneous and induced; transposable genetic elements; DNA damage and repair: Genetic inheritance: Mendelism; laws of segregationand independent assortment: linkage analysis; allelic and non-allelic interactions.

Course 9: Diversity of Seed Plants and their Systematics

CO1. The students after the completion of this course will be able to describe characteristics of seed plants; evolution of the seed habit; seed plants with (angiosperms) and without (gymnosperms) fruits; fossil and living seed plants, general features of gymnosperms and their classification; evolution and diversity of gymnosperms; geological time scale, fossilization and fossil gymnosperms.

CO2. The students after the completion of this course will be able to describe morphology of vegetative and reproductive parts; anatomy of roots, stem and leaf, reproduction and life cycle of Pinus, Cycas and Ephedra.

CO3. The students after the completion of this course will be able to describe angiosperms: origin and evolution, some examples of primitive angiosperms, angiosperms taxonomy: brief history, aims and fundamental components; identification, keys taxonomic literature, botanical nomenclature: principles and rules; taxonomic ranks; type concept; principle of priority.

CO4. The students after the completion of this course will be able to describe classification of angiosperms; salient features of the systems proposed by Bentham and Hooker and Engler and Prantl, major contributions of cytology, phytochemistry and taximetrics to taxonomy.

CO5. The students after the completion of this course will be able to describe diversity of flowering plants: general account of the families- Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae.

Course 10: Structure Development and Reproduction in Flowering Plants

CO1. The students after the completion of this course will be able to describe the basic body plan of a flowering plant: modular type of growth, diversity in plant form in annuals, biennials and perennials; convergence of evolution of tree habit in gymnosperms, monocotyledons and dicotyledons; trees-largest and longest-lived organisms.

CO2. The students after the completion of this course will be able to describe the shoot system: the shoot apical meristem and its histological organization; vascularization of primary shoot in monocotyledons and dicotyledons; formation of internodes, branching pattern; monopodial and sympodial growth canopy architecture; cambium and its functions; formation of secondary xylem, a general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem – structure, function, relationships, periderm.

CO3. The students after the completion of this course will be able to describe leaf: origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission, the root system: the root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

CO4. The students after the completion of this course will be able to describe flower: a modified shoot; structure, development and varieties of flower, functions, structure of anther and pistil, the male and female gametophytes; types of pollination; attractions and rewards for pollinators; pollen-pistil

interaction, self incompatibility, double fertilization, formation of seed-endosperm and embryo; fruit development and maturation.

CO5. The students after the completion of this course will be able to describe significance of seed: suspended animation; ecological adaptation; unit of genetic recombination and replenishment, dispersal strategies, vegetative reproduction: vegetative propagation, grafting, economic aspects.

Course 11: Plant Physiology, Biochemistry and Biotechnology

CO1. The students after the completion of this course will be able to describe plant-water relations: importance of water to plant life; physical properties of water; diffusion and osmosis; absorption, transport of water and transpiration; physiology of stomata, mineral nutrition: essential macro and micro-elements and their role; mineral uptake; deficiency and toxicity symptoms.

CO2. The students after the completion of this course will be able to describe transport of organic substances: mechanism of phloem transport; source-sink relationship; factors affecting translocation, basic of enzymology: discovery and nomenclature; characteristics of enzymes; concept of holoenzyme, apoenzyme, coenzyme and cofactors; regulation of enzyme activity, mechanism of action, photosynthesis: significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems; Z-scheme; photo-phosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration.

CO3. The students after the completion of this course will be able to describe respiration: ATP - the biological energy currency; aerobic and anaerobic respiration; Kreb's cycle, electron transport mechanism (chemi-osmotic theory); redox potential; oxidative phosphorylation; pentose phosphate pathway, Nitrogen and lipid metabolism: Biology of nitrogen fixation;importance of nitrate reductase and its regulations; ammonium assimilation; structure and function of lipids; fatty acid biosynthesis; Betaoxidation; saturated and unsaturated fatty acids; storage and mobilization of fatty acids.

CO4. The students after the completion of this course will be able to describe growth and development: definitions; phases of growth and development; kinetics of growth, seed dormancy, seed germination and factors of their regulation; plant movements; the concept of photoperiodism; physiology of flowering; florigen concept; biological clocks; physiology of senescence, fruit ripening; plant hormones auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery, biosynthesis and mechanism of action; photomorphogenesis; phytochromes and cryptochromes, their discovery, physiological role and mechanism of action.

