KURIAKOSE ELIAS COLLEGE, MANNANAM

(Affiliated to Mahatma Gandhi University, Kottayam)

COURSE OUTCOMES

(Academic Year 2018-19)

MANNANAM, P.O, KOTTAYAM, KERALA-686561

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UNDER GRADUATE PROGRAMMES

B.Sc./B.A/B/Com/B.voc

After the completion of the course, Students will be able to:

Common Courses-English

Semester I

Fine-tune Your English- Common Course-1 (EN1CC01)

CO1	Identify diverse use of English both in written and spoken forms
CO2	Recognize the errors of usage and correct them
CO3	Recognize their own ability to improve their competence in using the language
CO4	Use language for speaking with confidence in an intelligible and acceptable manner

Pearls from the Deep Common Course -2 (EN1CC02)

CO1	Read independently unfamiliar texts with comprehension
CO2	Appreciate the aesthetic and structural elements of literature
CO3	Understand the importance of reading in life
CO4	Read and appreciate works of literature

Semester II

Issues that Matter Common Course -3 (EN2CC03)

CO1	Extend the knowledge of life in literature (say of animals, environment, gender, politics, nationalities, personal and ideological differences) to life and living situations
CO2	Sensitize the reader about the issues of contemporary significance
CO3	Respond positively and rationally to the issues raised
CO4	Internalize values through selected texts

Savouring the Classics Common Course -4(EN2CC04)

CO1	Understand the classics from various lands
CO2	Demonstrate the features of a classic
CO3	Develop an interest for reading
CO4	Illustrate persuasive literary or historical analysis of ancient texts in translation.

Semester III

Literature and/as Identity Common Course -5 (EN3CC05)

CO1	Respond with sensitivity to the gender and cultural nuances in which a text is located (Value addition)
CO2	Discuss the subtle negotiations of Indigenous and Diasporic identities within Literature.
CO3	Familiarise the youth how literature represents, discusses and problematizes identity.
CO4	Aware on the emergence of Life Writing and alternate/alternative / marginal identities.

Semester IV

Illuminations Common Course -6(EN4CC06)

CO1	Acquaint with different forms of inspirational and motivational writings.
CO2	Maintain a creative and insightful perspective towards life.
CO3	Explore the philosophy of life and appreciate the value of being a human.
CO4	Evaluate and overcome setbacks based on the insights that these texts provide

Second Language-Hindi

Semester I

B.A/B.Sc

Prose and One Act Plays (HNICCT01)

CO1	Read Hindi confidently
CO2	Develop environmental awareness
CO3	Acquire moral and cultural values
CO4	Develop love for beauty of nature

B.Com

Prose and Mass Media (HNICCT01)

CO1	Understand and evaluate essays written on various topics
CO2	Illustrate new trends in mass media
CO3	Understand the basic principles of translation
CO4	Translate works from Hindi to English and English to Hindi.

B.A Model II

Drama and Long Poem (HNICCT01)

CO1	Explain different forms of poetry.
CO2	Describe drama and stage performance
CO3	Analyse and describe Indian History
CO4	Explain about the modern poetry.

B.Sc. Model II

Poetry and One Act Play (HN1CCT01)

CO1	Use Hindi language for effective communication.
CO2	Explain different kinds of literature.
CO3	Create awareness regarding culture and social responsibility.
CO4	Explain the importance of environment, human rights and gender issues

Semester II

B.A/B.Sc.

Short Stories and Novel (HN2CCT02)

CO1	Discuss about the history of Hindi novel sand short stories**.**
CO2	Realise the values and ethics of our culture.
CO3	Understand the broken relationships of modern world
CO4	Realise the need of women empowerment.

B,Com

Poetry Commercial Correspondence and translation (HN2CCT02)

CO1	Read Hindi poetry
CO2	Acquire information about the famous poets of Hindi.
CO3	Inculcate human values in life
CO4	Understand the structure of poetry in ancient and modern poetry.

Prose and Poetry (HN2CCT02)

CO1	Understand and observe society by studying different types of essay
CO2	Inculcate human values by reading different poems

CO3	Understand modern and ancient poetry
CO4	Read poetry confidently.

B.Sc. Model II

Prose and Short Stories (HN2CCT02)

CO1	Explain different kinds of literature
CO2	Discuss about the writer including the writing style and the time of living.
CO3	Creates interest towards appreciation of literature and thereby develop their aesthetic sense.
CO4	Develop human values

Semester III

B.A/B.Sc

Poetry, Grammar and Translation (HN3CCT03)

CO1	Understand the structure of poetry in ancient and modern poetry
CO2	Read Hindi poetry.
CO3	Inculcate human values in life.
CO4	Describe about the famous poets of Hindi.
CO5	Acquire knowledge on basic grammar
CO6	Discuss general principles of grammar

Semester IV

B.A/B.Sc.

Long poem and Drama (HNCCT04)

CO1	Acquire awareness about the different forms of poetry.
CO2	Describe on drama and stage performance
CO3	Describe about history of Indian History.
CO4	Acquire information about the modern poetry.

Second Language –Malayalam

Semester I

B.A/B.Sc. (Model-1)

Katha Sahyathyam (ML1CCT01)

CO1	Explain the noble life perspective in literature.
CO2	Demonstrate literary experience, reading aptitude and ability to enjoy.
CO3	Identify the emotional evolutions that occur in fiction.
CO4	Recognize common trends of the period manifested in the writing.

B.com (Model-1)

Khadhayum, Kavithayum (ML1CCT05)

CO1	Summarize general literary experience.
CO2	Demonstrate reading aptitude and ability to enjoy.
CO3	Identify the evolution of sentimentality in Malayalam literature.
CO4	Locate the changes of time and outlook on life in literature.

B.A/B.Sc. (Model-II)

Khadha, Kavitha (ML1CCT09)

CO1	Apply reading experience in general-story, poetry and literature.
CO2	Identify the emotional evolutions in literature.
CO3	Locate the new trends of the period manifested in the literature.
CO4	Summarize the sublime outlook on life in literature.

Semester II

B.A/B.Sc. (Model-1)

Kavitha (ML2CCT02)

CO1	Locate general poetry experience and reading aptitude.
CO2	Identify the emotional evolution of Malayalam poetry.
CO3	Recognize that the poem depicts the general thoughts of the period.
CO4	Explain human visions in poetry.

B.com (Model-1)

Athmakadhalehanam (ML2CCT06)

CO1	Describe the literary form of autobiography.
CO2	Locate the writer's life environment and history through the autobiography.
CO3	Identify the power and beauty of prose literature.
CO4	Demonstrate prose writing skills

B.A/B.Sc (Model-II)

Gadhaparichayam (ML2CCT10)

CO1	Describe the power and potential of Malayalam Prose.
CO2	Recognize present –day techniques that came from criticism.
CO3	Demonstrate the author through a memoir.
CO4	Identify the circumstance that shaped the writer.

Semester III

B.A/B.Sc (Model-1)

Drshyakalasahyathyam (ML3CCT03)

CO1	Describe the rich visual arts tradition of Kerala.
CO2	Recognize present-day techniques that came from visual arts.
CO3	Summarize and enjoy the literary forms of visual arts.
CO4	Explain the connections between Kerala History and Cinema.

Semester IV

B.A/B.Sc (Model-1)

Malayalaghadhyarachanakal(ML4CCT04)

CO1	Recognize Malayalam prose works.
CO2	Explain review patterns.
CO3	Demonstrate the author through a memoir.
CO4	Identify the situation that shaped the writer.

Core Courses

Semester I

B.Sc Mathematics

Foundation of Mathematics (MM1CRT01)

CO1	Identify the foundational concepts of mathematics which include sets, functions, equations and basic logic.
CO2	Acquire the ability to think mathematically and distinguish mathematical thinking from wishful thinking.
CO3	Apply effectively sets, relations and functions as important tools in mathematical modelling.
CO4	Understand the ways to establish the existence of roots of polynomial equations and express the roots as algebraic functions of the coefficients, or to show why it is not, in general, possible to do so.
CO5	Construct clear and convincing proofs for mathematical statements.
CO6	Differentiate between facts and fallacies.
CO7	Understand the basic mathematical language concerning logic, sets, the standard number systems, deductive and inductive reasoning, and the structure of proof.

Semester II

Analytic Geometry, Trigonometry and Differential Calculus (MM2CRT02)

C01	Develop a basic understanding of conic sections, summation of infinite trigonometric series and successive differentiation.
C02	Identify a conic in polar form and find the polar equations of tangent and normal at a point on the conic.
C03	Demonstrate an understanding of $C + iS$method used for finding sum of an infinite trigonometric series.
C04	Describe higher order derivatives and apply Leibnitz's theorem for finding nth derivative of product of two functions.

Semester III

Calculus (MM3CRT03)

CO1	**Construct profound knowledge in applications of differential and integral calculus.**
CO2	Write functions in terms of infinite series by using methods of differential calculus.
CO3	Define points of inflexion, concavity, curvature and radius of curvature of curves using derivatives
CO4	Construct an understanding of involutes, evolutes, asymptotes and envelopes.
CO5	Describe basic idea of partial derivatives and related concepts.
CO6	Illustrate surface areas and volumes of revolution by evaluating double and triple integrals.

Semester IV

Vector Calculus, Theory of Numbers and Laplace Transforms (MM4CRT04)

CO1	Define the basic concepts of vector differentiation and vector integration.
CO2	Describe vector fields to determine curl and divergence.
CO3	Apply Green's theorem to evaluate line integrals along simple closed contours on the plane and Stokes' theorem to evaluate line integrals along the boundary of a surface.
CO4	Explain the concepts of divisibility, congruences, relatively prime numbers and Euler's phi function.
CO5	Develop basic knowledge of Laplace transforms, apply the method of Laplace Transforms to find solutions of linear ordinary differential equations and integral equations.

