

Arts, Science and Commerce College, Chikhaldara, Distt. Amravati (MS)
Programme Outcomes (POs), Programme Specific Outcomes (PSOs)
and Course Outcomes (Cos)

Bachelor of Science

Programme Outcomes

- PO1: To introduce the fundamentals of science education
- PO2: To enrich students' knowledge in all basic sciences
- PO3: To develop interdisciplinary approach amongst students
- PO4: To inculcate sense of scientific responsibilities and social & environment awareness
- PO5: To help students build-up a progressive and successful career in academics and industry
- PO6: To motivate the students to contribute in the development of Nation

Physics

Programme Specific Outcomes

- PSO1: To improve scientific attitude and to give emphasis on the development of experimental skills, data analysis, calculations, and also on the limitations of the experimental method and data and, results obtained
- PSO2: To help students in understanding the concepts of Physics
- PSO3: To underline the strength of equations, formulae, graphs, mathematical tools to tackle the problems
- PSO4: To understand the conceptual development of the subject and thereby develop the interest in the subject. A topic on this is introduced in the Emerging Physics Course
- PSO5: To improve the scientific awareness among the students. A discussion on Paradox etc. is encouraged
- PSO6: To create interest in the subject and improve technological aspect through mini projects, projects, models, demonstrations, etc.
- PSO7: To create interest in the subject to continue to work in the field of science in general and physics in particular
- PSO8: To make students understand the role and contribution of Physics in the present day science and technology
- PSO9: To motivate students to make career in Physics.

Course Outcomes

Course: Mechanics, Properties of matter, waves and oscillations

By the completion of this course the student will be able to

- CO1: Understand the concepts of gravitation and planetary motions.
- CO2: Describe the rotational motion of rigid body and moment of inertia, concept of liner and angular momentum.

CO3: Understand simple harmonic oscillations, damped harmonic oscillations, forced harmonic oscillations and explain the theory of simple pendulum, compound pendulum and Kater's pendulum.

CO4: Describe the concept of combination of S.H.M.'s and Lissajous figures, properties, production and applications of ultrasonic waves

CO5: Knows in details the elastic constants, properties of elastic bodies and different methods to measure elastic constants.

CO6: Introduction and explanation to kinematics of moving fluids, Bernoulli's theorem and surface of tension.

Course: Kinetic theory, thermodynamics and electric current

By the completion of this course the student will be able to

CO1: Describe details regarding kinetic theory of gases, transport phenomenon in gases like transport of mass, momentum and energy.

CO2: Explain the basic laws of thermodynamics, different thermodynamic processes, concept of internal energy, entropy and S-T diagram.

CO3: Describe Joule-Thomson effect, liquefaction of hydrogen and helium gases, thermodynamical systems, variables and relations.

CO4: Understand the motion of charge particles in electric and magnetic fields, working of mass spectrograph, linear accelerator and cyclotron.

CO5: Understand basic network theorems and construction and working of Ballistic Galvanometer; concepts of varying currents through different circuits.

CO6: Understand the concepts of alternating current with various combinations of resistor, capacitor and inductor, theory of transformer and energy losses in transformer.

Course: Mathematical background, Solid state electronic devices and special theory of relativity

By the completion of this course the student will be able to

CO1: Focuses on mathematical background and laws of electrostatics.

CO2: Explain basic terms of electrostatics, Maxwell's equations and Poynting vector.

CO3: Understand the semiconductor Physics, hall effect and semiconducting devices like diode, LED, BJT, J-FET, with emphasis on parameters and applications of OP-AMP.

CO4: Explain special theory of relativity, length contraction, time dilation and energy-mass relation.

CO5: Understand the structure of earth, types and causes of earthquakes, intensity of earthquakes, scattering, absorption and reflection of solar radiation by atmosphere and mechanism of cloud formation.

Course: Optics, Acoustics and renewable sources of energy

By the completion of this course the student will be able to

CO1: Understand geometrical optics and theory of interference of light, formation of Newton's ring, applications of Newton's rings.

CO2: Understand phenomenon of diffraction of light, Fresnel and Fraunhofer diffraction, construction and elementary theory of plan diffraction grating; use the laboratory techniques to determine wavelength of monochromatic source of light and resolving power of grating.

CO3: Understand concept of polarization of light, double refraction, production and detection of polarized light, Phase retardation plates.

CO4: Understand basic concepts, construction, working and applications of different types of LASER.

CO5: Understand the construction, types of fiber optics and role of fiber optics in communication system.

CO6: Understand the various renewable like solar energy, wind energy, ocean energy, geothermal energy, hydrogen energy system and fuel cell, solar energy storage and solar photovoltaic systems- concept, operating principle and applications.

Course: Quantum mechanics, Atomic and molecular spectroscopy, Nuclear Physics, Hybrid parameters and Oscillators

By the completion of this course the student will be able to

CO1: Understand origin of quantum mechanics. Describe concept of wave packet, Davisson Germer experiment, Heisenberg's Uncertainty principle, Thought experiment and Gamma ray microscope.

CO2: Know the Schrodinger equation and its applications, Schrodinger time dependent and time independent equations, Eigen functions and Eigen values and qualitative analysis of zero point energy.

CO3: Understand vector atom model, Stern-Gerlach experiment and different types of coupling. Know the properties and types of X-ray, experimental arrangement for Raman Effect.

CO4: Know about detection of charge particles by using G. M. counter, concept of nuclear physics like, Alpha decay, Beta decay, Concept of nuclear fission and fusion and construction of nuclear reactor.

CO5: Understand hybrid parameter, CE amplifier, Bias stability, Thermal runaway, Noise and distortion in amplifier.

CO6: Know properties, advantage and applications of negative feedback. Describe the construction and working of various types of oscillators and multivibrators.

Course: Statistical Mechanics and Solid State Physics

By the completion of this course the student will be able to

CO1: Understand basic concept of statistical mechanics, principle of equal priori probabilities and Boltzman entropy relation, Maxwell-Boltzman statistics, Bose-Einstein statistics, Fermi-Dirac statistics and their applications.

CO2: Understood amorphous and crystalline solids, Diffraction of X-rays by crystals, Bragg's law, experimental determination of lattice parameters of NaCl crystal, Defects in solids.

CO3: Explain free electron theory, density of states, concept of Fermi energy and Band structure.

CO4: Explain diamagnetic, Paramagnetic, ferromagnetic materials; Classical Langevin's theory of dia and paramagnetic domains, Curie's law, Weiss's law and hysteresis.

CO5: Understand superconductors and its type, Meissner effect, Applications of superconductors, Nanomaterials, effect of reduction of dimensions on physical properties, applications of nanomaterials in different fields.

Mathematics

Programme Specific Outcomes

PSO1: Students will demonstrate an understanding of the common body of knowledge in maths and demonstrate the ability to apply analytical and theoretical skill to model and solve the mathematical problems

PSO2: Understand the nature of mathematical proofs and be able to write clear and concise proofs.

PSO3: Be able to communicate effectively in oral and written form

PSO4: Be able to write simple computer programs to perform the mathematical competition.

PSO5: Learn about application of mathematics in other field and gain experiences in mathematical modelling

PSO6: Develop the ability to read, understand and use basic definition in linear and abstract algebra and real analysis and be able to prove simple consequence of this definition

PSO7: Student learns to communicate idea effectively and to digest new information and concepts independently.

PSO8: Students are encouraged to develop intellectual and become involved with professional organization

PSO9: Communicate mathematical ideas both orally and in writing

PSO 10: Investigate and solve unfamiliar maths problems

PSO11: Demonstrate the proficiency in writing proofs

Course Outcomes

Course: Algebra & Trigonometry

By the completion of this course the student will be able to

CO1: Understand the concepts of Hyperbolic and inverse hyperbolic function , De Moivre's theorem,, and its application

CO2: Understand the concept of summation series, Gregory series, Euler's series, Machin's series, Rutherford's series,

CO3: Learn about Elements of quaternion: complex conjugate of a quaternion, norm, inverse, quaternion as a rotation operator, interpretation, a special quaternion product, operator algorithm, quaternion to matrices.

CO4: Deeply know about polynomial equation, its roots nature, solve some quadratic, biquadratic polynomial, Cardon method to solve cubic equations

CO5: Introduction and explanation of Matrices, Rank, Eigen values and Eigen vector, Cayley-Hamilton Theorem etc.

Course: Differential and Integral Calculus

By the completion of this course the student will be able to Know

CO1: Definition of the limit of a function, basic properties of limits, continuous functions and classification of discontinuities.

CO2: Differentiability, successive differentiation, Leibnitz theorem, indeterminate forms and L'Hospital rule. Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem, Maclaurin and Taylor series expansions.

CO3: Partial derivatives and differentiation of real valued function of two variables, homogeneous functions, Euler's theorem on homogeneous functions.

CO4: Integration of some standard form, reduction formulae Walli's formula, quadrature, rectification, etc.

Course: Differential Equations: Ordinary and Partial

By the completion of this course the student will be able to know

CO1: Degree and order of a ordinary differential equation, linear differential equations and differential equations reducible to the linear form. Exact differential equations. Differential equations of first order and higher degree, Orthogonal trajectories.