CO5. The students after the completion of this course will be able to describe genetic engineering: tools and techniques of recombinant DNA technology; cloning vectors; genomic and cDNA library;transposable elements; techniques of gene mapping and chromosome walking, biotechnology: functional definition; basic aspects of plant tissue culture; cellular totipotency, differentiation and morphogenesis; biology of Agrobacterium; vectors for gene delivery and marker genes; salient achievements in crop biotechnology.

Course 12: Ecology and Utilization of Plants

CO1. The students after the completion of this course will be able to describe plants and environment: atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical

properties), and biota, Morphological, anatomical and physiological responses of plants to water (hydrophytes and xerophytes), temperature (thermoperiodicity), light (photoperiodism, heliophytes and sciophytes) and salinity.

CO2. The students after the completion of this course will be able to describe community ecology: community characteristics, frequency, density, cover, life forms biological spectrum; ecological succession, ecosystems: structure, abiotic and biotic components; food chain, food web, ecological pyramids, energy flow; biogeochemical cycles of carbon, nitrogen and phosphorus.

CO3. The students after the completion of this course will be able to describe population ecology: growth curves; ecotypes;ecads, biogeographical regions of India, Vegetation types of India: Forests and grasslands.

CO4. The students after the completion of this course will be able to describe utilization of plants food plants: rice, wheat, maize, potato, sugarcane, fibers: cotton and jute, vegetable oils: groundnut, mustard and coconut, general account of sources of firewood, timber and bamboos.

CO5. The students after the completion of this course will be able to describe Spices, Medicinal plants, Beverages- Tea and coffee, Rubber.

B.A.– 3 years Undergraduate programme
Programme Outcomes (PO)

PO1. The undergraduate programme in Economics / Political Science / History / Sociology / is aimed at providing the students necessary inputs so as to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in Economics / Political Science / History / Sociology becomes in tune with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. The undergraduate programme in Economics / Political Science / History / Sociology besides teaching the basic concepts of Economics / Political Science / History / Sociology should in addition have broader vision for students so that the students therefore be exposed to societal interface of Economics / Political Science / History / Sociology and the role of Economics / Political Science / History / Sociology the development of arts and social sciences.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively through speaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning. Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will be able to understand and apply the knowledge of प्राचीन हिन्दी काव्य

PSO2. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी कथा साहित्य

PSO3. The students after the completion of this programme will be able to understand and apply the knowledge प्राचीन हिन्दी काव्य

PSO4. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी निबंध तथा गद्य विधाएं

PSO5. The students after the completion of this programme will be able to understand and apply the knowledge of जनपदीय भाषा साहित्य (छत्तीसगढ़ी)

PSO6. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी भाषा–साहित्य का इतिहास तथा काव्यांगविवेचन

Course 13: Micro Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the definitions, nature and scope of economics.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the theory of production and cost.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the market structure.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize factor pricing.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize welfare economics.

Course 14: Indian Economy

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize pre and post independent Indian economy.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in population and human development.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in agriculture.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in industry.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in foreign external sector.

Course 15: Macro Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize national income & social accounts.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in consumption function.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and characteristics of trade cycle.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in international trade.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the functions of IMF, World Bank and WTO.

Course 16: Money, Banking and Public Finance

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize basic concepts of money.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the role of economics in commercial banking.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the meaning and scope of public finance.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the sources of public revenue and taxation.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize public debt and financial administration.

Course 17: Development and Environmental Economics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize economic growth and development.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the relationship between economics and population problem & growth.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize Harrods and Domar growth model.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize therelationship between economics and environment & ecology.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the concept of intellectual capital.

Course 18: Statistical Methods

CO1. The students after the completion of this course will be able to comprehend and apply statistical methods in economics.

CO2. The students after the completion of this course will be able to comprehend and apply the measurement of central tendency in economics.

CO3. The students after the completion of this course will be able to comprehend and apply the methods & tools of dispersion in economics.

CO4. The students after the completion of this course will be able to comprehend and apply coefficient of correlation in economics.

CO5. The students after the completion of this course will be able to comprehend and apply index number and measurement of trend in economics.

Course 19: Political Theory

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and scope of political theory.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the concept of state, nation and civil society.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the meaning of organs of government and theory of separation of power.