Semester V

Mathematical Analysis (MM5CRT05)

CO1	**Illustrate strong analytical skills needed to comprehend rigorous proofs.**
CO2	Construct the ability to understand real number system in algebraic and topological settings.
CO3	Describe real line as a complete, ordered field.
CO4	Explain sequences and series of real numbers and their convergence properties.

CO5	Differentiate between limit of a sequence and that of a function, prove theorems related to limits of functions.

Differential Equations (MM5CRTO6)

CO1	Create a solid understanding of the basic concepts of differential equations and their applications in physical problems.
CO2	Identify and solve separable, linear, exact and homogeneous first order differential equations.
CO3	Apply the method of undetermined coefficients and the method of variation of parameters to find solutions of second order linear equations.
CO4	Use power series techniques to solve linear differential equations in the neighborhood of ordinary points.
CO5	Solve first order linear partial differential equations using Lagrange's method.

Abstract Algebra (MM5CRT07)

CO1	**Locate skills to work within abstract algebraic structures such as groups, rings and fields.**
CO2	Apply Lagrange's Theorem to analyze cyclic subgroups of a group.
CO3	Describe the significance of normal subgroups and factor groups.
CO4	Define the basic concepts of rings, ideals, quotient rings and prove related theorems.
CO5	Differentiate between group and ring homomorphisms, integral domain and field.

Human Rights and Mathematics for Environmental Studies

CO1	Analyze how and why things happen, and make decisions about complex environmental issues.
CO2	Employ actions to keep environment healthy and sustainable for the future, encourage character building, and develop positive attitude towards environment protection.
C03	Describe nature and its beauty using mathematical concepts such as golden ratio and Fibonacci sequences.
CO4	Describe fundamental human rights.

CO5	Explain the simultaneous need for human rights and conservation of natural resources.

Applicable Mathematics (MM5GET02)

CO1	**Develop mathematical skills and literacy.**
CO2	Recall the elementary concepts in arithmetic, algebra, geometry, trigonometry and differentiation.
CO3	Formulate algebraic equations from word problems to solve them.
CO4	Describe the computation of simple and compound interests and develop the ability to solve financial mathematical problems.
CO5	Compute derivatives of functions.
CO6	Apply simple techniques to solve different mathematical problems that will aid them for a better performance in various competitive exams.

Semester VI

Real Analysis (MM6CRT09)

CO1	**Identify real analysis as the rigorous version of calculus and analyze the properties of real functions.**
CO2	Analyze the differentiability of a function and apply Mean Value Theorem, L' Hospital rules and Taylor's Theorem to compute derivatives.
CO3	Demonstrate an understanding of Riemann integrability of bounded functions and related theorems.
CO4	Distinguish between point- wise and uniform convergence of sequences and series of functions.

Graph Theory and Metric Spaces (MM6CRT10)

CO1	Create an in-depth knowledge in the main concepts related to graphs such as vertex degrees, paths, connectivity, trees, spanning trees, cut- vertices and matrix representation of graphs.
CO2	Evaluate the interrelationships between a group of objects using a graph, use graphs as mathematical models to study practical problems such as Chinese postman problem and the travelling salesman problem.
CO3	Demonstrate an understanding of open sets, closed sets and convergence of sequences in metric spaces.

CO4	Distinguish between complete and incomplete metric spaces.
CO5	Analyze the continuity of a function between two metric spaces.

Complex Analysis(MM6CRT11)

CO1	**Explain the basic theory of complex analysis and its methods including analyticity of complex functions, evaluation of contour integrals using Cauchy's theorems, expression of analytic functions as power series, poles, residues and evaluation of improper integrals.**
CO2	Apply the concepts of differentiation and integration of real functions to complex functions.
CO3	Analyze the convergence of sequences and series of complex numbers.
CO4	Describe power series, Taylor series and Laurent series of complex functions, classify singularities and find residues at poles.
C05	Evaluate improper integrals using the residue theorem.

Linear Algebra (MM6CRT12)

CO1	Recognize the basic applications of the chosen topics and their importance in the modern science
CO2	Explain basic ideas of linear algebra including concepts of vector spaces, linear independence, theory of matrices, linear transformations, bases and dimension, eigenvalues, eigenvectors and diagonalization.
CO3	Recognize theory of matrices as equivalent to theory of linear transformations in the finite dimensional case.
CO4	Work with vectors, matrices or linear systems symbolically and geometrically.

Operations Research (MM6CBT01)

CO1	Develop the skills required for applying analytical methods to decision making and problem solving.
CO2	Formulate linear programming models from verbal problems and solve them using graphical method and simplex method.
CO3	Analyze the transportation and assignment problems as special cases of linear programming problems and employ algorithms and mathematical models to reach at an optimal solution.
CO4	Describe the concepts of game theory and learn to use them in strategic environments.

Complimentary Courses to Physics and Chemistry

Semester I

Partial Differentiation, Matrices, Trignometry and Numerical Methods (MM1CMT01)

CO1	Recognize Functions of different variables and acquire knowledge in partial differentiation
CO2	Develop an idea about Rank, Transformation (Row/Column) of Matrices ,Able to find solutions of homogeneous and non-homogeneous linear equations .Get an idea about Characteristic roots and vectors of a matrix and Cayley -Hamilton theorem.
CO3	Explain the expansion using De-Movier's theorem in powers of sines and cosines, recognize hyperbolic and circular functions,and also learns the summation of different types of series.
CO4	Find solution of algebraic and transcendental equations using different methods.

Semester II

Integral Calculus and Differential Equations (MM2CMT02)

CO1	Evaluate the volumes of solids using cross -sections
CO2	Find the length of an arc of a curve when whose equations are given in parametric and polar form
CO3	Evaluate the area of surfaces of revolution
CO4	Determine the area and volume by applying the techniques of double and triple integrals
CO5	Identify different types of differential equations and solve them.

Semester III

Vector Calculus Analytic Geometry and Abstract Algebra (MM3CMT03)

CO1	Generate an idea of curves in space and associated concepts.
CO2	Evaluate directional derivatives and to find gradient vectors.
CO3	Discuss the importance of line integral and will be able to identify where it can applied and how it is evaluated.
CO4	Define the concepts of work, potential function, circulation, flux etc .
CO5	Identifies conic sections and their properties.
CO6	Get an understanding in basic concepts in group theory.

Semester IV

Fourier Series Laplace Transform And Complex Analysis (MM4CMTO4)

CO1	Categorize periodic functions using Fourier series.
CO2	Get an idea of power series method to solve differential equations familiar with Legender equations and Legender polynomials.
CO3	Understand Laplace transforms.
CO4	Explain Complex numbers and their properties.
CO5	Learn about analytic functions and how to check analyticity based on Cauchy-Riemann equations.
CO6	Evaluate complex integral by various methods.

Complementary Course to B. Sc. Mathematics Programme

Semester I

Descriptive Statistics (ST1CMT01)

CO1	Explain different aspects of data, and its collection
CO2	Describe Central tendency, Dispersion, its measures and problems based on it.
CO3	Distinguish between raw moments and central moments and their inter relations.
CO4	Apply the concept of index numbers in practical situations.

Semester II

Probability Theory (ST2CMT02)

CO1	Explain basic ideas on random experiment, event and Classical, Frequency and Axiomatic approaches to probability.
CO2	Describe Probability Distribution of Univariate Random Variables.
CO3	Define Probability Distribution of Bivariate Random Variables.
CO4	ExplainCorrelation and Regression

Semester III

Probability Distributions (ST3CMT03)

CO1	Define expectation of random variables and their functions.
CO2	Evaluate problems based on these concepts.
CO3	Describe Law of Large Numbers and Central Limit Theorem.
CO4	Explain Sampling Distributions.

Semester IV

Statistical Inference (ST4CMT04)

CO1	Explain Concepts of Estimation, Estimators and Estimates and its properties.
CO2	Distinguish between Point and interval estimation.

CO3	Describe basic ideas on Testing of Hypotheses and Large Sample Tests.
CO4	Distinguish between Large Sample Tests and small Sample Tests.

B.Sc Physics and B.Sc Physics with Applied Electronics

Semester I

Methodology and Perspectives of Physics (PH1CRT01)

CO1	Develop a basic concept about the advancement of Physics through scientific contributions of various Physicists.
CO2	Identify various number systems and their relevance and application in digital and communication systems and devices
CO3	Interpret the application of vectors and vector calculus in solving problems in various branches of Physics as well as in engineering.
CO4	Analyse of various coordinate systems and their applications in systems with spherical and cylindrical symmetries
CO5	Distinguish between the instruments employed for measuring different physical parameters and classify the types of errors occurring and identify the means to reduce them.