CO2: Second order linear differential equations with constant coefficients, homogeneous Linear ordinary differential equations, reducible to homogeneous differential Equations.

CO3: Reduction of order, transformation of the equation by changing the dependent variable and independent variable, normal form, method of variation of parameters. Ordinary simultaneous differential equations.

CO4: Formation of partial differential equations, partial differential equations of the first order, total differential equation. Lagrange's method, some special types of equations which can be solved easily by methods other than the general method.

CO5: Compatible differential equations. Charpit's general method of solution, partial differential equations of second and higher orders. Homogeneous and non-homogeneous equations with constant coefficients.

Course: Vector Analysis and Solid Geometry

By the completion of this course the student will be able to know

CO1: Scalar and vector product of three vectors, product of four vectors, vector differentiation and vector integration.

CO2: Space curve t, n, b vectors, fundamental planes, curvature, torsion, Frenet Serret formulae.

CO3: Gradient, divergence and Curl, directional derivative, line integral (existence and evaluation), work done, Greens theorem.

CO4: Sphere: Different forms of sphere, section of a sphere by a plane, sphere through a given circle, intersection of sphere and a line, orthogonal sphere and condition of orthogonality.

CO5: Cone: The equation of a cone with a guiding curve, cone with vertex and origin, right circular cone. Cylinder: equation of right circular cylinder

Course: Advanced Calculus

By the completion of this course the student will be able to know

CO1: Sequence, positivity theorem, sandwich theorem, monotonic and bounded sequence, Cauchy sequence.

CO2: Series: Series of nonnegative terms, convergence of geometric series and the series Comparison tests, Cauchy's integral test, conditional convergent, Leibnitz rule,

CO3: Limit and continuity of functions of two variables, Taylor's theorem for function of two variables.

CO4: Maxima and minima of two variables, Lagrange's multipliers method, Jacobians.

CO5; Double integral (definition and evaluation technique)

Course: Elementary Number Theory

By the completion of this course the student will be able to know

CO1: Divisibility, Euclidean algorithm, least common multiple.

CO2: Prime numbers, the fundamental theorem of arithmetic or unique factorization theorem, Fermat numbers, linear Diophantine equation.

CO3: Congruence, special divisibility test, linear congruences, Chinese remainder theorem.

CO4: Arithmetic functions, Euler's theorem, the functions, Mobius function.

CO5: Primitive roots, primitive roots for prime, polynomial congruences, The congruence

Course: Modern Algebra: groups and rings

By the completion of this course the student will be able to know

CO1: Group: Definition, subgroups, cyclic groups, permutation groups

CO2: Cosets and normal subgroups quotient group.

CO3: Homomorphism and isomorphism Fundamental theorem on homomorphism of a group, natural homomorphism, second isomorphism theorem, third isomorphism theorem.

CO4: Ring, subring, characterization of ring, integral domain, field, subfield and prime field.

CO5: Ideal, quotient ring, ring homomorphism.

Course: Classical Mechanics

By the completion of this course the student will be able to know

CO1: Constraints, generalized coordinates, D'Alembert's principle and Lagrange's equations of motion.

CO2: Central force motion: Areal velocity, equivalent one body problem, central orbit, Virial theorem, Kepler's laws of motion.

CO3: Calculus of variation: functional, external, Euler's differential equation, Hamilton's principle, procedure, least action principle.

CO4: Rigid body, generalized co-ordinates of a rigid body, Eulerian angles, Euler's theorem, finite rotations, infinitesimal rotations.

Course: Mathematical Analysis

By the completion of this course the student will be able to know

CO1: Riemann Integral monotonic functions, the fundamental theorem of integral calculus, mean value

CO2: Improper integrals and their convergence, Beta and gamma functions.

CO3: Continuity and differentiability of complex function, analytic function, Cauchy-Riemann equations, harmonic and conjugate functions, Milne-Thomson method.

CO4: Elementary function, mapping by elementary function, Mobius transformation, fixed point, cross ratio, inverse and critical points, conformal mapping.

CO5: Metric spaces, neighbourhood, limit point, interior point, open and closed sets, Cauchy sequences, completeness.

Course: Mathematical Methods

By the completion of this course the student will be able to know

CO1: Legendre's equation, Bessel's equation Strun-Liouville boundary value problem.

CO2: Fourier series, Fourier series for odd and even functions, half-range Fourier sine series and half-range Fourier cosine series.

CO3: Laplace transform: Fourier Transform

Course: Linear Algebra

CO1: Vector Space : Linear transformations Dual Spaces Inner Product Spaces Modules its Definition, example and properties

Course: Graph Theory

CO1: To understand Graph. Application of graphs, finite and infinite graphs, incidence and degree, isolated vertex, pendent vertex and null graph, isomorphism, subgraphs, walks, path and circuits, connected graphs and components, Euler graph, operation on graphs, Hamiltonian paths and circuits, travelling sales man problem. Trees, some properties of trees, Fundamental circuits, Cutsets, Some properties of cutesets, Kurutowski's two graphs, different representation of planer graph, detection of

Course: Special Theory of Relativity

CO1: To understand Review of Newtonian Mechanics. Relativistic Kinematics Geometrical representation of space- time Relativistic Mechanics Electromagnetism

Industrial Chemistry

Programme Specific Outcomes

PSO1: Make the students well-grounded in the principles and through knowledge of scientific techniques of Industrial Chemistry

PSO2: Educate and train Chemists to acquire a meaningful picture of Chemical industries

PSO3: Prepare students for professional participation in Chemical industries so as to adapt themselves to jobs which are problem solving

PSO4: Train students to be result-oriented in the chemical, petrochemical, biochemical, allied technological fields

PSO5: Environmental and Sustainability: Understand the issue of environmental context and sustainable development

Course Outcomes

Course: Mole Concept, Material Balance, Energy Balance, Fluid Mechanics, Fuel

By the completion of this course the student will be able to

CO1: Know about basic of dimension and units.

CO2: Difference between fundamental and derived quantities.

CO3: Solving the numerical problems on mole concept, material balance of chemical and non-chemical.

CO4: Explain the classification of fuel.

CO5: Describe the solid fuel as types of coal ,coal formation and coal analysis.

CO6: Understand Manufacture process processes of different product and uses from coal.

CO7: Explain the origin and classification of liquid fuel as petroleum.

CO8: Process of distillation of crude oil and uses of products.

CO9: Understand the mining of petroleum.

CO10: Understand the fundamentals & different laws of heat transfer.

CO11: Concepts of heat conduction, general heat conduction equation.

CO12: Understand classification of heat exchanger utilize in chemical industries.

CO13: Define fluid mechanics with types of fluid flow.

CO14: State and explain of equation of continuity Bernoulli's equation.

CO15: Describe the construction and working and uses of pumps, flow-meter for measuring flow-rate of fluid..

Course: Unit Operations, surface chemistry & Catalysis

By the completion of this course the student will be able to

CO1: Knows basic of unit operations actual working in chemical industries.

CO2: Different unit operation like distillation, evaporation, extraction, leaching, crystallization, drying, size reduction, mechanical separations, mixing.

CO3: Study about surface chemistry and catalysis; mechanism, applications, types.

Course: Unit processes and Process Equipments By the completion of this course the student will be able to

CO1: Utilization of unit process for organic synthesis by Nitration, Amination by reduction, Alkylation, sulphonation, halogenations, hydrolysis, oxidation, esterification.

CO2: Understand the measurements of different parameters in chemical industries.

CO3: Explain types of corrosion arises in chemical industries and its control by various method.

CO4: Use of laboratory techniques for preparations of organic product.

Course: Material Science and Industrial Pollution

By the completion of this course the student will be able to

CO1: Manufacture of ceramic, refractory's, glasses, cement, polymers with its properties and applications.

CO2: Understand water quality parameters, organic& inorganic pollutants as water pollution due to industrial effluents.

CO3: Know about the waste water treatment by primary, secondary, tertiary treatments methods.

CO4: Explain air pollution with classification and industries as source of pollution with its control methods.

Course: Chemical Process Economics, Heavy and Fine Chemicals

By the completion of this course the student will be able to

CO1: Manufacture process with raw materials, consumption patterns, major engineering problems arises in production.

CO2: Study of essential oil with extraction methods ,its types, uses.

CO3: Explain and understand manufacture of Soya-bean oil ,refining of crude oil with its analysis.

CO4: Manufacture process of industrial gases with its uses.

CO5: Study of industrial safety measures.

CO6: In process economics included with Cost estimation, interest, depreciation, profitability of industries.

Course: Instrumental Methods of Chemical Analysis, Green Chemistry

By the completion of this course the student will be able to

CO1: Introduction and sampling of materials.

CO2: Study of Instrumental Methods of Chemical Analysis Chromatography with paper, GLC, column, ion- exchange, solvent extraction.

CO3: Study of dyes types, preparation & applications.

CO4: Goals of green chemistry, principle.

CO5: Basic components of green chemistry.

CO6: Principle, techniques, instrumentation & applications of Flame photometer, I. R. Spectroscopy and X-ray fluorescence.