Course 20: Indian Government and Politics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the salient features in making of Indian Constitution.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate the fundamental rights and duties and the directive principle of state policy.
CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and evaluate the evolution, functioning and consequences of political parties in India.

Course 21: Western Political Thought

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature, methods and significance of political thought.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate various social and political ideas of political thinkers.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and demonstrate the knowledge of political thinkers and political concepts.

Course 22: Comparative Politics and Government
CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess presidential and parliamentary system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the difference between federal and unitary systems of government.

Course 23: International Politics

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the international political system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the relations of India with neighboring countries.

Course 24: Public Administration

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the administrative system of the nation.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize various concepts in public administration.

Course 25: History of India from the Beginning to 1206 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize India's geographical structure, historical and archeological sources, Stone Age, Harappa civilization.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize Vedic era, Mahajanapada era, Jainism, Buddhism, Alexander's Invasion, rise of Magadha, Mauraya dynasty.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize Chola dynasty, Pandian dynasty, Gupta dynasty, Pallava dynasty, Chalukya dynasty, Vardhan dynasty.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize historical relation between India & Srilanka, invasions by Mohammad Bin Kasim, Mohammad Ghazhvani, Mohammad Gauri, caste system, societal status of women – marriage system, sati system, pardah system, devdasi system, dasa system.

CO5. Students will be able to demonstrate a breadth of training across historical time and space.Students will be able to develop an in-depth understanding of a field, theme or region.

CO6. Students will be able to demonstrate an historical awareness of the diversity of the human experience across time and space.Students will be able to apply, assess and debate the major historical schools of thought, methodology and types of sources that historians use to make original arguments.Students will acquire basic historical research skills, and the effective use of libraries, archives, and databases.

CO7. Students will learn to organize and express their thoughts clearly and coherently both in writing and orally.Students will be able to formulate historical arguments and communicate those arguments in clear and persuasive prose.

Course 26: World History from 1453 to 1789 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize end of feudalism, Renaissance, religious reforms, rise of nation states – England, France, Spain, Russia, division of Poland.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize modern western world – revolution in commerce & trade - Capitalism, industrial revolution.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize beginning of colonialism, civil war in England, glorious revolution, rule of Louis 14th, America's war of Independence, French revolution and national assembly.

Course 27: History of India from 1206 to 1761 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize Sultanate rule, Slave dynasty, Khilji dynasty, Tughlaq dynasty, Taimur's Invasion.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize Babur's Mughal dynasty, Sher Shah Suri administration, policies of Akbar to Aurangzeb, Mughal administration.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize socio-economic aspects of Sultanate era, socio-economic aspects of Mughal era, religious and cultural aspects of medieval era – Bhakti movement, Sufism, art & establishment in Sultanate era, art & establishment in Mughal era, education & literature in Sultanate era, education & literature in Mughal era.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize Vijaya Nagar Kingdom – Raja Krishnadeva Raya, Chhatrapati Shivaji kingdom, Battle of Panipat.

Course 28: World History from 1789 to 1871 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize French revolution – National convention, Napoleon Bonaparte – rise & fall.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize Vienna Congress – combined system of Europe, Conservatism.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize revolutions of 1830 & 1848, Industrial revolution, England's Liberalism.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize reforms of 1832 & 1867, achievements of Napoleon IIIrd, rise of east, Greece's war of Independence, battle of Creamia, Russia – Czar Alexander IInd, unification of Italy, unification of Germany.

Course 29: History of India from 1761 to 1950 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize expansion of British rule – war & diplomacy – battle of Karnataka, Plasi, Buxor, alliance treaties.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize reforms in British rule, Capitalism – fall of industries & trade, fall of Agriculture and farmer's revolution, land revenue system.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize Indian renaissance – Brahma samaj, Aryasamaj, Ram Krishna mission, Theosophical society, Aligarh movement.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize progress of western education and Press, social classification of farmers, labors, middle class and women, rise of Nationalism and revolution of 1857.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize Indian National Congress – Moderates & Extremists, Gandhi's freedom movement, Communalism – rise & progress, Subhash Chandra Bose & Azad Hind Fauj, India's Constitutional development – 1919-1935 – Federal system – Provincial autonomy, India's Independence and Indian Constitution.

Course 30: World History from 1871 to 1945 A.D.