Semester II

Mechanics and Properties of Matter(PH2CRT02)

CO1	Develop an understanding of various aspects of wave motions with practical examples and applications
CO2	Analyse and understand various types of periodic motions and oscillations and develop concept of resonance and its practical aspects.
CO3	Generate an awareness of the kinematics and dynamics of rotational motion.
CO4	Learn the concepts of elasticity in solids and analyse various experimental techniques to find out different modulii of elasticity
CO5	Analyse fluid dynamics theory and interpret various fluid behaviour and working of certain devices based on it

Semester III

Optics, Laser and Fiber Optics(PH3CRT03)

CO1	Apply the principles of wave motion and superposition to explain the Physics of polarisation, interference and diffraction.
CO2	Identify and analyze the optical principles behind various natural phenomenon
CO3	Understand the working of selected optical instruments like interferometer,

	diffraction grating etc.
CO4	Discuss various methods to produce and detect polarized light
CO5	Develop a basic concept about the principle of LASERS and categorize different level lasers with practical examples and applications
CO6	Explain the fundamentals of Fiber optic communication

Semester IV

Semiconductor Physics (PH4CRT04)

CO1	Discuss the formation and characteristics of P-N junctions and their application in rectifiers, voltage multipliers, wave shaping circuits and voltage regulators.
CO2	Analysis of basic transistors configurations and its current and voltage gain.
CO3	Discriminate different feedback systems and biasing
CO4	Illustrate the use of transistor in amplifier and oscillator circuits and evaluate the outputs
CO5	Compare FET and BJT
CO6	Demonstrate inverting and non-inverting amplifiers using op-amps.
CO7	Classify various types of modulation techniques in communication

Semester V

Electricity and Electrodynamics (PH5CRT05)

CO1	Analyze of various types of ac circuits and comparison of power in them
CO2	Verify Network theorems using simple electric circuits.
CO3	Illustrate transient current circuits
CO4	Explain thermoelectric effects
CO5	Demonstrate fundamental laws their applications in electrostatics and magnetostatics
CO6	Interpret the Maxwell's equations and apply them to deduce wave equation and the electromagnetic field energy

Classical and Quantum Mechanics (PH5CRT06)

CO1	Explain Lagrangian and the Hamiltonian formulations of classical mechanics and their applications in appropriate physical problems
CO2	Derivation of Lagrange's equation from Hamiltons principle.
CO3	Discuss the development and fundamentals of quantum theory.
CO4	Illustrate the postulates of quantum mechanics and the concepts of generalised uncertainty principle

CO5	Analyse time dependent and independent Schrodinger equation and its applications

Digital Electronics and Programming (PH5CRT07)

CO1	Illustrate the Basic Gates and Universal Gates
CO2	Synthesis of Boolean functions, simplification and construction of digital circuits using Boolean algebra.
CO3	Analyse the K-Map and simplify using SOP
CO4	Apply combinational logic to construct digital circuits like adders, subtractors, encoder, decoder, multiplexer and demultiplexer.
CO5	Demonstrate the sequential systems in Flip-Flops, registers, counters, DAC and ADC
CO6	Discuss the fundamentals of C++ programming languages and their applications in solving physical problems

Environmental Physics and Human Rights (PH5CRT08)

CO1	Classify various natural resources and identify the problems associated with them
CO2	Develop an awareness about ecosystem, biodiversity and the need for conserving endangered and endemic species
CO3	Categorise various types of Environment pollution and analyse the cause and effects of them and outline certain control measures
CO4	Create awareness about the social issues associated with environment and various acts to protect environment
CO5	Discuss sources of renewable and non-renewable energy and their importance
CO6	Analyze methods of solar energy harvesting and devices working out of it
CO7	Discuss about Human rights with policies developed in India and across the world

Open Course -Physics in Daily Life(PH5OPT02)

CO1	Develop a basic idea about various physical quantities and their units that we usually employ in daily life
CO2	Apply optics and various optical properties to explain various phenomena that we encounter daily
CO3	Analyse the working of human eye and its common defects
CO4	Discuss different types of motion and their effects

CO5	Analyse various sources of electric energy
CO6	Explain various fluid properties and applications
CO7	Compare different scales of temperature measurement
CO8	Develop a fundamental knowledge about the structure of our universe

Semester VI

Thermal and Statistical Physics (PH6CRT09)

CO1	Comprehend the basic concepts of thermodynamics, entropy, zeroth, first and the second law of thermodynamics
CO2	Analyse the principle and working of heat engines and refrigerator
CO3	Develop a concept of the thermodynamic potentials and derive Maxwells relations
CO4	Identify various modes of heat transfer
CO5	Formulate the concepts of microstate, macrostate, ensemble, phase space, thermodynamic probability and partition function.
CO6	Discriminate between different statistical distributions

Relativity and Spectroscopy (PH6CRT10)

CO1	Identify the postulates of the special theory of relativity
CO2	Analyse of Lorentz transformation, spatial contraction, time dilation, mass-energy equivalence etc.
CO3	Illustrate of various atom models and coupling schemes
CO4	Discuss normal and anomalous Zeeman effect and Paschen Bach Effect
CO5	Classify molecular energy levels and types of molecular spectra and explanation of theories behind their origin
CO6	Recognise the basic principles and instrumentations of NMR and ESR spectroscopy

Nuclear, Particle and Astrophysics (PH6CRT11)

CO1	Explain the fundamentals of nuclear structure and properties
CO2	Compare of various nuclear models developed
CO3	Discuss Nuclear Radiation Detectors, Counters and Particle Accelerators
CO4	Analyse of radioactivity, nuclear transformations and fission and fusion reactions
CO5	Classify of elementary particles and the quantum numbers and the conservation laws associated.

CO6	Illustrate the life cycle of stars.

Solid State Physics (PH6CRT12)

CO1	Develop a basic concept about crystalline substances, crystal lattice, unit cell, miller indices etc.
CO2	Recognise the importance of, reciprocal lattice, concept of Brillouin zones and analyse different methods of X-ray diffraction.
CO3	Identify various types of bonding mechanisms in solids
CO4	Classify different types of magnetic materials based on their properties
CO5	Analyse the various polarisation mechanisms in solids and their dielectric behaviour
CO6	Differentiate between insulators, conductors and semiconductors based on band theory of solids.
CO7	Analyse the semiconducting properties of materials
CO8	Discuss the basic idea about superconductors, their classification and practical applications

Choice Based Course – Computational Physics (PH6CBT03)

CO1	Solve Nonlinear and linear algebraic equations using various methods
CO2	Apply least square fitting method to fit given data
CO3	Formulate interpolating polynomials
CO4	Compute using various differentiation and integration methods
CO5	Solve ordinary differential equations
CO6	Develop algorithms for computation

Complementary Physics for Mathematics

Semester I

Properties of Matter & Error Analysis (PH1CMT01)

CO1	Develop the concepts of elasticity in solids and analyse various experimental techniques to find out different modulii of elasticity
CO2	Analyse the theory behind surface tension and evaluate the factor affecting it
CO3	Analyse the hydrodynamics theory and distinguish between streamline and turbulent flow
CO4	Develop concepts of viscosity in fluids and experimental methods to determine it
CO5	Distinguish between various types of errors occurring in measurement

CO6	Estimate and report errors through various means and tools

Semester II

Mechanics and Astrophysics(PH2CMT01)

CO1	Develop the basic concepts of motion under gravity
CO2	Analyse various experimental methods to determine acceleration due to gravity
CO3	Generate an awareness of the rotational dynamics and determine the moment of inertia of solids of various shapes
CO4	Analyse and understand various types of periodic motions and oscillations and develop concept of resonance.
CO5	Classify and analyse various types of waves and evaluate certain physical effects based on it
CO6	Develop an overview about the stars and their life cycle

Semester III

Modern Physics and Electronics(PH3CMT01)

CO1	Compare various atomic models developed and analyse them
CO2	Classify the properties of nucleus and learn about nuclear forces
CO3	Comprehend the basics of radioactivity and means of its measurement
CO4	Illustrate the postulates of quantum mechanics and analyse time dependent and independent Schrodinger equation
CO5	Discuss about various types of optical spectra
CO6	Develop basic concepts in electronics through the analysis of diodes and transistors
CO7	Acquire the concepts in digital electronics through number systems, logic Gates other circuits

Semester IV

Optics & Electricity(PH4CMT01)

CO1	Apply the principles of wave motion and superposition to explain the Physics of interference, diffraction and polarisation.
CO2	Understand the working of selected optical instruments like interferometer, diffraction grating etc.
CO3	Develop a basic concept about the principle of LASERS and categorise different level lasers with practical examples and applications

CO4	Explain the fundamentals of Fibre optic communication
CO5	Recognise types of dielectrics and sources of polarisation
CO6	Discuss the ac current through various types of circuits

Complementary Physics for Chemistry

Semester I

Properties of Matter and Thermodynamics(PH1CMT02)

CO1	Develop the concepts of elasticity in solids and analyse various experimental techniques to find out different modulii of elasticity
CO2	Analyse the theory behind surface tension and evaluate the factor affecting it
CO3	Analyse the hydrodynamics theory and distinguish between streamline and turbulent flow
CO4	Develop concepts of viscosity in fluids and experimental methods to determine it
CO5	Comprehend the basic concepts of thermodynamics, entropy, zeroth, first and the second law of thermodynamics
CO6	Analyse the principle and working of heat engines and refrigerator

Semester II

Mechanics and Superconductivity(PH2CMT02)

CO1	Develop the basic concepts of motion under gravity
CO2	Analyze various experimental methods to determine acceleration due to gravity
CO3	Generate an awareness of the rotational dynamics and determine the moment of inertia of solids of various shapes
CO4	Analyze and understand various types of periodic motions and oscillations and develop concept of resonance.
CO5	Classify and analyze various types of waves and evaluate certain physical effects based on it
CO6	Categorize different types of superconductors and analyse the basic theory and applications of superconductivity.