Chemistry

Programme Specific Outcomes

The students completing B.Sc with chemistry will be able to

Have a firm foundation in the fundamentals and application of chemicals and scientific theories including in inorganic, organic, physical and analytical chemistry and functional knowledge of all core areas of chemistry .

PSO1: Identify and become familiar with the scope, methodology and application of modern chemistry and learn to appreciate its ability to explain various aspects.

PSO2: Understand theoretical and practical concepts of instruments that are commonly used in most chemistry fields.

PSO3: Design and carry out scientific experiments and record the results of such experiments.

PSO4: Understand safety of chemicals, transfer and measurement of chemical, preparation of solutions, and using physical properties to identify compounds and chemical reactions.

PSO5: Explain how chemistry is useful for social, economic and environmental problems and issues facing our society in energy, medicine and health.

Course Outcomes

Course: Paper I

By completion of this course the students will be able to

CO1: Describe periodic properties of elements, understand formation of ionic bonding & factors affecting ionic bond formation.

CO2: Understand electronic configuration, ionization energy, oxidation state of S and P block elements.

CO3: Identify electronic displacement taking place in the molecule by some effects, generation of reactive intermediates, their stability and reactions.

CO4: Interpret aromaticity and based on that distinguish aromatic, anti-aromatic and non-aromatic compounds, able to know the structure of benzene and its electrophilic substitution reaction.

CO5: Understand limitation of first law of thermodynamics and needs of second law of thermodynamics and know the concept of entropy.

CO6: Know the postulates of kinetic theory of gases, understand phase rule and application of phase rule on water system and sulphur system.

Course: Paper-II

By completion of this course the students will be able to

CO1: Define polarization and its application, directional nature of covalent bond, concepts of hybridization and know the theory of acids and bases.

CO2: Understand requirement of good solvent and classification of solvents.

CO3: Describe synthesis and chemical reactions of alkyl halides, aryl halides and alcohol.

CO4: Understand methods of formation of phenols, ether and epoxide and their reactions catalyzed by acid and alkali.

CO5: Identify polar and non polar molecules and know paramagnetic and diamagnetic substances.

CO6: Describe rate of reaction in terms of change in concentration and how the rate of chemical reaction changes as a function of time.

Course: Paper III

By completion of this course the students will be able to

CO1: Understand covalent bonding, metallic bonding and describe structure of molecule with regular & distorted geometry by using VSEPR theory and know about gravimetric and volumetric analysis.

CO2: Describe various reactions, acidity and reactivity involved in aldehydes ketone and carboxylic acid.

CO3: Identify importance of stereochemistry in organic chemistry & apply the knowledge gained to a variety of chemical problems.

CO4: Define work function, Gibbs free energy and application of phase equilibria in miscible and immiscible liquids.

CO5: Understand determination of surface tension, viscosity and effects of temperature on surface tension and viscosity.

Course: Paper-IV

By completion of this course the students will be able to

CO1: Understand chemistry of transition elements with reference to electronic configuration, atomic and ionic size, ionization energy and know about extraction of elements.

CO2: Define inner transition elements and know their properties and general principle of metallurgy.

CO3: Describe reactions of poly nuclear hydrocarbon, synthesis of higher acids with the help of reactive methylene compounds, constitution of glucose, conversion of glucose to fructose etc.

CO4: Know synthesis of aromatic nitro compounds, amino compounds and diazonium salts and their reactions.

CO5: Understand colligative properties of dilute solution and know to determination of molecular weight of solute.

CO6: Identify symmetry in crystal and elements of symmetry in crystals, also know the laws of symmetry.

Course: Paper-V

By completion of this course students will be able to

CO1: Understand key features of co-ordination compounds including variety of structures and know the concepts of oxidation number, coordination number, ligands, chelates and stability of complex.

CO2: Knowledge of crystal field theory to understand splitting in complexes and factors affecting in crystal field splitting.

CO3: Understand heterocyclic compounds especially about their synthesis, reactivity and application of heterocyclic compound in advanced chemical synthesis.

CO4: Classify dyes on the basis of structure and mode of application, preparation and uses of dyes, drugs and pesticides.

CO5: Understand photochemical and thermal reactions by interaction of radiation with matter.

CO6: Identify the electric and magnetic properties of radiation and know the spectroscopic techniques for understanding the atomic structure and structure of molecule.

Course: Paper-VI

By completion of this course students will be able to

CO1: Understand thermodynamic and kinetic stability of complexes and geometry of complexes. Know about spectrophotometric technique for determination of concentration of metal ion. Define and classify chromatographic techniques.

CO2: Know basics of organometallic chemistry, inorganic polymers and bio-inorganic chemistry.

CO3: Identify structure of compound by use of electronic spectroscopy and infrared spectroscopy and know how to interpret spectra.

CO4: Understand the phenomena of Nuclear Magnetic Resonance spectroscopy and mass spectrometry.

CO5: Understand limitation of classical mechanics at molecular length scales and difference between classical and quantum mechanics.

CO6: Identify inter conversions of chemical energy and electrical energy by knowing electrochemistry and application of radio isotopes in industry, agriculture, medicine & biosciences.

Botany

Programme Specific Outcomes

PSO1: Provide knowledge of the medicinal plants of Melghat region to the students and promote them to use them as earning source

PSO2: Motivate the Botany students for exploration of Melghat flora

PSO3: Preserve the rare medicinal plants of the Melghat region

PSO4: Create recognized laboratory for the students of Botany and provide guidance to the research students

PSO5: Create awareness about plant propagation

PSO6: Develop open natural laboratory for the students of Botany

Course Outcomes

Course: Diversity and Applications of Microbes and Cryptogams

CO1: Study of cryptogamous plants and their diversity in aquatic ecosystem

CO2: To study the role of fungi in food industry

CO3: diversity of fungi in forest ecosystem

CO4: investigation on diversity of bryophytes and pteridophytes

CO5: industrial value of aquatic algae ,fungi

Course: Gymnosperm, Morphology of Angiosperms and Utilization of plants

CO1: To bring investigation on paleobotanical study in India

CO2: Taxonomical and economical study of gymnosperms

CO3: Systematic study of plants and their classifications

CO4: Phytitaxonomical study of angiosperm

CO5: Economical importance of spices, timber and Bamboo

Course: Angiosperm systematic, anatomy and embryology

- CO1: Exsitu and insitu conservation of flora in forest ecosystem
- CO2: Role of anatomy in classification of plants and their phylogeny study
- CO3: Role of embryology in classification of plants
- CO4: Plants systematic and their classifications

Course: Cell biology, Genetics and Biochemistry

- CO1: Role of cell biology and its function
- CO2: Role of genetics in plant classification
- CO3: To study the biochemistry of plants
- CO4: Role of enzymes in Industries

Course: Plant physiology and Ecology

- CO1: To study the physiological characters of wild and cultivated plants
- CO2: To study the role of environmental factors on photosynthesis
- CO3: Ecological and environmental study of flora in forest ecosystem
- CO4: Investigation the effects of environmental factors in trends in succession
- CO5: Food chain and food web in ecosystem

Course: Molecular biology and biotechnology

- CO1: Role of DNA and transposable elements in plants
- CO2: Concept of gene
- CO3: Tools and techniques of recombinant DNA technology
- CO4: Cloning vectors
- CO5: Gene transfer techniques
- CO6: Tissue culture techniques
- CO7: Fermentation technology- Bakery and alcohol production
- CO8: health care edible vaccines
- CO9: Plant kingdom in detail
- CO10: Diversity of Plants with respect to habitat, nutrition and ecological status.
- CO11: General knowledge about Viruses
- CO12: Understood what is TMV and HIV
- CO13: Basic knowledge of Bacteria
- CO14: Role of microbes in Agriculture, Medicine, and industry.

Geology

Programme Specific Outcomes

- PSO1: Study Geology with an aspect to develop students' interests for Geology as a subject of study
- PSO2: Acquire the knowledge of various kinds of rocks, minerals and fossils in the lab

PSO3: Develop students' sense of inquisitiveness by allowing them to guess about the past geological events

PSO4: Enhance students' perception about geographical and geological aspects of India

PSO5: Provide great opportunities of career and employment

PSO6: Field Visits to introduce and develop field based Geological skills and knowledge

PSO7: Protection and Preservation of Geological heritage

Course Outcomes

Course: General Geology, Physical Geology, Mineralogy, Crystallography & Field Geology

Upon successful completion of the course, students will be able to

CO1: Understand the basic idea about geology, branches, scope and origin of the earth system.

CO2: Explain the age determination methods and constitution of earth.

CO3: Understand the rock weathering process.

CO4: Describe and interpret the development of landforms and geologic structures made by the various agents like river, wind, glacial etc.

CO5: Understand and explain the volcanism and earthquakes theory.

CO6: Understand the concepts of how minerals form and criteria to identify common minerals and

CO7: Learn to describe the physical and optical properties of minerals.

CO8: Explain the crystal system

CO9: Understand and use of basic tools for the field work.

Course: Igneous, Sedimentary and Metamorphic Petrology

Upon successful completion of the course, students will be able to

CO1: Explain and describe the formation, classification, structure and structure of igneous rocks.

CO2: Explain and describe the formation, classification structure and structure of sedimentary rocks.

CO3: Explain and describe the formation, classification, structure and structure of metamorphic rocks.