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the third republic of France, Bismarck – foreign policy, WilliamIInd – foreign policy, division of Africa.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize modernization of Japan, Japan-Russia war, Chinese revolution.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize Young Turk movement, Balkan war, World War – I.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize Russian revolution-1917, Warsaw Treaty.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize Italy's Fascism – Mussolini, Germany's Nazism – Hitler, Japan's Imperialism – Tajo, World War–II.

CO6. The students after the completion of this course will be able to contemplate and comprehend and recognize United Nations Organization (UNO) – establishment, composition, achievements.

Course 31: Introduction to Sociology

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and scope of sociology.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the basic concepts of society, community, institution, association etc.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize different social groups.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize various social processes.

Course 32: Contemporary Indian Society

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the classical view about Indian Society and Varna Vyavastha.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the structure and composition of Indian society.

Course 33: Society in India

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize various social problems like Casteism, Regionalism, and Communalism etc.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize various social problems like Dowry, Domestic Violence, Divorce etc.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize basic Institutions of society.

Course 34: Crime and Society

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize social structure and anomalies.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize meanings, causes, consequences and remedies of Terrorism.

Course 35: Sociology of Tribal Society

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize classification of tribal people.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize socio cultural profile of tribe.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize various tribal problems.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize various tribal movements.

Course 36: Social Research Methods

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply social survey and research.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply research design.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply techniques of data collection and statistics.

Course 1:प्राचीन हिन्दी काव्य

CO1. The students after the completion of this course will be able to contemplate and comprehend कबीर (कबीर–कांतिकुमार जैन).

CO2. The students after the completion of this course will be able to contemplate and comprehend जायसी–संक्षिप्त पद्मावत–"याम सुंदरदास नागमती वियोग वर्णन.

CO3. The students after the completion of this course will be able to contemplate and comprehend सूर (भ्रमर गीतसार– सं. आचार्यरामचन्द्र).

CO4. The students after the completion of this course will be able to contemplate and comprehend तुलसी– 'रामचरित मानस'.

CO5. The students after the completion of this course will be able to contemplate and comprehend घनानन्द (घनानन्द–सं. विश्वनाथ प्रसाद मिश्र).

CO6. The students after the completion of this course will be able to contemplate and comprehend विद्यापति.

CO7. The students after the completion of this course will be able to contemplate and comprehend रहीम.

CO8. The students after the completion of this course will be able to contemplate and comprehend रसखान.

Course 2: हिन्दी कथा साहित्य

CO1. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंद- गबन

CO2. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंद–कफन

CO3. The students after the completion of this course will be able to contemplate and comprehend जयशंकर प्रसाद–आकाशदीप

CO4. The students after the completion of this course will be able to contemplate and comprehend फणीश्वरनाथ रेणु–ठेस

CO5. The students after the completion of this course will be able to contemplate and comprehend मेहन राकेश–मलवे का मालिक

CO6. The students after the completion of this course will be able to contemplate and comprehend भीषम साहनी–चीफ की दावत

CO7. The students after the completion of this course will be able to contemplate and comprehend राजेन्द्र यादव–बिरादरी बाहर

CO8. The students after the completion of this course will be able to contemplate and comprehend रागेय राघव–गदल

The students after the completion of this course will be able to contemplate and comprehend उपेन्द्रनाथ अशक, 2. बालशौरिरेड्डी 3. शिवनी

Course 3: अर्वाचीन हिन्दी काव्य

CO1. The students after the completion of this course will be able to contemplate and comprehend मैथिलीशरण गुप्त–भारत–भारती की कविताएं

CO2. The students after the completion of this course will be able to contemplate and comprehend सूर्यकांत त्रिपाठी निराली–सखि बसन्त आया,वर दे, वीणा वादिनी वर दे,हिन्दी के सुमनों के प्रति पत्र,तोड़ती–पत्थर,राजे ने अपनी रखवाली की।

CO3. The students after the completion of this course will be able to contemplate and comprehend सुमित्रानंदनपंत–बादल,परिवर्तन,खोलता इधरजन्म लोचन,आज का दुख कल का आल्हाद,ताज,झंझा म ॅनीम,भारत माता।

CO4. The students after the completion of this course will be able to contemplate and comprehend माखन लाल चतुर्वेदी–बलिपंथी से,सांझ और ढ़ोलक की थापें,म ैं बेच रही हूं, दही,उलाहना,निः"ास्त्र सेनानी ।