Semester III

Modern Physics and Magnetism(PH3CMT02)

CO1	Compare various atomic models developed and analyse them
CO2	Classify the properties of nucleus and learn about nuclear forces

CO3	Comprehend the basics of radioactivity and means of its measurement
CO4	Illustrate the postulates of quantum mechanics and analyze time dependent and independent Schrodinger equation
CO5	Discuss about various types of optical spectra
CO6	Develop basic concepts in electronics through the analysis of diodes and transistors
CO7	Classify various types of magnetic materials and identify the elements of earth's magnetism

Semester IV

Optics & Solid State Physics (PH4CMT02)

CO1	Apply the principles of wave motion and superposition to explain the Physics of interference, diffraction and polarisation.
CO2	Understand the working of selected optical instruments like interferometer, diffraction grating etc.
CO3	Develop a basic concept about the principle of LASERS and categorise different level lasers with practical examples and applications
CO4	Explain the fundamentals of Fibre optic communication
CO5	Recognise types of dielectrics and sources of polarisation
CO6	Formulate a basic concept about crystallography and X-ray diffraction

Semester I

Vocational course 1 Principles of Electronic Components (AE1V0T01)

CO1	Explain the types and functioning of various electronic components like resistors, capacitors, inductors, transformers and its use in electronic circuits.
CO2	Demonstrate various types and working of electronic switches, relays, fuses & circuit breakers
CO3	Acquire the basic knowledge in working of LED and LCD displays.
CO4	Performlaboratory experiments on oscilloscopes and identify the various electronic components

Vocational course 2 Electronic Applications (AE1V0T02)

CO1	Explain the working of measuring instruments like multimeter and CRO
CO2	Analyze and design Filters, LCR tuning circuits and time base circuits
CO3	Analyze optical Recording system and understand the working of audio and video systems.

CO4	Identify the types of Transducers and its uses
CO5	Perform laboratory experiments on soldering and de-soldering techniques on printed circuit board and understand the types and steps involved in the fabrication of PCB.

Semester II

Basics of Power Electronics (AE2V0T03)

CO1	DescribeField-Effect Transistors, its types, operations, characteristics, parameters and compare it with Bipolar Junction Transistor
CO2	ExpalinMOSFET its types, operations, characteristics, and compare the advantages of the various types of MOSFETs
CO3	Interpret the basic idea of FET amplifies and understand its operation
CO4	Analyze and design the various types of FET amplifiers

Power Electronics (AE2V0T04)

CO1	Explain the construction, operation, characteristics and applications of power electronic devices like SCR, TRIAC, DIAC and compare between the two types of thyristors SCR and TRIAC
CO2	Discuss the construction, operation, characteristics and applications of power electronic devices like UJT, SCS, SUS, SBS and SAS
CO3	Identify the role of thyristors and trigerring devices in the control of electrical energy
CO4	Design the basic Power control circuits like rectifiers, phase control circuits and inverters

Semester III

Microprocessor and Interfacing Devices (AE3V0T05)

CO1	Understand the architecture, instruction set, addressing mode, timing diagram and other basic concepts in 8085 microprocessor.
CO2	Distinguish different registers, buses, flip flops
CO3	Analyze the fundamentals of Peripheral device.
CO4	Write assembly language programme

Communication Electronics (AE3V0T06)

CO1	Discuss a basic communication system and the importance of radiowaves in communication
CO2	Explain the need for modulation, its basic concepts and discuss the types of

	analog modulation and demodulation.
CO3	Design the basic block diagram of AM and FM receivers
CO4	Understand the basics of antenna and television broadcast and reception.
CO5	Discuss the basic concepts of various communication systems like satellite, mobile, microwave, cellular and RADAR

Semester IV

Linear Integrated Circuits (AE4VOT07)

CO1	Explain the properties of ideal opamp and understand its characteristics for the design of electronic circuits
CO2	Discuss the simple inverting, non inverting, Voltage follower, summing, and differential amplifiers using ideal op amp analysis
CO3	Analyze and design simple active filters, oscillators, ideal integrator, differentiator and comparator circuits.
CO4	Identify the application of 555 timer IC and PLL IC in signal generation and understand its working

Applications of microprocessors (AE4VOT08)

CO1	Design application oriented devices using assembly language programs.
CO2	Compare the various types of Microcontrollers and understand the difference between microprocessors and microcontrollers
CO3	Analyze the architecture of 8051 Microcontrollers.
CO4	Understand the fundamentals of the micro computing environment such as hardware functions and processor architecture.

Semester VI

Choice Based Course Information Technology (PH6CBT01)

CO1	Understandthe basic computer network technology.
CO2	Identify the different types of network topologies and protocols(OSI&TCP/IP models)
CO3	Discuss the basics of internet protocols, digital signature and search engines.
CO4	Describe the concepts of HTML language.
CO5	Discuss the basic ideas of database management system and SQL.

B.Sc Chemistry

Core Courses

Semester I

General and Analytical Chemistry(CHICRT01)

CO1	Develop a broad outline of the methodology of science in general and chemistry in particular
CO2	Describe the important analytical and instrumental tools used for practicing chemistry
CO3	Illustrate computer based presentation and statistical analysis of data using spreadsheet
CO4	Apply the skills acquired in the analysis of experimental data in chemistry practical.

Semester II

Theoretical and Inorganic Chemistry(CH2CRT02)

CO1	Discuss various atom models and illustrate the important features of the quantum mechanical model of the atom.
CO2	Describe the periodic properties of elements.
CO3	Explain the formation of different types of bonds.
CO4	Demonstrate the different types of hybridization and draw shapes of simple covalent molecules.
CO5	Interpret the molecular orbital theory of diatomic molecules.
CO6	Describe nuclear models and nuclear reactions.

Semester III

Organic Chemistry – I(CH3CRT03)

CO1	Describe the fundamentals of Organic Chemistry viz., nomenclature, different types of bond cleavages, reactivity of organic intermediate species and general reaction mechanisms.
CO2	Identify and explain the role of stereochemistry in determining the properties of organic molecules based on the fundamentals acquired from the 12^{th} class.
CO3	Interpret the concept of aromaticity and the importance of aromatic compounds in biochemistry and in industry which helps students to be equipped for a career in chemical industries.
CO4	Describe the types and principles of pericyclic reactions and the rules governing them which helps the students to learn pericyclic reactions in master's level.

Semester IV

Organic Chemistry – II (CH4CRT04)

CO1	Recognize and explain various methodologies for the synthesis of alcohols, diols, phenols, aldehydes, ketones, carboxylic acids etc.
CO2	Illustrate and interpret various reactions of alcohols, phenols, aldehydes, ketones and carboxylic acids.
CO3	Identify the properties ofdicarboxylic acids, hydroxy acids, unsaturated acids, sulphonic acids and their derivatives.
CO4	Distinguish different reactions which can be selectively used in organic synthesis.

Semester V

Environmental Studies and Human Rights (CH5CRT05)

CO1	Describe about environment and its importance in life
CO2	Illustrate on environmental conservation
CO3	Appraise on human rights
CO4	Understand about various problems relating population

Organic Chemistry – III (CH5CRT06)

CO1	Demonstrate the synthetic routes and the properties of different classes of nitrogen containing compounds and heterocyclic compounds.
CO2	Appraise the classification, structures and properties of carbohydrates and to interpret reactions including Killiani Fischer synthesis and Ruff degradation.
CO3	Discuss on major drugs and their therapeutic applications as well its side effects.
CO4	Demonstrate theories of color and chemical constitution of dyes and classification, synthesis and application of variouspolymers.

Physical Chemistry – I(CH5CRT07)

CO1	Discuss the dynamics of the molecules in the gases and liquids.
CO2	Illustrate the intermolecular forces in gases and liquids.
CO3	Define liquefaction of gases.
CO4	Analyse the structure of solids.
CO5	Explain the defects in crystals.

CO6	Discuss adsorption.

Physical Chemistry – II(CH5CRT08)

CO1	Differentiate between classical and quantum mechanics.
CO2	hydrogen atom.
CO3	Illustrate valence bond and molecular orbital theory.
CO4	Explain the principle and applications of microwave, infrared, Raman, electronic and magnetic resonance spectroscopy.
CO5	Describe the fundamentals of mass spectrometry.
CO6	Write and explain the fundamentals of photochemistry.

Open course Chemistry in Everyday Life(CH5OPT)

CO1	Discuss about food additives
CO2	Understand the chemistry behind soap, detergents and cosmetics
CO3	Illustrate the chemistry in all aspects of our life
CO4	Demonstrate about plastics, drugs and nano material

s

Semester VI

Inorganic Chemistry (CH6CRT09)

CO1	Demonstrate the key features of coordination compounds such as bonding and isomerism, various theories of coordination compounds and electronic and magnetic properties of metal complexes.
CO2	Describe the different properties and structures for organometallic compounds
CO3	Utilize the principles of transition metal coordination complexes in understanding functions of biological systems.
CO4	Explain the chemistry of boron compounds and their structures.

Organic Chemistry-IV (CH6CRT10)

CO1	Explain in detail the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids.
CO2	Report a thorough idea on the structures of carbohydrates and some heterocyclic compounds.
CO3	Describe the structure and functions of enzymes, proteins and nucleic acids.
CO4	Explain the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids.
CO5	Discuss on elementary idea of supramolecular chemistry and Green Fluorescent

	Proteins

.

Physical Chemistry – III (CH6CRT11)

CO1	Illustrate the laws of thermodynamics.
CO2	Derive Gibbs-Helmholtz, Clausius-Clapeyron, Gibbs-Duhem equations.
CO3	Employ the relation between Kp, Kc and Kx.
CO4	Describe the phase rule.
CO5	Derive the rate equations for zero, first and second order reactions.
CO6	Explain the phase diagrams of one and two component systems

Physical Chemistry – IV(CH6CRT12)

CO1	Discuss the behavior of binary liquid mixtures, CST, azeotropes, colligative properties
CO2	Explain solubility of gases in liquids.
CO3	Illustrate on ionic equilibria and electrical properties of ions in solution.
CO4	Stat the concepts of acids and bases, pH and buffer solutions.