CO4: classify and identify the Igneous, sedimentary and metamorphic rocks

CO5: Describe the depositional environment of sedimentary rocks.

CO6: Understand the chemical composition of Igneous, sedimentary and metamorphic.

Course: Ore geology, Igneous petrology, metamorphic petrology and paleontology

Upon successful completion of the course, students will be able to

CO1: Understand and describe the general idea about ore, classification and ore deposits processes.

CO2: explain the concept of phase rule and component systems

CO3: Describe the distribution of igneous rock in time and space and also explain the variation diagrams.

CO4: Explain the petrographic provenances.

CO5: Classify and identify the Phylum Echinodermata, Foraminifera, Anthozoa and Trilobita.

CO6: Understand the stratigraphy, palaeogeographic and palaeoclimatic reconstruction

Course: Ore geology, Geomorphology, Metamorphic Petrology and Stratigraphy

Upon successful completion of the course, students will be able to

CO1: Understand the origin distribution and uses of metallic and non-metallic ore minerals

CO2: Understand the petroleum and coal deposits in India

CO3: Understand and explain the various marine and non-marine environmental of depositions

CO4: Describe the metamorphic processes.

CO5: Describe and explain the Classification, geographic distribution, lithological characteristics, fossil contents and economic importance of various stratigraphic groups.

Course: Structural geology, Plate tectonic and Hydrogeology

CO1: Upon successful completion of the course, students will be able to

CO2: Understand the basic geological field instruments.

CO3: Describe and identify the various geological structures formed during the depositional and non-depositional activities.

CO4: Understand and explain interior of the earth.

CO5: Explain the concepts of Isostasy.

CO6: Describe evidences of continental drifting and types of plate tectonic

CO7: Explain the components, occurrence and distribution of Groundwater

CO8: Explain and identify Groundwater Provinces of India

Course: Structural geology, Remote sensing and Geophysical exploration

CO1: Upon successful completion of the course, students will be able to

CO2: Describe the various structural features.

CO3: Understand and identify the types of folds.

CO4: Understand and identify the photogrammetry elements

CO5: Understand the prospecting and exploration-criteria for searching of ore.

CO6: Describe the various exploration methods.

Computer Science

Programme Specific Outcomes

PSO1: Effectively communicating computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation

PSO2: Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.

PSO3: Exhibiting their computing expertise within the computing community through corporate leadership, entrepreneurship, and/or advanced graduate study

PSO4: Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a computing based industry.

PSO5: Information on Emerging Trends: Give information about software design and development practices to develop software applications in emerging areas such as Cloud and High performance computing, Data analytics and Cyber security.

PSO6: Successful Career and Entrepreneurship: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, and a zest for higher studies.

Course Outcomes

Course: Fundamentals of Information Technology and C Programming

By the completion of this course the student will be able to

CO1: Be aware of the history of the discipline of Computer Science and understand the conceptual underpinnings of the subject.

CO2: Understand the nature of the software development process, including the need to provide appropriate documentation.

CO3: Understand the working of computers, networking and programming languages like C.

CO4: Analysis of different functions, syntaxes, flow and types of programming languages and be able to program fluently in one or two programming languages.

CO5: Understand standard techniques for solving a problem on a computer, including programming techniques and techniques for the representation of information.

CO6: Understand the importance and the nature of operating systems and compilers.

Course: Web Technology and Advanced Programming in C

By the completion of this course the student will be able to

CO1: Understand the basics of websites.

CO2: Understand different elements used in creation of web pages.

CO3: Application of different styles on web pages using CSS.

CO4: Understand data transfers using XML.

CO5: Understand C programming in depth by knowing concepts of arrays, pointers, etc.

CO6: Understand working of functions, structures and file handling in C Programming.

Course: Object Oriented Programming with C++ and Web Technology

By the completion of this course the student will be able to

CO1: Explore the ways of programming with different logic than traditional ways.

CO2: Get the knowledge of Object Oriented Programming concept.

CO3: Program with different programming languages effectively in languages like C++.

CO4: Design web pages using scripting languages like HTML, CSS.

CO5: Understand basics of Computer Networks and Data Communication.

Course: Advanced C++ and Web Designing

By the completion of this course the student will be able to

CO1: Learn and understand different Object Oriented Programming features using C++.

CO2: Know Inheritance, Polymorphism in C++ and usage.

CO3: Understand structures of XML and connection with data.

CO4: Understand use of CSS in XML.

CO5: Understand and application of XML Schema on web pages.

Course: RDBMS and Visual Basics

By the completion of this course the student will be able to

CO1: Understand basics of database management system.

CO2: Identify different models in database and knowing the differences in it.

CO3: Understand the Structured Query Language to interact with databases.

CO4: Understand basics of Visual Basic to get knowledge of Event Driven Programming.

CO5: Create Menu Driven Programs in Visual Basic.

CO6: Understand Internal Functions in Visual Basic.

Course: PL/SQL and Advanced Visual Basics

By the completion of this course the student will be able to

CO1: Learn about the built-in functions in SQL.

CO2: Understand the basics of PL/SQL and Transactions.

CO3: Understand the securities applied on databases.

CO4: Understand different aspects of Visual Basic like, Dialog box controls, Forms and File Handling.

CO5: Program with different programming languages effectively in languages like Visual Basic and as backend tool like Oracle.

CO6: Proficient in problem solving using different programming languages.

Food Science

Programme Specific Outcomes

PSO1: Understand basic concept of unit operation

PSO2: Understand basic chemistry, Nutrients, Nutrition, Balance diet

PSO3: Understand the food quality and their control

PSO4: Understand the food processing and food preservation

PSO5: Understand about good hygienic practices to develop good quality products

PSO6: Perform theoretically and practically as per laboratory standards in the area of food chemistry, biochemistry of food, food adulteration, food microbiology, food processing and food preservation

PSO7: Describe the History of different author related to curriculum contents

PSO8: Understand about malnutrition problem and their related deficiency disorders

Course Outcomes

Course: Basic Chemistry of Foods

By the completion of this course the student will be able to

CO1: Define food science with its multidisciplinary reorganization

CO2: Know basic principles and concepts of nutrition, food groups and sources

CO3: Describe food components, with emphasis on proteins, carbohydrates and lipids

CO4: Explain the chemistry, properties and reactions of various food components

CO5: Understand physical properties of food, units & dimensions, mole concept and unit operations

CO6: Use the laboratory techniques common to basic and applied food chemistry

Course: Nutritional Biochemistry of Foods

By the completion of this course the student will be able to

CO1: Describe the biochemistry process and the relationship of the consumption of foods to nutritional status and health

CO2: Understand the process of digestion & absorption and the various reactions involve in metabolism of various constituents of food

CO3: Evaluate the changes in biological function of food components after digestion and the metabolism

CO4: Describe the biological functions and importance of enzymes

CO5: Evaluate the biological functions of foods for health in addition to nutritional values

CO6: be able to use the laboratory techniques common to applied food biochemistry and biological assay

Course: Food Microbiology

By the completion of this course the student will be able to

CO1: Identify the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.

CO2: Identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.

CO3: Utilize laboratory techniques to identify microorganisms in foods.

CO4: Explain the role and significance of microbial inactivation, adaptation and environmental factors (i.e., aw, pH, temperature, etc.) on growth and response of microorganisms in various environments.

CO5: Identify the cultivation, enumeration, staining techniques of microorganisms

CO6: Understand the microbiology of some important food groups

Course: Food Preservation and Quality Control

By the completion of this course the student will be able to

- CO1: Understand the quality factors of food and the factors causing the spoilage and methods to control deterioration and spoilage.
- CO2: Explain the principles of food preservation
- CO3: Identify the food adulteration and explain government regulations required for the manufacture and sale of food products
- CO4: Understand the methods of food safety like HACCP
- CO5: Explain new trends in properties and uses of various packaging materials and laws of food labeling

Course: Food Processing I

By the completion of this course the student will be able to

- CO1: Understand objectives and various methods of cooking
- CO2: Explain principles of food hygiene and sanitation
- CO3: Identify sensory evaluation of food
- CO4: Manufacture and use food processing techniques of various cereals and legume based food production
- CO5: Manufacture bakery products and understand oil and fat processing
- CO6: Understand food additives and speciality foods such as functional food

Course: Food Processing II

By the completion of this course the student will be able to

- CO1: Understand types of milk and manufacturing methods of various milk products
- CO2: Manufacture various products from fruits & vegetables and the methods of preservation of fruits & vegetables
- CO3: Understand the various methods of preservation and processing of animal produces such as eggs, meat, poultry and fish
- CO4: Explain and understand the production of alcoholic and non alcoholic beverages
- CO5: Understand principles of fermentation, its use in food processing and preservation
- CO6: Manufacture various Indian and oriented fermented food products

Explain the spices, their importance in food and the processing

Petrochemical Science

Programme Specific Outcomes

- PSO1: Study of technical subject with traditional subjects with an aspect to develop students' employability
- PSO2: Acquire the knowledge of various practical related to petroleum such as flash point, fire point, smoke point, distillation of various petroleum products
- PSO3: To review of scenario of petroleum and petrochemical industries
- PSO4: Develop students' employability through subject knowledge
- PSO5: Conduct field and industry visits for professional growth