CO5. The students after the completion of this course will be able to contemplate and comprehend स.ही. वात्स्यायन अज्ञेय –सबेरे उठा तो धूप खिली थी,सामाग्री का नैवेद्य दान,घर,चदंनी जी लो,दूर्वाचल ।

CO6. The students after the completion of this course will be able to contemplate and comprehend अयोध्या सिंह उपाध्याय ''हरिऔध'',सुभद्राकुमारी चौहान,श्रीकांत वर्मा ।

Course 4: हिन्दी निबंध तथा गद्य विधाएं

CO1. The students after the completion of this course will be able to contemplate and comprehend नाटक–अंधेर नगरी–भारतेनद ुहरिशचन्द्र

CO2. The students after the completion of this course will be able to contemplate and comprehend निबंध कोध –आचार्य रामचन्द्र शुक्ल,बसन्त–डॉ. हजारी प्रसाद द्विवेदी,उस अमराई ने राम–रामकहीहै–डॉ. विद्यानिवास मिश्र,काव्येश ुनाट्यम रम्यम् –बाबूगुलाबराय,बेईमानी की परत–हरिशंकर परसाई ।

CO3. The students after the completion of this course will be able to contemplate and comprehend एंकाकी–औरगंजेब की आख्रिरीरात–डॉ. रामकुमार वर्मा,स्ट्राईक–भुनेशवर,एक दिन– लक्ष्मीनारायण मिश्र,दस हजार–उदयशंकर भट्ट,मम्मी ठकुराईन–डॉ. लक्ष्मीनारायण लाल

CO4. The students after the completion of this course will be able to contemplate and comprehend राहुल सांकृत्यायन,महादेवी वर्मा,हबीबतन वीर

Course 5: जनपदीय भाषा साहित्य (छत्तीसगढ़ी)

CO1. The students after the completion of this course will be able to contemplate and comprehend रचनाएं–प्राचीन कविसंत धर्मदास–गुरू पइंया लागों नाम लखादी जोहो,नैनआगे ख्याल घनेरा,भजन करा ैभाइ ँरे, अइसन तन पाय के ।

CO2. The students after the completion of this course will be able to contemplate and comprehend लखन लाल गुप्त का गद्य–सेन पान

CO3. The students after the completion of this course will be able to contemplate and comprehend अर्वाचीन रचनाकार डॉ. सत्यभामा आडिल रचित गद्य –सीख सीख के गोठ

CO4. The students after the completion of this course will be able to contemplate and comprehend डॉ. विनय पाठक की कविताएं–तंय उठथस सुरूज उथे,एक किसिम के नियाव

The students after the completion of this course will be able to contemplate and comprehend मुकुन्द कौशल–छत्तीसगढ़ गजल '' छै बित्ता के मनखे देख्रों .... से–मछरी मन लाख लेथे''

CO6. The students after the completion of this course will be able to contemplate and comprehend सुन्दरलाल भार्मा,कविलनाथ कशयप,रामचन्द्र देशामुख (रंगकर्मी)

Course 6: हिन्दी भाषा–साहित्य का इतिहास तथा काव्यांग विवेचन

CO1. The students after the completion of this course will be able to contemplate and comprehend हिन्दी भाषा का स्वरूप विकास– हिन्दी कर उत्पत्ति, हिन्दी की मूल आकर भाषाएं तथा विभिन्न विभाषाओं का विकास । हिन्दी भाषा के विभिन्न रूप–बोल चाल की भाषा,रचनात्मक भाषा,राष्ट्र भाषा,राज भाषा,सम्पक ॅभाषा,संचार भाषा

CO2. The students after the completion of this course will be able to contemplate and comprehend हिन्दी का भाब्द भण्डार–तत्सम, तद्भव, दे"ाज, आगत भाब्दावली ।

CO3. The students after the completion of this course will be able to contemplate and comprehend हिन्दी साहित्य का इतिहास :–आदिकाल, पूर्व मध्यकाल, उत्तर मध्यकाल और आधुनिककाल की सामाजिक, सांस्कृतिक पृष्ठभूमि, प्रमुख युग प्रवृत्तियां, विि"ाष्ट रचनाकार और उनकी प्रतिनिधि कृतियां, साहित्य कवि ँोशताएं ।