Choice Based Course Nanochemistry and Nanotechnology(CH6CBT)

CO1	Describe basic concepts of nanomaterials.
CO2	Demonstrate the important methods for the characterization of nanomaterials.
CO3	Explain the electrical and optical properties of metal nanoparticles.
CO4	Discuss the application of nanomaterials in nanocatalysis – nanomedicines - immunogold labeling etc.

(Complementary Course)

Semester I

Basic Theoretical and Analytical Chemistry(CH1CMT01)

CO1	Illustrate various atom models
CO2	Demonstrate the important features of the quantum mechanical model of the atom.
CO3	Discuss the periodic properties of elements.
CO4	Explain the formation of different types of bonds.

Semester II

Basic Organic Chemistry (CH2CMT02)

CO1	Demonstrate organic reaction mechanism
CO2	Develop basic skills required for the crystallisation and solvent extraction

CO3	Understand the basic principles of chromatography
CO4	Discuss about the preparation, properties and uses of polymers

Semester III

Physical Chemistry – I (CH3CMT03)

CO1	Describe about solids and crystalline State.
CO2	Discuss liquid State and Solutions.
CO3	Illustrate gaseous state materials, Kinetic molecular model of gases.
CO4	Explain adsorption – types of adsorption of gases by solids, factors influencingadsorption
CO5	Describe Freundlich adsorption isotherm.
CO6	Explain the behaviour of binary liquid mixtures, CST, azeotropes, colligative properties
CO7	Describe ionic equilibria and electrical properties of ions in solution.

Inorganic and Organic Chemistry (CH3CMT04)

CO1	Explain the principles of Nuclear Chemistry.
CO2	Describe thermodynamics of Living cell- Exergonic and endergonic reactions.
CO3	Discuss the elementary idea of structure and mechanism of action of sodium potassium pump.
CO4	Recall on fertilizers, pesticides and drugs.
CO5	Explain aromaticity – Huckel's rule.

Semester IV

Physical Chemistry – II(CH4CMT05)

CO1	Explain the principle and applications of microwave, infra red, Raman, electronic spectroscopy
CO2	Illustrate the basic concepts of nanomaterials.
CO3	Describe the important methods for the characterization of nanomaterials.
CO4	Discuss the principles of kinetics, catalysis & photochemistry.
CO5	Demonstrate electrochemistry principles.
CO6	Explain fuel cells- H2- O2 fuel cell.

Advanced Bio-Organic Chemistry (CH4CMT06)

CO1	Describe natural products like terpenoids, alkaloids and lipids.
CO2	Explain classification of aminoacids – Zwitter ion formation and isoelectric point

CO3	Discuss about enzymes and nucleic acids: Nomenclature, classification and characteristics.
CO4	Illustrate carbohydrates: Classification with examples.
CO5	Demonstrate basics of Vitamins, Steroids and Hormones

.

Complementary Course- Biochemistry

Semester I

Elementary Biochemistry(BC1CMT01)

CO1	Explain different types of chemical interactions in biological systems
CO2	Describe the basics of membrane biochemistry
CO3	Illustrate the understanding on plant biochemistry
CO4	Demonstrate various biochemical separationtechniques

.

Semester II

Biomolecules (BC2CMT02)

CO1	Describestructuralcharacteristicsof organic biomolecules.
CO2	Explain the understanding on biologicallyimportantderivatives of biomolecules indicatingtheconstituentunits andlinkagebetweenthem.
CO3	Explain functions of biomolecules
CO4	Demonstrate the understanding on denaturation of proteins and nucleic acids.

Semester III

Enzymology and Metabolism (BC3CMT03)

CO1	Describe their knowledge on classification of enzymes
CO2	Demonstrate the basics of enzyme catalysis
CO3	Discuss the understanding on enzyme specificity
CO4	Explain the major pathways of carbohydrate, protein and lipid metabolism

.

Semester IV

Nutritional and Clinical Biochemistry (BC4CMT04)

CO1	Explainthenutritionalandbiologicalimportanceofvitamins andminerals.
CO2	Use the understanding on clinicalsignificanceoforganbasedfunctiontests
CO3	Demonstrate the biochemicalbasisofimportantmetabolicdisorders.
CO4	Describe the constituents of blood and mechanism of blood clotting

B.Sc Botany

Semester I

Methodology of Science & an Introduction to Botany(BO1CRT01)

CO1	Discuss the universal nature of science.
CO2	Explain knowledge about the use of scientific methods.
CO3	Develop basic skills to study Botany.
CO4	Identify and appreciate the richness and importance of biodiversity.

Semester II

Microbiology, Mycology and Plant Pathology(BO2CRT02)

CO1	Discuss on the world of microbes and the application of microbiology in different fields.
CO2	Explain the diversity of fungal and lichen world and its significance.
CO3	Analyse various plant diseases and their impact on agriculture
CO4	Appraise the various measures adopted to control plant diseases.

Semester III

Phycology and Bryology (BO3CRT03)

CO1	Examine the evolutionary importance of Algae as progenitors of land plants
CO2	Discuss the unique features of algae and Bryophytes
CO3	Outline the morphology, structure and life cycle pattern of Algae and Bryophytes.
CO4	Demonstrate the useful and harmful activities of Algae and Bryophytes.

Semester IV

Pteridology, Gymnosperms &Paleobotany(BO4CRT04)

CO1	Identify the diversity in habits, habitats and organization of various groups of plants.
CO2	Examine the evolutionary trends in plants.
CO3	Differentiate the anatomical variations in lower groups of plants.
CO4	Evaluate the significance of Paleobotany.

Semester V

Anatomy, Reproductive Botany, Microtechnique(BO5CRT05)

CO1	Judge the structural adaptations in plants growing in different environment.
CO2	Identify the morphology, development of reproductive parts and the life

	cycle pattern of angiosperms.
CO3	Show an insight in to the fruit and seed development.
CO4	Demonstrate the techniques used to preserve and study plant materials

Research Methodology, Biophysics and Biostatistics (BO5CRT06)

CO1	Illustrate the applications of various research methods in Biology
CO2	Identify, Apply and differentiate the working principle, instrumentation and applications of various bio-analytical instruments
CO3	Demonstrate knowledge in the various applications of statistical reasoning to the life sciences
CO4	Create, reproduce and design an experiment with step-by-step instructions to address a research problem or bio-analytical practical/project

Plant Physiology and Biochemistry (BO5CRT07)

CO1	Describe the basic principles related to various physiological functions in plant life.
CO2	Develop basic skills and techniques related to plant physiology.
CO3	Discuss the role, structure and importance of the bio molecules associated with plant life.
CO4	Recognize the recent trends in the field of plant physiology.
CO5	Illustrate applied aspects of plant physiology in other fields like agriculture.

Environmental Science And Human Rights(BO5CRT08)

CO1	Demonstrate the significance of Environmental Science.
CO2	Discuss the extent, limitations and depletion of natural resources and the structure and function of the Ecosystems
CO3	Describe various kinds of pollution in the environment, their impacts on the ecosystem and their control measures
CO4	Recognize the nature and structure of various environmental laws in India and the role of various movements in the protection of nature and natural resources.

Open Course Agri-Based Microenterprises (BO5OPT01)

CO1	Describe the basic information about the business opportunities in plant sciences
CO2	Appraise the need of sustainable agriculture and organic farming
CO3	Discuss the enthusiasm and awareness about ornamental gardening, nursery management and mushroom cultivation
CO4	Understand the basic food preservation techniques and methods of mushroom

	cultivation.

Semester VI

Genetics, Plant Breeding and Horticulture(BO6CRT09)

CO1	Discuss the basic principles of heredity
CO2	Recognize the inheritance pattern of nuclear and extra nuclear genes
CO3	Identify the methods of crop improvement
CO4	Describe the importance of horticulture in human welfare

Cell and Molecular Biology(BO6CRT10)

CO1	Describe the Ultra structure and functioning of cell in the submicroscopic and molecular level.
CO2	Examine the origin, concept of continuity and complexity of life activities.
CO3	Discuss the cytological aspects of growth and development.
CO4	Explain DNA as the basis of heredity and variation.

Angiosperm Morphology, Taxonomy and Economic Botany (BO6CRT11)

CO1	Describe the aims, objectives and significance of taxonomy.
CO2	Identify the common species of plants growing in Kerala and their systematic position.
CO3	Illustrate with the basic technique in the preparation of herbarium.
CO4	Explain with the economic importance of plants.

Biotechnology and Bioinformatics(BO6CRT12)

CO1	Explain the fundamental principles of biotechnology, various developments in biotechnology and potential applications.
CO2	Discuss the life forms and activities which can be exploited for human welfare.
CO3	Develop an introductory knowledge about bio informatics.
CO4	Use of computers to handle biological data base.

Choice Based CoursePlant Genetic Resources Management (BO6PET02)

CO1	Explain the history and evolution of crop plants, and their diversity.
CO2	Describe about the available plant genetic wealth and the measures adopted for the conservation of these resources.
CO3	Research on the potentialities of various underutilized plants to project as the future food prospects.
CO4	Discuss the significance of modern technology to locate the distribution of endangered species.

Complementary Courses

Semester I

Cryptogams, Gymnosperms and Plant Pathology(BO1CMT01)

CO1	Describe the fundamental knowledge in plant science
CO2	Explain Botany as an integral part of the human life and developments.
CO3	Develop an attitude of curiosity, appreciation and enquiry of various life forms of plants
CO4	Identify the features of different types of plants included in the syllabus
CO5	Discuss the diversity of microbes and plants with respect to Viruses, Bacteria, Algae, Fungi, Lichens, Bryophytes, Pteridophytes and Gymnosperms

Semester II

Plant Physiology (BO1CMT02)

CO1	Discuss the mechanism and importance of various physiological processes related to plant life.
C02	Understand the plants and plant cells in relation to water.
CO3	Explain the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
CO4	Describerespiration in higher plants with particular emphasis on aerobic and anaerobic respiration.