Course Outcomes

Course: 1S Petrochemical Science

By the completion of this course the student will be able to

- CO1: Know basic principles and concepts of petro chemistry
- CO2: To know knowledge of fuel and petroleum industries
- CO3: Basic concept in formation, exploration and drilling of petroleum
- CO4: To understand composition and classification of petroleum
- CO5: To know various operation conducted in petroleum refinery
- CO6: Basic quality monitoring and laboratory test

Course: 2S Petrochemical Science

By the completion of this course the student will be able to

- CO1: To study overview of petrochemical industries
- CO2: Understand the basic feed stocks and gas purification technique utilized in petrochemical industries
- CO3: Understand methods of separation and purification of gases in to individual constituent
- CO4: Understand steam reforming process with their definition, reaction reactivity
- CO5: To know synthesis gas production through various process
- CO6: To study various uses of synthesis gas with their processes

Course: 3S Petrochemical Science

By the completion of this course the student will be able to

- CO1: To understand cracking technology for petroleum with definition, reaction, mechanism and operating condition
- CO2: Under stand thermal cracking processes like vis-breaking, coking, steam cracking, and production of primary petrochemical feed stocks
- CO3: Understand catalytic cracking with their reaction, mechanism and operating condition and catalyst
- CO4: Understand various catalytic cracking process with their process flow
- CO5: Understand separation technique like extractive distillation and selective extraction. Oxo synthesis process for production of alcohol
- CO6: Understand reforming process and separation of aromatics from petroleum stocks

Course: 4S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand manufacture of various petrochemicals with respect to their chemistry, process parameter, catalyst used, process flow and their uses they are as following

Ethylene Derivative I

- Vinyl chloride monomer, Vinyl acetate monomer, Acetaldehyde, Ethanol

Ethylene Derivative II

- Ethylene oxide, Ethylene glycol, Ethanol amine

Propylene Derivative

- Propylene oxide, Isopropyl alcohol, Acetone, Acrylonitrile, Acrylamide

Butadiene Derivative

- Isoprene, Adipic acid, Sulfolane, Chloroprene

Benzene Derivative

- Phenol, Aniline, Caprolactam

Xylene Derivative

- Terephthalic acid, Dimethyl terephthalate, phthalic anhydride

Course: 5S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand basic concept in polymerization like definition, classification of polymer, methods of polymerization, polymerization technique

CO2: Understand ethylene and propylene based polymer with their chemistry, process parameter, catalyst and flow scheme

CO3: Understand C4 based (ie butylenes, butadiene, isoprene) polymer with their chemistry, process parameter, catalyst and flow scheme

CO4: Understand vinyl and styrene based polymer with their chemistry, process parameter, catalyst and flow scheme

CO5: Understand condensation polymer with their chemistry, process parameter, catalyst and flow scheme

CO6: Understand wax / Bitumen / Grease with manufacture process and uses

Course: 6S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand basic instrumental technique for petroleum and petrochemical product characterization Spectroscopy I involved definition, principle, theory, working and application of UV – Visible IR

CO2: Understand basic instrumental technique for petroleum and petrochemical product characterization Spectroscopy II involved definition, principle, theory, working and application of NMR and Mass

CO3: Understand basic instrumental technique for petroleum and petrochemical product characterization chromatography involved definition, principle, theory, working and application of GLC, HPLC, GC

CO4: Understand various catalyst used in petroleum and petrochemical industries

CO5: Know the future of petrochemical

CO6: Understand introduction of pollution control in petroleum and petrochemical industries with basic concepts

Apiculture

Programme Specific Outcomes

PSO1: To create awareness in Melghat region about Honey Bee Keeping

PSO2: To provide opportunities of employment and self employment

PSO3: To know and popularize various methods for successful Honey Bee Keeping and promote related research activities

PSO4: Reduction of tribal migration for employment and provide ample and permanent employment opportunities to the local tribal people

PSO5: To cultivate plants necessary for successful Honey Bee Keeping project with the help of varied flora richly available in Melghat and Maharashtra

Course Outcomes

Course: General/Basic Entomology

By the completion of this course the student will be able to

CO1: Understand & identification the insects.

CO2: He can classify beneficial & harmful insects.

CO3: Acquire the knowledge of basic classification of insects.

CO4: Identify the honey bees, there types, sub species & cast differentiation.

CO5: Understand the importance of honey bees & there behavior.

CO6: Identify the bee diseases, pest, & predators.

CO7: Acquire the knowledge of different methods of bee breeding.

CO8: Acquire the knowledge to establishing of breeding apiary.

CO9: Learn about selection criteria of bees for better performance.

CO10: Understand the method of preparing mating nuclei.

Course: Beekeeping

By the completion of this course the student will be able to

CO1: Understand selection of bee species for beekeeping.

CO2: Acquire the knowledge of required equipment for beekeeping.

CO3: Acquire information about site selection, required climatic condition, seasonal management for establishment of Apiary.

CO4: Getting knowledge & skill of honey bee colony handling & its periodic inspection.

CO5: Understand important ways of migration of bee colonies.

CO6: Methods for extraction of different bee products.

Course: Bee Products

By the completion of this course the student will be able to

- CO1: Knowledge of physical & chemical properties of bee products.
- CO2: Acquire knowledge of composition of bee products.
- CO3: Understand importance, application & value addition of bee products.
- CO4: Knowledge & skill of analysis of bee products & quality control.
- CO5: Raw material, secretion & formation of different bee products in bee colony by bees.

Course: Processing Of Bee Products

By the completion of this course the student will be able to

- CO1: Understand objectives of processing of different bee products.
- CO2: Methods of processing of bee products.
- CO3: Precaution, safety, sanitation during processing.
- CO4: Unit process in honey processing.
- CO5: Importance of processing of bee products.
- CO6: Acquire the knowledge of packing of bee products.

Course: Bee Botany

By the completion of this course the student will be able to

- CO1: Got the knowledge of bee flora.
- CO2: Identify the bee plants.
- CO3: Knowledge of wild, cultivated, horticultural, ornamental, agricultural bee flora.
- CO4: Biogeographical distribution of bee flora of India.
- CO5: Flowering season of different bee plants.
- CO6: Acquire the knowledge of classification of flora & morphology of flower.
- CO7: Potential nectar & pollen yielding plants.
- CO8: Preparation of flowering calendar for specific region.
- CO9: To identify the dearth period of specific region.

Course: Extension, Marketing & Concern Organisation

By the completion of this course the student will be able to

- CO1: Acquire the knowledge about Government & semi-government organizations working in the field of beekeeping & its research, extension.
- CO2: understand legal & standard provision for beekeeping, processing, & use of bee equipments.
- CO3: Knowledge of marketing of bee products in indigenous market as well as its exporting.
- CO4: Student would understand how to maintain his financial transaction in beekeeping enterprises.

Bachelor of Arts

Programme Outcomes

- PO1: Provide knowledge and understanding of various fields of study in core disciplines in the humanities and social sciences

PO2: Develop critical and analytical skills to the identification and resolution of problems within complex changing social, linguistic and literary contexts

PO3: Understanding of the general concepts and principles of selected areas of study outside core disciplines of the humanities, social sciences and languages

PO4: Follow independence in learning appropriate theories and methodologies with intellectual honesty and an understanding of ethical and human values

PO5: Encourage students to analyse the problems and apply their knowledge for remedies thereof

PO6: Enhance students skills of effective communication and language learning i.e. reading, writing, listening and speaking another language with fluency and understand its cultural value

PO7: Become well informed and updated member of the community and responsible citizens

PO8: Work with self esteem, self reliance, self-reflection and creativity to face adversities in the work and personal life

English

Programme Specific Outcomes

PSO1: Make students English Language proficient to improve their employability

PSO2: Train them in the use and application of English language to overcome their day to day difficulties

PSO3: Tribal can preserve and popularize their language and culture through English

PSO4: Imbibing moral and human values through study of language and literature

PSO5: Give them a broader picture of the world through making them learn English language and literatures of the world

PSO6: Introduce them with technological advancement in English language

Course Outcomes

By the completion of this course the student will be able to

CO1: Students will learn analysis of the text from prose passages for understanding the contents

CO2: Prose passages will help improve reading and writing skills

CO3: They will develop imaginative thinking by reading and reciting poetry

CO4: Language activities will promote effective use of language in day to day life and enhance professional skills

CO5: The course content will enable rational thinking along with learning life skills.

Marathi

Programme Specific Outcomes

PSO1: To make students learn various literary streams, their nature, scope etc.

PSO2: To go through the contemplation by numerous thinkers on human life, values, and human problems expressed in Marathi

PSO3: To enhance empathy, inclusiveness, tolerance and human values

PSO4: To make the students study multi disciplinary aspects of Marathi

- PSO5: To learn about Marathi culture with its variety and plurality vis a vis Indian culture
PSO6: To develop communication skills
PSO7: To motivate students to make career in Marathi

Course Outcome

By the completion of this course the student will be able to

- CO1: Develop Attitude of Literary Forms. (Marathi Poetry & Story)
CO2: Develop Reading, Writing & Communication Skills of Students.
CO3: Develop Attitude of Literary Forms. (Marathi vaicharik sahitya & Novel)
CO4: Get the students introduced with interdisciplinary aspects of Marathi .
CO5: Information about Literary Theory.
CO6: Develop Attitude of Literary Forms. (Lalit Gadya)
CO7: Get the students introduced with various streams of Marathi
CO8: Information about the history of MODERN Marathi Literature.
CO9: Develop Attitude of Marathi Linguistics & Grammar.