CO4. The students after the completion of this course will be able to contemplate and comprehend काव्यांग–काव्य का स्वरूप एवं प्रयोजन । रस के विभिन्न भेद, विभिन्न अंगह, विभावादि तथा उदाहरण । दोहा, सोरठा, चौपाई, कुण्डलियां, सवैया । भाब्दालंकार–अनुप्रास, यमक, भलेश, वकोक्ति,

पुनरूक्तिप्रका"ो। अर्थालंकार–उपमा, रूपक, उत्प्रेक्षा, अति"योक्ति, भ्रांतिमान।

CO5. The students after the completion of this course will be able to contemplate and comprehend राजभाषा हिन्दी –मलिक मोहम्मद

CO6. The students after the completion of this course will be able to contemplate and comprehend हिन्दी भाषा–डॉ. भोलानाथ तिवारी।

Course Outcomes (CO) of the Courses common to all the UG Programmes mentioned above

Course: Foundation course English Language

CO1. The student will be able to write a paragraph with a topic sentence, support and concluding sentence.

CO2. The student will be able to produce appropriate vocabulary and correct word forms.

CO3. The student will be able to use grammatical structures accurately.

CO4. The student will be able to broaden their vocabularies and develop an appreciation of language.
CO5. The student will be able to be competent to write a report or idea expansion.

CO6. The student will be able to summarize and paraphrase information in a text.

Course: Environmental Studies and Human Rights

CO1. The students after the completion of this course will be able to describe, recognize and practice multi disciplinary nature of environmental studies, natural resources: renewable and non-renewable resources - forest resources, deforestation, timber extraction, mining, dams and their effects on forests and tribal people and relevant forest act, water resources, surface and ground water, floods drought, conflicts over water, dams benefits and problems and relevant act, mineral resources, environmental effects of extracting and using mineral resources, food resources, world food problems, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, energy resources, renewable and nonrenewable energy sources, use of alternate energy sources, land resources, land degradation, man induced landslides, soil erosion and desertification.

CO2. The students after the completion of this course will be able to describe, recognize and practice ecosystem - producers, consumers and decomposers, energy flow in ecosystem, ecological succession, food chains, food webs and ecological pyramids, structure and function of forest, grass, desert and aquatic ecosystem.

CO3. The students after the completion of this course will be able to describe, recognize and practice biodiversity and its conservation, genetic, species and ecosystem diversity, bio-geographical classification of India, value of biodiversity: consumptive use, productive use, social ethics, aesthetic andoption values, biodiversity at global, national and local levels, India as mega-diversity nation, hot spotsof biodiversity, threats to biodiversity, habitat loss, poaching of wildlife, man-wild life conflict, endangered and endemic species of India, conservation of biodiversity: in situ and ex-situ conservation of biodiversity.

CO4. The students after the completion of this course will be able to describe, recognize and practice pollution: causes, effect and control measures for – air, water, soil, marine, noise, nuclear pollution and human population, solid waste management, urban and industrial wastes, disaster management: floods, earthquake, cyclone and landslides, environmental management - from unsustainable to sustainable development, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people, environmental ethics, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, wasteland reclamation, environment protection act, environmental legislation, information technology in environment and human health.

CO5. The students after the completion of this course will be able to describe, recognize and practice concepts of human rights, classification of human rights, protection of human rights under the UNO charter, protection of human rights under the universal declaration of human rights, 1948 convention on the elimination of all forms of discrimination against women, convention on the rights of the child, 1989.

CO6. The students after the completion of this course will be able to describe, recognize and practice human rights norms in India, human rights under the constitution of India, fundamental rights under the constitution of India, directive principles of state policy under the constitution of India, enforcement of human rights in India, protection of human rights under the human rights act, 1993- national human rights commission, state human rights commission and human rights court in India, fundamental duties under the constitution of India.

M.Sc. Mathematics– 4 Semesters Postgraduate programme
Programme Outcomes (PO), Programme Specific Outcomes (PSO), Course Outcomes (CO) Class Paper Name Outcome M.Sc.- I & II Sem.