Semester III

Angiosperm Taxonomy and Economic Botany(BO1CMT03)

CO1	Explain the objectives and components of Taxonomy.
CO2	Discuss the systems of classification of angiosperms.
CO3	Identify the common angiosperm species of Kerala.
CO4	Report on plants of economic importance.

Semester IV

Anatomy and Applied Botany(BO1CMT04)

CO1	Discuss the different types of plant tissues.
CO2	Illustrate the internal structure of different plant organs with reference to their functions.
CO3	Describe the process of normal and anomalous secondary thickening in plants.
CO4	Examine the morphological and anatomical adaptations of plants growing in different habitats.

CO5	Explain the applications of botanical knowledge in the field of crop improvement for human prosperity.

B.Sc Zoology

Semester I

Perspectives in Science and Protistan Diversity(ZY1CRT01)

CO1	Define science and its features.
CO2	Arrange the major developments in the history of biology in a timeline and evaluate thecontributions of different scientists towards the development of biological sciences.
CO3	Develop proper scientific temper and attitude.
CO4	Explain the basic concepts and tools in taxonomy.
CO5	Describe the features of kingdom Protista and classify Protista into different phyla.

Semester II

Animal Diversity - Non-Chordata (ZY2CRT02)

CO1	Identify the different morphological, anatomical, and physiological characteristics of animals
CO2	Describe the hierarchy of basic animal classification.
CO3	Categorize the organizational and structural features of cnidarians, flatworms, nematodes, annelids, arthropods, molluscs and echinoderms
CO4	Develop a conceptual chart of an animal group based on a text or related concepts
CO5	Appraise the different economic, scientific, cultural and social areas in which animals are involved.

Semester III

Animal Diversity –Chordata(ZY3CRT03)

CO1	Attain knowledge on the diversity of chordates and their systematic position.
CO2	Evaluate the economic importance of classes of chordate like Amphibians, fishes, reptiles, birds and mammals
CO3	Discriminate how morphological change due to change in environment helps to drive evolution over a long period of time.
CO4	Create a flavour of research to find the process involved in studying biodiversity and taxonomy and improve the writing skills.

Semester IV

Research Methodology, Biophysics and Biostatistics (ZY4CRT04)

CO1	Identify and differentiate working principle, instrumentation and applications of various bio-analytical techniques.
CO2	Understand various kinds of research, objectives of doing research, research process, research designs and sampling.
CO3	Apply the basic concepts relating to the design and analysis of research in the biological sciences.
CO4	Create and interpret graphs, tables and diagrams illustrating scientific data and concepts.
CO5	Choose and apply appropriate statistical methods for analyzing one or two variables.

Semester V

Environmental Toxicology and Human Rights(ZY5CRT05)

CO1	Discuss, evaluate, and apply scientific principles for the protection and conservation of wildlife.
CO2	Develop the ability to use fundamental principles of wildlife ecology to solvelocal, regional and national conservation and management issues.
CO3	Assess and evaluate various environmental issues and develop mitigation measures.
CO4	Involve in field-based research activities to comprehend the theoretical aspects and learn techniques for gathering data in the field.
CO5	Appraise human rights and locate violations.

Cell Biology and Genetics (ZY5CRT06)

CO1	Understand cell organelles, their structure and role in living organisms.
CO2	Analyze the role of genes and their inheritance in the life of all organisms.
CO3	Acquire the detailed knowledge of cell division the growth and development of living beings
CO4	Differentiate the cause and effect of alterations in chromosome number and structure.
CO5	Recognize how DNA encodes genetic information and the function of mRNA and tRNA

Evolution, Ethology & Zoogeography(ZY5CRT07)

CO1	Develop a holistic approach on phylogeny and evolution of animals.
CO2	Evaluate the theories on evolution through a systematic approach.

CO3	Appreciate the underlying mechanisms that lead to evolution.
CO4	Interpret different behavioral modifications of animals and its importance in their lifecycles.
CO5	Describe the pattern of animal distribution and its inductive factors.

Physiology, Biochemistry and Endocrinology (ZY5CRT08)

CO1	List out the major nutritional components and their biological importance.
CO2	Explain the vital physiological processes in man and the disorders associated with their malfunctions.
CO3	Classify the major biomolecules and discuss their metabolism.
CO4	Describe the basic concepts in enzyme action.
CO5	List out the major endocrine glands and their secretions and discuss their role in the regulation of various physiological processes
CO6	Predict the signs and symptoms of various hormonal disorders in man.

Open Course Public Health and Nutrition (ZY5OPT02)

CO1	Define the basic concepts of health.
CO2	Recognize and analyze the importance of balanced diet, physical activity and yoga for healthy living.
CO3	Apply the general principals of first aid and safety in everyday life
CO4	Describe the various hypokinetic disorders.
CO5	Examine the causes of public health diseases and suggest methods for their prevention and control.

Semester VI

Developmental Biology (ZY6CRT09)

CO1	Recognize the branches and theories of embryology.
CO2	Identify and Explain the key events in gametogenesis, fertilization and embryogenesis.
CO3	Compare and contrast the types of cleavage, blastulation and gastrulation in different animal groups.
CO4	Define and discuss embryonic induction and teratology.
CO5	Explain the prenatal diagnostic techniques, assisted reproductive techniques and cloning.

Microbiology and Immunology (ZY6CRT10)

CO1	Perform procedures of culturing, purifying and characterization of micro-

	organisms.
CO2	Analyse basic mechanisms underlying the pathogenesis of infectious diseases.
CO3	Identify the cellular and tissue components of the innate and adaptive immune system.
CO4	Compare and contrast primary and secondary responses and their significance to immunizations
CO5	Recognize techniques involved in detection and quantification of antigens and antibodies.
CO6	Be proficient enough to secure jobs in industrial, diary, pharmaceutical and clinical research

Biotechnology, Bioinformatics and Molecular Biology (ZY6CRT11)

CO1	Describe the molecular nature of DNA, explain the mechanism of DNA replication and gene expression.
CO2	Compare the process of gene regulation in prokaryotes and eukaryotes.
CO3	Understand the methods of the fundamental molecular tools and their applications in DNA manipulation, analysis and cloning.
CO4	Apply their knowledge with problem solving approach to recommend strategies of genetic engineering for possible applications in Biotechnology and allied industry.
CO5	Identify popular biological databases and classify them as primary, secondary and specialized databases.
CO6	Explain about fundamental concepts of software tools for sequence alignment, similarity search, molecular visualization, phylogenetic tree construction and steps involved in drug discovery.

Occupational Zoology (Apiculture, Vermiculture, Quail Farming & Aqua Culture)(ZY6CRT12)

CO1	Equip with self-employment capabilities.
CO2	Attain scientific knowledge of profitable farming.
CO3	Understand about cottage industries.
CO4	Acquire basic knowledge and skills in applied branches of zoology.
CO5	Understand the technology for utilizing eco-friendly organisms around them for beneficial purpose.
CO6	Equip for self-employment opportunities with scientific knowledge to perform

	profitably & confidently.

Vector and Vector Borne Diseases(ZY6CBT03)

CO1	Develop awareness about the causative agents and control measures of mar commonly occurring diseases.
CO2	Develop understanding about the favorable breeding conditions for the vectors.
CO3	Devise strategies to manage the vectors population below threshold levels, public health importance.
CO4	Undertake measures or start awareness programmes for maintenance of hygienic conditions, avoidance of contact from vector, destruction of breeding spots in the vicinity of houses and cattle shed by public health education campaign.

Complimentary Courses for Bsc. Psychology

Semester I

Body Systems and Behaviour (PY1CMT02)

CO1	Define and discuss the field of Physiological psychology
CO2	Describe the role of sensory systems in perception.
CO3	Identify and elucidate different parts of sensory systems.
CO4	Delineate the functioning and structural aspects of cardiovascular system.
CO5	Analyze the physiological basis of emotionality and identify how body expresses and recognize emotions.

Semester II

Biological Basis of Behaviour II(PY2CMT05)

CO1	Describe the features and characteristic symptoms of various genetic disorders.
CO2	Understand fundamental principles of genetics.
CO3	Understand and explain the bodily changes and effects of stress.
CO4	Identify the physiological processes that lead to development of hunger and thirst.
CO5	Analyse the physiological changes that occur in the body sexual behaviour, fear and anger
CO6	Recognize and analyse the physiological conceptions of wakefulness and sleep.