Hindi

Programme Specific Outcomes

- PSO1: Promote Hindi as our national language and a symbol of nationality
PSO2: Make students understand its simplicity and lucidity
PSO3: Study and understand Literature in Hindi and significance of its translation
PSO4: Popularize Hindi and promote people to adopt Hindi along with their mother tongue
PSO5: Study Hindi along with local tribal languages
PSO6: Promote regional language translation with the help of study of Hindi

Course Outcomes

By the completion of this course the student will be able to

- CO1: Students will understand the various aspects of Hindi Language and literature.
CO2: Hindi is a national language and students will understand and comprehend its significance and relevance.
CO3: They will learn Hindi language and its usage in day to day and professional life.
CO4: Students will develop imaginative and language skills during study of Hindi and Hindi literature.

Sociology

Programme Specific Outcomes

- PSO1: Introduce students to social institution, organizations and their nature, work and utility
PSO2: Create awareness among students about various social problems their nature and causes and to study and find out remedies

PSO3: To teach students about social values and norms and cultivate ideal citizens

PSO4: To introduce students with tribal society and culture, their problems and develop positive attitude towards them

Course Outcomes

Course: Introduction to Sociology

By the completion of this course the student will be able to

CO1: learn origin and development of Sociology and its relations with other social science subjects.

CO2: introduce students with various social systems and their utility.

CO3: make students aware of basic social concepts like society, community, groups, etc.

CO4: teach them the importance of socialisation, culture, social control, etc.

Course: Indian Social Structure and Social Problems

By the completion of this course the student will be able to

CO1: introduce students with tribal, rural and civil societies.

CO2: bring primary Indian systems like family, caste, marriage, class to the notice of students.

CO3: make students aware of several social problems, their causes and remedies thereof.

Course: Social Anthropology

By the completion of this course the student will be able to

CO1: introduce students with origin, nature and ambit of Social Anthropology and its relations with other social science branches.

CO2: bring various social systems of tribal community like family, clan, marriage to the notice of students.

CO3: introduce students with tribal economy, faith, religion, magic and their political systems.

CO4: inform students about Problems of tribals, reformative programs and various schemes addressing their problems.

History

Programme Specific Outcomes

PSO1: To allow students to know the national as well as international history

PSO2: Preserve Indian culture by creating awareness about age old Indian culture

PSO3: Promote students to preserve and protect ancient and medieval historical structures and monuments

PSO4: Prepare students for various competitive examinations

PSO5: To help in nation building by developing patriotism among students

Course Outcomes

Course: History of India from Earliest Times 1205

By the completion of this course the student will be able to

CO1:

1. Perceive various sources to study of Ancient India .
2. Understand the glory of Indian History in the age of Harappan civilization.
3. Comprehend the history of Vedic period
4. Understand the philosophy of Jainism and Buddhism
5. Perceive influence of political support on religion.

CO2:

1. Know about the Mauryan Empire.
2. Perceive socio-economic, religious situation under the Maurya.

CO3:

1. Comprehend about the Gupta period.
2. Understand emergence of feudal system in Indian Society
3. Understand the History of Satvahans, Shungas, Kushans and Hunas,

CO4:

1. Understand the Harshavardhan and Patronage to Buddhism
2. Know about the Sangam age, the Cholas, Pallavas and Chalukyas.
3. Understand early difficulties of Arab and Turks Invasion and It's Impact in India.

CO5:

1. Understand the Education in Ancient India.
2. Understand the Position of women in Ancient India.
3. Know about the Judicial Administration in Ancient India
4. Perceive various Art and Architecture in sources to study of Ancient India .

Course: History of India From 1206 A. D. to 1525 A.D.

By the completion of this course the student will be able to

CO1:

1. Understand the Foundation of Delhi Sultanate and Administration.
2. Understand early difficulties of Sultans in India

CO2:

1. Grasp territorial expansion of Sultanate period.
2. Understand the administrative setup of Sultanate from central to local level.
3. Understand the the aspects of fiscals and monetary system under the sultanate

CO3:

1. Understand the Bahamani Kingdom..
2. Understand the rise and expansion of Vijaynagar Empire.

CO4:

1. Understand political structure during Sultanate Period.
2. Know the state of Society and Social Status of Woman.

CO5:

- 1 Know the system of trade and commerce during the period of Sultanate.

2. Understand the nature of village community and the relationship between the different sections of society
3. Grasp the attitude of emperors towards religion under the regime of Sultanat.

Course: History of India (From 1526 to 1947)

On completion of the course students will be able to

CO1:

1. Understand the political situation of India on the eve of Babar's invasion
2. Grasp territorial expansion of Mughal empire
3. Understand the emergence and consolidation of Sher Shah
4. Understand the administrative set up of Mughals
5. Understand the inspiration behind the establishment of Swarajya
6. Explain the reasons behind Chatrapati Shivaji's early conflicts with the regional lords and the outsiders.
7. Comprehend the basic features of Mansabdari and change in it during 17th century

CO2:

1. Know the system of trade and commerce during the period of Mughals.
2. Understand the nature of village community.
3. Grasp some aspects of fiscal and monetary system of Mughals.

CO3:

1. Understand modern Indian history.
2. Identify the importance and the legacy of Freedom Movement.
3. Distinguish the detail account of British raj as well as its overall impact on the Indian society.
4. Understand some of the early resistance to British rule.

CO4:

1. Understand early political awakening in Indian freedom struggle.
2. Identify the social institutions of late nineteenth century.
3. Understand various phases of national movement
4. Comprehend the socio-religious scenario and the social reformation.

CO5:

1. Grasp the details of freedom movement under the Mahatma Gandhi's Leadership.
2. Understand the evolutionary processes of constitutional developments.

Course: History of Modern Europe (From 1780 to 1965)

By the completion of this course the student will be able to

CO1:

1. Learn about the causes and aftermaths of the French revolution.
2. Understand the factors responsible for the end of Monarchy in France
3. Understand the rise of Napoleon and how Napoleon dominated the European politics.

CO2:

1. Understand the foreign policy of Germany under Bismarck and Kaiser William II
2. Describe the Historical process which leads to rise of nationalism in Europe

3. Learn about the Causes and effects first world war.
4. Describe the policies of US's Fourteen points of president Woodrow Wilson.

CO3:

1. Evaluate the Russian Revolution and the first experiment of the communist government.
2. Understand the League of Nations Aims, Objectives and structure.
3. Describe the policies of Mussolini and Hitler and his policies.

CO4:

1. Explain the aftermaths of the World War II on the world politics.
2. Understand the Diplomatic conferences during the war Period.
3. Understand the united Nations Organization.

CO5:

1. Understand how Russia and America emerged as superpowers on the verge of cold war.
2. Understand the Military Alliances NATO, SEATO. CENTO.
3. Learn the Non- Aligned movement and the Third world, origin and progress.

Economics

Programme Specific Outcomes

PSO1: To study economics theories and principles and see their applications

PSO2: Understand and study the Indian economy

PSO3: Understand and study monetary policies of India

PSO4: Determine economic variables including inflation, unemployment, poverty, GDP, balance of payments

PSO5: Understand the behaviour of financial and money markets and perform cost-benefit analysis for making investment decisions

Course outcomes

Course : Micro Economics

On completion of the course, students are able to

- CO1. Aware about fundamental concepts of economics
- CO2. Understand economic approach
- CO3. Know role of market in real life.
- CO4. Understand the theory of oligopoly & duopoly

Course : Economy of Maharashtra

- CO1. Understand nature of Maharashtra economy
- CO2. Understand population & economic development
- CO3. Understand infrastructure and economic development
- CO4. Understand role of agriculture in Maharashtra economy

Course : Macro Economics

On completion of the course, students are able to

- CO1. Understand macro economic analysis
- CO2. Understand of national income
- CO3. Understand classical & Keynesian theories of output and employment
- CO4. Understand consumption & Investment function
- CO5. Understand concept of public finance
- CO6. Understand concept of public revenue
- CO7. Understand concept of inflation and deflation

Course Indian Economy Developments and Environmental Economics

On completion of the course, students are able to

- CO1. Understand India's foreign trade
- CO2. Understand concept of globalization
- CO3. Understand public expenditure in India
- CO4. Understand public debt & deficit finance
- CO5. Understand concept of fiscal policy
- CO6. Understand concept of budget & deficit finance
- CO7. Understand international trade theories
- CO8. Understand gains from international trade & trade policy
- CO9. Understand economics of agriculture
- CO10. Understand Indian agriculture sector
- CO11. Understand the concept of environmental pollution
- CO12. Understand relation between population and environment
- CO13. Understand types of pollution and its remedies

Political Science

Programme Specific Outcomes

- PSO1: Political Science students will be able to write, read, speak and listen effectively in academic and social contexts
- PSO2: Political Science students will be able to construct research questions and use appropriate sources and research methods to answer them
- PSO3: Political Science students will analyze individual and group political behavior; the political process; public policy and administration; and case law within government
- PSO4: Political Science students will analyze the core intellectual traditions in political thought and apply their central tenets to contemporary political questions and issues
- PSO5: Political Science students will analyze the behavior of state and non-state actors and the nature of their interactions
- PSO6: Political Science students will compare and contrast the various political, social and economic systems that exist across the international community and analyze the political consequences of those variations

PSO7: Political Science students will use analytical skills to understand civic, social and environmental challenges

PSO8: Political Science students will demonstrate social responsibility and ethical reasoning within a variety of contexts

PSO9: Political Science students will generate a scholarly product that demonstrates appropriate knowledge, technical proficiency, information collection, synthesis, interpretation, presentation, and reflection

Course Outcomes

Course: Indian Constitutional Provisions and Local Self Government

By the completion of this course the student will be able to

CO1: Characteristic of Indian Constitution, Preamble, Fundamental Rights.