Class	Paper Name	Outcome
M.Sc.- I & II Sem.	**Advanced Abstract Algebra**	1. Students will learn Group theory, Ideals, Ring theory, Modules, Vector space, Normal Group, Abelian group etc. 2. Students Skills to solve any theorem by using the properties of the given group, Ring, Ideal or field. 3. Students compute different theorems and learn how to find the Galois group of any given group.
	Real Analysis	1. Students will be able to know the sequence and series of real numbers, convergence and divergence of both sequence and series. Determine the Riemann integrability.
	Topology	**Students Skill to:-** 1. Understand various basic topologies and topological spaces. 2. Understand the countability and uncountability of spaces and sets and their types. 3. Understand the concept of connectedness, compactness, completeness of spaces. 4. Understand the topological and hereditary property 5. Learns the separation axioms.

	Complex Analysis	**Students will learn to:-** 1. Analyze sequence and series of complex numbers and analytical function. 2. Apply the concept of Cauchy-Riemann equations for analytic function. 3. Compute complex contour integrals and apply the cauchy Integral formula in various versions. 4. Understand the concept of Harmonic functions.	
	Advanced Discrete Mathematics	1. Students will know about the finite state machine, their outputs corresponding to their next state of input. 2. Students will learn the conjunctives and disjunctive Canonical form of two, three, four variables. 3. Students learn to formulate the output of Mealy and Moore machine, parallel and series circuits. 4. Students will have the knowledge of graphs, Trees, Spanning trees etc.	
M.Sc.- III & IV Sem.	Integration Theory and Functional Analysis	**Students Skill to:-** 1. Learn the concept of linear and bounded linear transformation. 2. Understands the Function spaces and conjugate of Function Spaces. 3. Understand the concept of Dual linear spaces. 4. Learns to compute the real and complex functions.	
	PDE and Mechanics	**Students will have the knowledge and Skills to:-** 1. Form the partial differential equations and solve them. 2. Learn the wave equations and heat equations and form their solutions. 3. Solve the problems on first order and higher degree partial differential equations and its application.	
	Fuzzy Sets and their Applications	1. Students learn the fundamentals of fuzzyset theory. 2. Students Skill to compute operations with fuzzy sets, extension principle, fuzzy logic, fuzzy probability. 3. Students acquire knowledge of important parts of fuzzy set theory which will enable them to create effective mathematical models of technical phenomena.	
	Operations Research	1. Students will be able to model LPP and solve them. 2. Students will understand the feasibility, infeasibility, basic, bounded, unbounded, optimal solutions of the problem. 3. Students will understand the Game theory.	

		Modify a primal problem and obtain its solution.
	Programming In 'C'	Students will learn to:- 1. Code programs in 'C' of different types. 2. Understand different type of preprocessors in 'C'. 3. Struct basic structure of C-program and learns how to compile and run a C-program.

M.Sc. Chemistry– 4 Semesters Postgraduate programme
Programme Outcomes (PO), Programme Specific Outcomes (PSO), Course Outcomes (CO)

Class	Paper Name	Outcome
M.Sc. – I Sem.	Group Theory and Chemistry of Metal Complexes	The Purpose of this paper is to give description about symmetry and its elements and splitting of dorbital.
	Concept in Organic Chemistry	In this paper students learn about reaction intermediates and stereo chemical and conformational analyses.
	Quantum Chemistry, Thermodynamics and Chemical dynamics - I	In this paper student learn about rate of reaction and different model system.
	Theory and Application of Spectroscopy - I	In this paper student learn about different electromagnetic radiations and their application in day to day life.
M.Sc. – II Sem.	Transition Metal Complex	The purpose of this paper is to give detailed description of electronic spectra of metal complexes and their reaction mechanism.
	Reaction Mechanism	Student learns about the Mechanism of substitution reactions and effect on reactivity.
	Quantum Chemistry, Thermodynamics and Chemical Dynamics – II	The purpose of this paper is to give Knowledge about different interface, statistical Thermodynamics and their approximate method.
	Theory and Application of Spectroscopy	In this paper student learn about Fragmentation techniques of molecules and study of nuclear magnetic resonance.
M.Sc. – III Sem.	Resonance, Spectroscopy, Photochemistry and Organocatalyses	In this paper student learn about photo chemical reaction and different process of organocatalyses.
	Chemistry of Biomolecules	In this paper student learn about enzyme model, structure of all membrane and different-types of transport system.
	Catalyses, Solid State and Surface Chemistry	In this paper student learn about solid state Chemistry, Surfactant and aid – base reaction.
	Analytical Techniques and Data Analysis	In this paper student learn about how sampling of objects done, their separation techniques by chromatography and thermal analysis.
M.Sc. – IV Sem.	Instrumental Method of Analysis	Student learn about different techniques of chromatography and atomic absorption spectroscopy.
	Natural Product and Medicinal Chemistry	To give knowledge about drug design, structure activity relation, anti Materials, alkaloids,

			terpenoids.
	Material and Nuclear Chemistry		To give knowledge about syntheses of macro molecules, nuclear fission & fusion.
	Environmental and Applied Chemical Analysis		Student learn how to Monitor Air Quantity Level, Soil Pollution and Food Analyze.