Semester III

Neurophysiology of Behaviour(PY3CMT08)

CO1	Define and discuss the field of neurophysiology
CO2	Illustrate the major divisions of the nervous system and brain

CO3	Draw, label and define the major features of a multipolar neuron.
CO4	Describe the electrophysiology of neurons
CO5	Summarize early studies of cerebral lateralization
CO6	Analyse the variations in lateralization of language

Semester IV

Biophysiology of Behaviour (PY4CMT11)

CO1	Define and discuss the field of psychoneuroimmunology
CO2	Describe the immune system and discuss immune function connections between emotions and nervous system
CO2	Elucidate the functions of neuroendocrine system
CO3	Explain Hormonal influence on learning, memory and behaviour
CO4	Explain brain chemistry and the use of psychiatric drugs
CO5	Summarize physiological changes and anatomical requirements for learning
CO6	List and discuss clinical cases of amnesia, physiological and anatomical mechanisms for memory in the brain

Complimentary Courses for B.Sc. Botany

Semester I

Non-Chordate Diversity(ZY1CMT01)

CO1	Develop understanding on the diversity of life with regard to non-chordates.
CO2	Group animals on the basis of their morphological characteristics/ structures.
CO3	Identify the organizational and structural features of cnidarians, flatworms, nematodes, annelids, arthropods, molluscs and echinoderms
CO4	Appreciate the diversity of the non-chordates.
CO5	Develop critical understanding how animals changed from a primitive cell to a collection of simple cells to form a complex body plan.
CO6	Evaluate the significance of museum specimens

Semester II

Chordate Diversity (ZY2CMTO2)

CO1	Acquire knowledge on the diversity of life with regard to chordates
CO2	Group animals on the basis of their morphological characteristics/ structures.
CO3	Realize that very similar physiological mechanisms are used in very diverse organisms.
CO4	Appreciate the diversity of the chordates

CO5	Examine the diversity and evolutionary history of a taxon through the construction of a basic phylogenetic/ cladistics tree.
CO6	Comprehend the basic concepts of animal taxonomy and zoological nomenclature
CO7	Evaluate the significance of museum specimens.

Semester III

Physiology & Immunology (ZY3CMTO3)

CO1	Explain the functioning of various organ systems in human body and the disorders associated with malfunctioning.
CO2	Discuss the importance of different vitamins and minerals in the metabolic processes.
CO3	Describe the composition of blood and the functions of plasma and formed elements.
CO4	Evaluate the significance of different hormones in the normal functioning of our body.
CO5	Identify the major cellular and tissue components involved in the innate and acquired immunity.
CO6	Analyse various immune disorders and clinical applications of antigen antibody reactions.

Semester IV

Applied Zoology (ZY4CMTO4)

CO1	Explain the basic techniques involved in beekeeping, sericulture, vermiculture and sericulture
CO2	Discuss the medicinal uses of honey and other honey bee products
CO3	Describe the uses of various equipments involved in vermiculture and sericulture.
CO4	Acquire the skills for managing a vermicompost unit for organic waste management.
CO5	Recognize the salient features of and identify the major culturable fishes of Kerala
CO6	Apply the principles aquarium management for rearing ornamental fish.
C07	Compare the techniques involved in pearl culture, mussel culture and prawn culture.

B.Sc Psychology

Semester I

Foundations And Methods of Psychology (PY1CRT1)

CO1	Acquire adequate knowledge regarding the basic foundations of psychology
CO2	Describe various theories and approaches, of psychology
CO3	Understand the scientific nature of psychology
CO4	Demonstrate inter personal and communication skills such as observation skill, speaking and learning skills
CO5	Explain various perspectives in psychology
CO6.	Describe and evaluate various personality theories.

Semester II

Basic Cognitive Processes (PY2CRT2)

CO1	Acquire adequate knowledge regarding the basic foundations of cognitive psychology
CO2	Apply learning principles and constructive adaptation skills
CO3	Understand and master in behaviour modification skills
CO4	Evaluate competence through leadership skills and logical synthesis of the life situations
CO5	Explain higher mental processes such as motivation, emotion, intelligence, memory and cognition
CO6	Analyse and evaluate the higher cognitive processes

Semester III

Living in the Social World (PY3CRT07)

CO1	Identify the psychological processes behind human behaviour in a social setting
CO2	Explain the psychological aspects of various social phenomena (identify the psychological aspects of various social issues in the society and the nation)
CO3	Recognize the implications of social psychology in everyday living
CO4	Integrate different research methods in social psychology.

Semester IV

Social Interactions and Human Behaviour(PY4CRT10)

CO1	Recognise the psychological aspects of individual's behaviour in social context
CO2	Develop the ability to work in groups and teams identify social dynamics and social problems
CO3	Demonstrate the understanding on measuring human behaviour
CO4	Analyse the application of psychology in legal setting.

Semester V

Abnormal Psychology (PY5CRT13)

CO1	Describe the theories of various psychological disorders
CO2	Analyse and describe the knowledge and methods used in abnormal psychology
CO3	Illustrate the theoretical knowledge about the various intervention and treatment plans for various psychopathologies
CO4	Describe the various classification system such as ICD and DSM
CO5	Explain diverse cultures and behavioural deviances and differences.

Foundations of Organizational Behavior (PY5CRT14)

CO1	Examine in detail about the human organizations and behavior in organizations.
CO2	Discuss in detail Leadership, Motivation, Power, Conflict, Negotiation, in organizations and to learn strategies to manage organizations more effectively.
CO3	Evaluate different types of organizational communication.
CO4	Describe organizational designs and its importance.
CO5	Examine and evaluate group dynamics in organizational settings.

Environmental Psychology and Human Rights(PY5CRT15)

CO1	Identify how one's own decisions and actions affect the environment
CO2	Acquire knowledge, skills and values necessary to address complex environmental issues, as well as ways to take action that can keep one's own environment healthy and sustainable for the future.
CO3	Demonstrate the understanding of basic human rights and appreciate the inherent value of being human.
CO4	Evaluate and imbibe the responsibility to stand up for one's own and other's rights and to develop empathy towards people from all social strata.

Open Course Life Skills Development (PY5OP2)

CO1	Discuss abilities for adaptive and positive behaviour that enables individuals to deal effectively with the demands and challenges of everyday life.
CO2	Examine and evaluate the foundation of life skills education for the promotion of mental wellbeing, and healthy interaction and behaviour.
CO3	Apply knowledge, attitudes and values into actual abilities – ie., what to do and how to do it.
CO4	Illustrate perception of self-efficacy, self-confidence and self-esteem.
CO5	Develop communication skills

Semester VI

Psychology of Maladaptive Behaviour(PY6CRT16)

CO1	Describe the theories of various major psychiatric disorders
CO2	Discuss disorders based on clinically significant symptoms
CO3	Explain the etiology, and prognosis of various disorders
CO4	Demonstrate the Competence in organizing psycho social awareness programme for the affected people
CO5	Analyse the theoretical knowledge about the various intervention plans and treatment plans for various psycho pathologies

Managing Behavior in Organization (PSY6CRT17)

CO1	Examine and evaluate the concept of human organizations and behavior in organizations.
CO2	Discuss topics Leadership, Motivation, Power, Conflict, Negotiation in organizations and to learn strategies to Manage organizations more effectively.
CO3	Analyse organizational stress and management techniques
CO4	Examine the organizational ethics
CO5	Evaluate the need and importance of organizational change and organizational development.

Child Development (PY6CRT18)

CO1	Examine the process and nature of child development
CO2	Create and inspire interest in observing the process of child development
CO3	Relate the observation to current theories of child development
CO4	Describe and evaluate physical, cognitive and emotional dimension of human development
CO5	Explain the human attachment pattern

Theory and Practice of Counselling (PY6CB01)

CO1	Identify the process and techniques of counselling
CO2	Differentiate the various approaches to counselling as per the needs of the client
CO3	Analyse the issues of counselling applications
CO4	Demonstrate Indian practices in counselling field.

Complementary Course to B. Sc. Psychology Programme

Semester I

Basic Statistics (ST1CMT01)

CO1	Explain need and importance of Statistics in Psychology.

CO2	Distinguish between primary and secondary data
CO3	Describe different methods of sampling.
CO4	Explain various measures of central tendency- mean, median and mode and their properties, merits and demerits.

Semester II

Statistical Tools (ST2CMT02)

CO1	Explain measures of dispersion
CO2	Distinguish between raw moments and central moments and its Inter relationships.
CO3	Describe Karl Pearson's Coefficient of Correlation and rank correlation.
CO4	Explain the concept of regression.

Semester III

Probability and Probability Distributions(ST3CMT03)

CO1	Explain the concept of probability and different approaches.
CO2	Distinguish between Discrete and Continuous random variables.
CO3	Define mathematical expectation of a discrete r.v., mean and variance of a discrete r.v.
CO4	Describe binomial distribution and Normal distribution, their mean and variance.

Semester IV

Statistical Inference(ST4CMT24)

CO1	Explain basic definitions on testing of hypothesis.
CO2	Describe large sample tests - z-tests for means, difference of means, proportion and difference of proportion, chi-square tests for independence and homogeneity.
CO3	Establish normal tests for mean, difference of means and proportion
CO4	Establish t-tests for mean and difference of means, paired t-test, test for proportion (binomial)
CO5	Describe chi-square test for variance and F-test for ratio of variances.