CO2: Directive Principal of State Policy, Fundamental Duties, Citizenship

CO3: President, Vice President, Prime minister

CO4: Parliament- loksabha, Rajyasabha

CO5: Judicial System of India-Supreme Court, High Court

Course: Indian Constitutional Provisions and Local Self Government

By the completion of this course the student will be able to

CO1: Election Commission of India- structure, power and Function

CO2: state Executive- Governor, Chief Minister, council of Minister

CO3: State Legislature- structure, power and Function

CO4: local self Government

CO5: women Political Participation in Panchyat raj, Nagpur Pact in Maharashtra formation, Right to Information Act

Course: Comparative Government and Politics

By the completion of this course the student will be able to

CO1: Meaning of comparative Government, Approaches of the comparative study, Constitutionalism

CO2: The Government and Politics of U.K- Constitution, Executive, Legislature, Judiciary, Political Party

CO3: The Government and Politics of U.S.- Constitution, Executive, Legislature, Judiciary, Political Party

CO4: The Government and Politics of Switzerland- Constitution, Executive, Legislature, Judiciary, Political Party

CO5: The Government and Politics of China- Constitution, Executive, Legislature, Judiciary, Political Party

Course: Political Theory

By the completion of this course the student will be able to

CO1: Nature and Significance of Political Theory, Meaning and scope

CO2: State- Theory of state Origin- Devine theory, Social Contract Theory, Evolutionary Theory

CO3: Political Concept- Sovereignty, citizenship, Liberty

CO4: Equality and Justice, Democracy

CO5: Development and Welfare State

Bachelor of Commerce

Programme Outcomes

PO1: To build conceptual foundation and application skills in the areas of Accountancy, Finance, Management, research and higher education

PO2: To sharpen the students analytical and decision making skills

PO3: To provide the students with a unique ability to manage accounts, people and organizations across the world with a combination of B.Com Degree

PO4: To build life skills through value based education and service oriented programs

PO5: To provide the students a competitive edge in the job market by equipping them with financial and management accounting techniques covering the technical areas that accountants are required to master

Statistics

Programme Specific Outcomes

PSO1: Mathematical knowledge to analyze and solve problems

PSO2: Statisticals reasoning and inferential methods, modeling and its limitations

PSO3: interpreting and communicating the result of a statistical analysis

PSO4: Data analysis using statistical computing tools and software

PSO5: Enhancing confidence through problem-solving method

Accounting

Programme Specific Outcomes

PSO1: Introduction to the real/ practical way of Accountancy.

PSO2: To enable students with computerised accounting skills through MS-Excel and Tally to bring out a good Book-keeper in themselves

PSO3: Trying to bring out a good accountant.

PSO4: Students should be able to find out the profitability of the business, cost efficiency

PSO5: Explain the basic nature of a joint stock company as a form of business organisation and the various kinds of companies based on liability of their members

PSO6: Describe the types of shares issued by a company; explain the accounting treatment of shares issued at par, at premium and at discount including over subscription

PSO7: Outline the accounting for forfeiture of shares and reissue of forfeited shares under varying situations

Computer and Information Technology

Programme Specific Outcomes

PSO1: Study the history of the discipline of computer and understand the concepts of the subject

PSO2: Understand the nature of the software development process, including the need to provide appropriate documentation

PSO3: Understand the working of computers, networking and programming languages

PSO4: Analysis of different functions, syntaxes, flow and types of programming languages and be able to program fluently in one or two programming languages

PSO5: Understand standard techniques for solving a problem on a computer, including programming techniques and techniques for the representation of information

PSO6: Explore the ways of programming with different logic than traditional ways

PSO7: Designing webpages using scripting languages like HTML, CSS and XML

PSO8: Understanding databases and operating it with SQL and PL/SQL

Business Regulatory Framework and Company Law

Programme Specific Outcomes

PSO1: Critically review the Indian legal system and institution relevant to commercial actors and advisors and argue its relevance in managing contemporary business organizations

PSO2: Critically examine the general areas of contract and corporate law and regulation encountered by commercial in local and global settings

PSO3: Comment on the impact of political economic and technological factors contributing to Income Tax and Audit:

PSO4: Provide basic knowledge of Income Tax and Audit

PSO5: Introduction to the real or practical field of Income Tax and Audit

PSO6: Make him/her a good Tax Consultant or an Auditor

Essentials of E-Commerce :

PSO1: Analyzing the impact of e-commerce on business models and strategy

PSO2: Recognize and discuss global E-commerce issues

PSO3: Assess electronic payment systems

PSO4: Growth in entrepreneurship skill of the students

Economics:

PSO1: Use Supply and Demand curves to analyze the impact of Taxes etc. on consumer surplus and market efficiency

PSO2: Apply the concept of opportunity cost

PSO3: Employ marginal analysis for decision making

PSO4: Analyze operation of market under varying competitive conditions

PSO5: Analyze causes and consequences of on employment inflection and growth

Business Environment:

PSO6: Imparting them the specific knowledge of Business Environment

PSO7: Analyse the political, social, economical, technological and other configurations that supports cross-border trade

PSO8: Apply an understanding of the nature of the multinational firm as institutional structure for the conduct of the cross-border trade and investment

PSO9: Analyse the key decisions that multinational firms make in relation to the choice of markets and entry strategies

Money and Financial System

Programme Specific Outcomes

PSO1: Identify the principles behind the workings of the financial system

PSO2: Demonstrate knowledge about the evolution of financial markets and various credit instruments; and the evolution of money and its functions

PSO3: Analyse the operations of equity and debt (bond) markets including interest- rate movements

PSO4: Demonstrate an understanding of the history, evolution, structure, operations and regulation of modern central banking and financial systems together with the design and conduct of monetary policy, with particular focus on the Asia-Pacific

PSO5: Demonstrate an understanding of the principles of modern commercial banking and operational issues within a globalised economic system

PSO6: Outcome of the subject comes under Management board

Principles of Business Organization/ Principles of Business Management

Programme Specific Outcomes

PSO1: Identify major business functions of accounting, finance, information systems, management, and marketing

PSO2: Describe the relationships of social responsibility, ethics, and law in business

PSO3: Explain forms of ownership, including their advantages and disadvantages

PSO4: Identify and explain the domestic and international considerations for today's business environment

PSO5: Identify and explain the role and effect of government on business

PSO6: Describe the importance and effects of ethical practices in business and be able to analyze business situations to identify ethical dilemmas and ethical lapses

PSO7: Explain the banking and financial systems, including the securities

Course outcomes

Course: Principles of Business Organization

On successful completion of this course students will be able to

CO1: Study the forms of business organisation understand the basic concepts and recent trends in commerce, Trade & business practices. understand the functioning of trade associations and study the industrialization.

CO2: Explain the concept of e-commerce, online booking systems, online booking procedure of railways, airlines, tourist and religious places, hotels and entertainment industry, make students familiar with the mechanism of conducting business transactions through electronic media understand the methodology of online business dealings using e-commerce infrastructure.

CO3: Understand the co-operation to study the concept and principles of co-operation, study the various types of cooperatives in India.

CO4: Explain forms of ownership, including their advantages and disadvantages, identify and explain the domestic and international considerations for today's business environment: social, economic, legal, ethical, technological, competitive, and international and identify and explain the role and effect of government on business.

Course: Advanced Accountancy (AAC)

On successful completion of this course students will be able to

CO1: Learn the Basics of Advanced Accountancy & record Accounting Transactions in Journal, Ledger Posting, Prepare Trial- Balance and Rectify the Errors if any.

CO2: Learn to keep various types of Subsidiary Books like Purchase Book, Sales Book etc. and maintain Various Types of Cash Book.

CO3: Learn to prepare Final Accounts of Individuals.

CO4: Learn Various Methods of Depreciation and Solve Problems on- Straight line Method and Reducing Balance Method.

CO5: Prepare all types of Bank Reconciliation Statements. In and all Trying to bring out a good Accountant within themselves. He must be able to find out the profitability of the business, cost efficiency.