PGDCA – 2 Semesters postgraduate diploma programme
Programme Outcomes (PO), Programme Specific Outcomes (PSO), Course Outcomes (CO)
Course Outcomes of PGDCA

Semester	PAPER CODE	PAPER NAME	PAPER OUTCOMES
I	PGDCA 101	Introduction to Software Organization	1. Describe basic organization of computer and the architecture of Pentium processor. 2. Demonstrate control unit of operation. 3. Categorize memory organization and explain the function of each element of a memory hierarchy. 4. Understanding of network, types and topology. 5. Understanding to internet, media and protocols.
I	PGDCA 102	Programming in "C"	1. Illustrate the flowchart and design an algorithm for a given problem and to develop C program. 2. Develop conditional and iterative statements to write C programs. 3. Design user define functions to solve real time problems. 4. Using Pointers user write programs to access Arrays, Strings and Functions. 5. Exercise user define data types including structures and unions to solve a problems.
I	PGDCA 103	Office Automation and Tally	1. To perform documentation using MS-Word. 2. To perform arithmetic and logical operations using MS-Excel. 3. To perform presentation skills using MS-Power Point. 4. Design a database with lookup tables Using MSAccess. 5. To perform accounting operation using Tally.
I	PGDCA 104	PGDCA 104: Practical based on PGDCA -103	1. To perform documentation using MSWord. 2. To perform arithmetic and logical operations using MS-excel. 3. To perform presentation skills using MS-Power Point. 4. Design a database with lookup tables Using MS Access. 5. To perform accounting operation

Semester	PAPER CODE	PAPER NAME	PAPER OUTCOMES
			using Tally.
I	PGDCA 105	PGDCA 105:Practical based on PGDCA -102	1. Illustrate the flowchart and design an algorithm for to the given problem. 2. Understand basic structure of the C programming, declaration and usage of variables and operators. 3. Exercise conditional and iterative statements to write C programs. 4. Write C programs using Pointer to access Arrays , Strings and Functions.
Semester	PAPER CODE	PAPER NAME	PAPER OUTCOMES
II	PGDCA 106	GUI- Programming in Visual Basic	1. Use a modern IDE to visually and programmatically create program with GUI's. 2. Understand and use the event driven model. 3. Create an application that using exception handling. 4. Understand different connectivity methods. 5. Create crystal report.
II	PGDCA 107	Database Management System	1. Explain the features of database management system and relational database. 2. Design conceptual models of database using ER Modeling and construct queries in relational algebra. 3. Create and populate a RDBMS for a real life application, with constraint and keys using SQL. 4. Retrieve any type of information from a database by formulating complex queries in SQL. 5. Analyze the existing design of a database schema and apply concepts of normalization to design an optimal database.
II	PGDCA 108	Essential of Ecommerce and HTML	1. Understanding concept of E-commerce and types. 2. Understanding various E-Business strategies. 3. Understand different type of online payment system. 4. To get familiar with basics of the Internet Programming. 5. To acquire knowledge and skills for creation of web site. 6. To gain ability to develop responsive web application.
II	PGDCA 109	PGDCA-109: Practical Based on PGDCA106,107,108	1. Construct appropriate user interfaces for simple programs and design system with minimal complexity and

			2.	maximal functionality.
				Effectively use software development tools including libraries compilers, editors, linkers, debuggers.
			3.	Create and populate a RDBMS for a real life application, with constraint and keys using SQL.
			4.	Retrieve any type of information from a database by formulating complex queries in SQL.
			5.	Implement interactive web page(s) using HTML, CSS and JavaScript.
			6.	Develop responsive web application using HTML and CSS.
II	PGDCA 110	PGDCA-110: Project	1.	Identify the requirements of the real world problems.
			2.	Conduct a survey.
			3.	Design the problem solution as per the requirement analysis done.
			4.	Demonstrate and build the project successfully by coding and testing.