Course: Computer Fundamentals and Operating System

On successful completion of this course students will be able to

CO1: Learn the concept of Block Diagram, Input and Output, Concept of Software and types Software.

CO2: Learn the concept of fundamentals of computer, Generations of Computer, Types and Applications of Digital Computer.

CO3: Learn the concept of Memory and types primary memory and Secondary memory.

CO4: Learn the Input and Output Device

CO5: Get the knowledge of the concept of MS-Word and Formatting Documents.

Course: Principals of Economics

On successful completion of this course students will be able to

CO1: Describe and explain how microeconomics models can be used to consider fundamental economics choices of households and firms.

CO2: Describe and explain how macroeconomics models can be used to analyses the economy as a whole.

CO3: Describe and explain how Government police influences microeconomics outcomes.

CO4: Interpret and use economic models diagrams and tables use them to analyses economic situation.

CO5: Be able to evaluate the effects of Law of Demand, Law of Variable Proportion.

Course: Principles Of Business Management

On successful completion of this course students will be able to

CO1: Discuss and communicate the management evolution and how it will affect future managers, Observe and evaluate the influence of historical forces on the current practice of management and Identify strengths, weaknesses, opportunities, and threats of information technology for businesses.

CO2: Practice the process of management's four functions: planning, organizing, leading, and controlling, Identify and properly use vocabularies within the field of management to articulate one's own position on a specific management issue and communicate effectively with varied audiences.

CO3: Explain how organizations adapt to an uncertain environment and identify techniques managers use to influence and control the internal environment.

CO4: Evaluate leadership styles to anticipate the consequences of each leadership style.

CO5: Gather and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Course: Financial Accounting (FAC)

On successful completion of this course students will be able to

CO1: Prepare Accounts of Non-Trading Institutions.

CO2: Prepare Accounts of Co-operative Societies.

CO3: Prepare Accounts of Agriculture Farms.

CO4: Prepare Accounts of Hire, purchases and Instalment purchase.

CO5: Understand Law`s of Insolvency and prepare Accounts of Insolvency of Individuals.

Course: Computer Fundamentals and Operating System –II

On successful completion of this course students will be able to

CO1: Understand concept of Operating system, advantages and disadvantages of operating system

CO2: Get the practical knowledge of UNIX /Linux MACINTOSH MS –Window Operating System command

CO3: Understand the concept of Memory management techniques ,CPU management , Data management

CO4: Understand the concept only regarding modern communication likes fax voice mail , e mail Tele conferencing and video conferencing file exchange

CO5: Understand the concept of word processing and working with table and graphics using MS word 2007

CO6: Understand the concept of MS Power point presentation using power point2007

Course: Business Economics

Upon successful completion of the requirements for this course students will

CO1: Be familiar with introductory canonical models of consumer and macro economy.

CO2: Have a basic understanding of the operation of a modern economy.

CO3: Be able to evaluate the effects of Government interventions in individual markets and in the macro economy.

CO4: Analyze operation of markets under varying competitive condition.

CO5: Analyze operation of factor pricing.

Course: Corporate Accounting

On successful completion of this course students will be able to

CO1: This course shall able the students to develop awareness and train them in Corporate Accounting inconformity with the Provisions of Indian Companies Act 1956 and Indian Accounting Standards.

CO2: Explain the students basic nature of a joint stock company as a form of business organization and the various kinds of companies based on liability of their members, the types of shares issued by a company, accounting treatment of shares issued at premium and at discount including oversubscription, forfeiture of shares and reissue of forfeited shares under varying situations. the meaning of debenture and explain the difference between debentures and shares. describe various types of debentures, record the journal entries for the issue of debentures at par, at a discount and at premium;

CO3: Student would Learn to prepare Final Accounts of Companies, Valuation of Goodwill Super profit method and Capitalization method and Valuation of shares Intensive Value, Market Value and Fair Value.

CO4: Student would Learn to prepare Accounting for Liquidation of companies – Preparation of Liquidator's Final Statement of Account. Accounting for Amalgamation, Absorption and External Reconstruction of companies – Calculation of purchase consideration.

CO5: This course students will be able explain the Concept of Fund, What is flow of Fund, Rules of Fund flow statement, Schedule of changes in working capital, Statement of sources and Application of Fund.

Course: Money and Financial System

On successful completion of this course students will be able to

CO1: Explain the evolution of money and its nature and functions of money, Explain how information about the future can reduce the uncertainty associated with future monetary value, and Explain the concept “ value of money”

CO2: Identify the principles behind the workings of the financial system, the Indian Banking System, the role of development banks in India. To study the law and practice of Banking System in India, study the recent trends in Indian Banking System

CO3: Assess the responses of the economy to both monetary and fiscal policy, Explain the basic purposes of the monetary and financial systems. Identify the markets for stocks, bonds, derivatives, and currencies.

CO4: Demonstrate an understanding of the history, evolution, structure, operations and regulation of commercial banking, central banking and financial systems together with the design and conduct of monetary policy.

Course: Income Tax and Audit (ITA)

By the completion of this course the student will be able to

CO1: Understand basic Concepts of Income Tax.

CO2: Compute Tax liability on Various Heads of Income like Salary, House Property, Business and profession, Capital Gain & other sources.

CO3: Compute Tax liability on Various Heads of Income, & understand Tax Management & Tax Administration.

CO4: Understand Basic Concepts of Auditing, Types of Audits, Audit Programme, Audit Books, Routine checking and Vouching.

CO5: Understand the power and duties of Company Auditor & preparation of Audit Report.

CO6: Understand the Special Audit of Banking, Insurance and Non-Profit Companies & Educational Institutes also Investigation. In and all to Make him/her a good Tax Consultant or an Auditor.

Course: Information Technology and Business Data Processing

CO1: Understand the use of information technology and data in computing use of data processing

CO2: Understand the Database and Database management system

CO3: Understand use of ms excel 2003/2007/higher

CO4: Understand the concept of MS-Excel, spreadsheet Basics and Editing and Formatting Worksheet

CO4: Understand computerizing accounting and taxation

CO5: Work with tally 9.0 and higher version

Course: Business Mathematics and Statistics

By the completion of this course the student will be able to

CO1: Recognize the importance and value of mathematical and statistical thinking approach to problem solving, on a diverse variety of disciplines.

CO2: Become familiar with a variety of examples where mathematics and statistics helps accurately explain abstract or physical phenomena.

CO3: Independently read mathematical or statistical literature of a various types, including survey articles, scholarly books and online sources.

CO4: Become life-long learners who are able to independently expand their mathematical or statistical expertise when needed.

CO5: Analyze Mathematical and statistical knowledge and solve problems.

Course: Internet world wide web

On successful completion of this course students will be able to

CO1: Develop skill among students in applications of internet in commerce education.

CO2: Explain the Concept of HTML, HTML Organization, Creation of HTML files, HTML editor, Tags and attributes of HTML, learning the basic structure, elements of HTML, Creation of web page using HTML and Introduction to Internet and World Wide Web, web browsers, web sites, search engines.

CO3: Explain HTML Form Building - Form elements , Tab navigation, Access Keys, Developing web pages using frames, Hyperlinks, images.

Course: Business Environment (BEM)

By the completion of this course the student will be able to

CO1: Understand Indian Business Environment, National Income, Parallel Economy, Indian Trade & Industry and Indian Agriculture.

CO2: Understand Problems in the Development of India. Human resources, unemployment and poverty in India.

CO3: Understand the Role of Government- Industrial Policy, Free Trade Policy, Liberalization, Privatization & Globalization.

CO4: Understand & Analyze Planning in India, Finance Commission Current Trends in Indian Economic Planning.

CO5: Understand the International Business Environment, International Economic Institutions and Grouping like GATT, World Bank, WTO, IMF, SAFTA etc.

Course: Essentials of E-Commerce (EOE)

In this subject Essentials of E-Commerce the outcomes are as under

CO1: Analyzing the impact of e-commerce on business models and strategy

CO2: Recognize and discuss global E-commerce issues

CO3: Assess Electronic Payment Systems

CO4: Growth in Entrepreneurship Skill of the Students

CO5: Understand various Emerging Business Models of E- Commerce.

Course: Cost and Management Accounting

Upon successful completion of this course students will be able to

CO1: Demonstrate an understanding of the difference between job-order costing and process costing.

CO2: Identify and describe the basic cost concepts and understand the manufacturing environment.

CO3: Demonstrate knowledge of the tools to make management decisions using relevant costs and capital budgeting techniques.

CO4: Explain how an organization develops their master budget.

CO5: Demonstrate knowledge of Standard costs and analysis of variances.

Course: Business Regulatory Framework and Company Law

Upon successful completion of the module, candidates are expected to be able to

CO1: Apply their knowledge of the law of trusts to establish the presence or absence of tortious liability and consequences which result.

CO2: Discuss the various legal and regulatory rules covered in the course and the respective rights and obligations created under these.

CO3: Apply their knowledge of the legal rules governing contract to determine:

- The existence and validity of a contract.
- The rights and obligations of the parties to a contract.

CO4: Discuss and explain the regulatory framework, mechanisms and laws relating to corporate decision making, opportunities and governance.

CO5: Analyze, explain and apply the essential aspects of a good corporate governance framework and practice for companies.