B.Sc Computer Application

Semester I

Computer Fundamentals and Digital principles(CA1CRT01)

C01	Develop knowledge in types of computer system.
C02	Recognize different number system logic gates, boolean law and theorems
C03	Describe the important tools used for practicing assembly language
C04	Create an idea about different circuit system

Methodology of programming and C language (CA1CRT02)

C01	Understand the important concepts of Data, Structures and Algorithms
C02	Construct an ability to develop a programming logic
C03	Express our self in precise and concise terms
C04	Understand the concept of loop and control structures

Semester II

Database management system(CA2CRT03)

C01	Understand database management system and data models
C02	Develop SQL and their implementation
C03	Illustrate how to design a database scheme using normal forms.
C04	Demonstrate the concurrency control management system

Object oriented programming using C++ (CA2CRT04)

C01	Understand the important concepts of Data, Structures
C02	Construct an ability to develop a programming logic
C03	Generate a tree concept in research problems
C04	Compare the pre order post order system

Semester III

Data structure using C++ (CA3CRT05)

C01	Construct an ability to learn other programming language easier
CO2	Develop the knowledge of how computer stores and retrieves information
CO3	Construct an ability to develop a programming logic
CO4	Invent new logical idea

Computer Network (CA3CRT06)

CO1	Explain the types of transmission media with real time application
CO2	Acquire advanced skills
CO3	Construct and ability to solve PERT and CPM
CO4	Construct different type of topology

System Analysis and Software Engineering (CA3CRT07)

CO1	Develop an idea to apply in system analysis
CO2	Create an idea of software development steps
CO3	Construct design of software
CO4	Assess different types of errors in System

Semester IV

Linux Administration (CA4CRT08)

CO1	Analyze system performance
CO2	Assess Manage users and groups capability
CO3	Develop LDAP and PAM, modifying user processes and resources.
CO4	Explain how a linux server can be integrated within a multiplatform environment

Web Programming Using PHP (CA4CRT09)

CO1	Create the knowledge of web designing
CO2	Acquire the knowledge of GUI
CO3	Develop a new programming technique
CO4	Develop the creativity in designing

Statistical inference (ST4CRT04)

CO1	Explain the concept of estimation of parameters
CO2	Calculate the problems related to point estimation and interval estimation
CO3	Solve the problems related to Testing of Hypotheses
CO4	Explain the concepts of Testing of Hypotheses

Sample survey designs (ST4CRT05)

CO1	Understand the principles underlying sampling as a means of making inferences about a population
CO2	Analyse data from multistage surveys
CO3	Understand the difference between randomization theory and model based analysis
CO4	Understand the concepts of bias and sampling variability and strategies for reducing it

Semester V

Java Programming (CA5CRT10)

C01	Demonstrate a new programming technique

CO2	Develop a new network program
CO3	Create a gaming program
CO4	Develop the creativity in designing

Open Course Informatics and cyber ethics (CA5OPT)

CO1	Recognize different types of cyber crime
CO2	Describe the knowledge of cyberspace
CO3	Develop the idea of web designing
CO4	Explain current trends in informatics

Environmental studies, Human Right and Design of Experiment (ST5CRT06)

CO1	Develop sustainable strategies to protect environment
CO2	Analyse human impact on environment
CO3	Describe possible causes of bias and ways of alleviating it
CO4	Identify formal ways of determining sample size.

Semester VI

Operating Systems (CA6CRT11)

C01	Understand basic concepts of operating system
C02	Analyze system performance
C03	Analyse the memory management and its allocation
C04	Demonstrate the ability to communicate with computer without knowing computers language

Elective Core –Data Mining (CA6PET)

C01	Acquire the ability to decision making
C02	Create the predicting ability
C03	Identify the automated discovery of hidden pattern
C04	Develop the skill for real word application

Statistical computing using R software (ST6CRT12)

C01	Read data into R
C02	Access R packages
C03	Write R functions
C04	Organize and comment R code

B.A English

Semester I

Methodology of Literary Studies (EN1CR01)

CO1	Demonstrate the ability for critical thinking and close reading of literary texts from the larger perspectives of culture, society, history and gender.
CO2	Understand issues like literature, literariness, literary values and basic literary concepts
CO3	Familiarize with the major movements in the historical evolution of literary studies from its inception to the present.
CO4	Discern the shift towards contextual-political critiques of literary studies.
CO5	Identify the questions raised by Cultural Studies and Feminism(s).

Semester II

Introducing Language and Literature (EN2CR02)

CO1	Understand the development of English literature in terms of various movements
CO2	Engage with the genres and forms of English literature
CO3	Develop fundamental skills required for close reading and critical thinking of the texts and concepts
CO4	Discern the links between literature and film as narrative expressions.
CO5	Explain emergence of British and American Literature through diverse periods.

Semester III

Harmony of Prose (EN3CR03)

CO1	Illustrate the seminal essays of all times.
CO2	Create awareness on eloquent expressions, brevity and aptness of voicing ideas in stylish language.
CO3	Familiarize with different types of prose
CO4	Acquire knowledge of the major traditions of prose written in English.

Symphony of Verse (EN3CR04)

CO1	Understand the representation of poetry in various periods of the English tradition.
CO2	Demonstrate imagery and figures of speech work in poetry and use the analysis of these to arrive at an interpretation of the poem.
CO3	Develop skills of critical analysis and interpretation of selected poems in order to understand the theme, language, tone and style, and elements of prosody
CO4	Compare a particular poem with other poems.
CO5	Relate poetry with life.

Evolution of Literary Movements: the Shapers of Destiny Complementary Course 3

(EN3CM03)

CO1	Understand English literature in the light of historical events.
CO2	Analyse the manner in which a person is moulded by the historical events of his personal and communal life.
CO3	Understand how history moulds the society and people.
CO4	Acquire a comprehensive overview of the history of Britain and its impact upon the rest of the world.

Semester IV

Modes of Fiction (EN4CR05)

CO1	Demonstrate the ability to identify various aspects of storytelling in terms of plot, character, linguistic devices and form in a short story
CO2	Develop imagination and critical thinking abilities
CO3	Help them explore the realm of fiction.
CO4	Acquaint with British and Non British Fiction.
CO5	Appreciate literature's ability to stimulate feeling.

Language and Linguistics (EN4CR06)

CO1	Show the various organs and processes involved in the production of speech, the types and typology of speech sounds, segmental &suprasegmental features of the English language, and transcription using IPA.
CO2	Describe and explain morphological processes and phenomena.
CO3	Show the various processes involved in the generation of meaning.
CO4	Relevance of Linguistics in the development of contemporary theories

Evolution of Literary Movements: the Cross Currents of Change Complementary Course 4 - (EN4CM04)

CO1	Students will be competent to understand literature against the backdrop of history.
CO2	Students will be inspired to contribute dynamically to historical and literary processes.
CO3	Help them perceive the interplay of social processes and literature

Semester V

Acts on the Stage (EN5CR07)

CO1	Demonstrate how a dramatic text interacts with a reader in the reading process

	for meaning and interpretation.
CO2	Identify the performative aspects of a dramatic text
CO3	Appreciate andanalyse the select plays in the larger socio-cultural contexts of the time
CO4	Understand and interpret Shakespearean drama
CO5	Evaluate the contribution of Shakespeare to literature and culture.

Literary Criticism and Theory (EN5CR08)

CO1	Demonstrate awareness about the major developments in literary criticism from the ancient times to the twentieth century.
CO2	Initiate to the realm of literary theory and major theoretical schools.
CO3	Describe about the chief strains of Indian literary criticism.
CO4	Analyze short poetical pieces critically.

Indian Writing in English (EN5CR09)

CO1	Demonstrate the ability to read literary texts in terms of genre and contexts.
CO2	Engage with and write cogently on issues specific to modern India and to local realities
CO3	Critically appreciate the use of English in India
CO4	Enlighten about the subtle flavours that distinguish the Indian quotient in English writings from India

Environmental Science and Human Rights (EN5CREN01)

CO1	Develop the sense of awareness among the students about the environment and its various problems
CO2	Explain theinter-relationship between man and environment and helps to protect the nature and natural resources.
CO3	Inculcate positive attitude about the environment.
CO4	Understand the basic conception of human rights.
CO5	Appreciation of rights of others

English for Careers- Open Course (EN5CROP03)

CO1	Develop communicative skills, which will enable them to prepare for a career and function effectively in it.
CO2	Equip themselves in oral and written communication
CO3	Understand the importance of writing in academic life and to enhance their

	academic and professional use of language
CO4	Demonstrate themselves in making effective presentations.

Semester VI

Postcolonial Literatures (EN6CR10)

CO1	Show familiarity with the emergent body of literature being produced by writers from South Africa, Caribbean, South Asia, Australia and Canada and its sociopolitical- cultural contexts demonstrate ability to show an understanding of cultural exchange processes
CO2	Realize the impact of colonialism and imperialism on native cultural identities
CO3	Have an insight into the links between language, history and culture.
CO4	Locate and represent Subaltern voices through their own writing.
CO5	Learn how a text reveals about the politics and/or psychology of anti-colonialist resistance.

Women Writing (EN6CR11)

CO1	Critically respond to literature from a feminist perspective.
CO2	Realize how the patriarchal notions pervade in the social and cultural scenario and how feminism exposes these notions
CO3	Introduce the theoretical and literary responses by women and concerns that govern the feminist literature.
CO4	Read and understand canonical text written by Women Writers across different ages.

American Literature (EN6CR12)

CO1	Understand with the evolution of various literary movements in American literature.
CO2	Acquaint with the major authors in American Literary History and American society through various literary pieces.
CO3	Understand the key values of American culture and Nationalism
CO4	Evaluate the generic and literary features of American prose, poetry and theatre.

Modern World Literature (EN6CR13)

CO1	Acquire awareness about the stupendous variety that resides in Literatures world over
CO2	Understand about cultural exchange processes as represented through literature

CO3	Appreciate new works in literature and pursue their interests in it
CO4	Understand the meaning and scope of the concepts of the Modern/Modernity/Modernism.

Regional Literatures in Translation- Choice Based Course - EN6CB03

CO1	Critically appreciate the art of translation
CO2	Familiarize with the cultural heterogeneity and linguistic plurality of our country through its literature written in various regional languages
CO3	Assess, compare and review translations
CO4	Engage with various theoretical positions in translation

B.A Economics

Semester I

Perspectives and Methodology of Economics (EC1CRT01)

CO1	Classify branches of Social Sciences
CO2	Describe methodology of Social sciences
CO3	Explain economic models
CO4	Apply methods and theories of Social Sciences to contemporary Issues
CO5	Formulate Social and Economic research Studies

Semester II

Micro Economic Analysis I (EC2CRT02)

CO1	Describe foundations of economic analysis and problem solving
CO2	Analyse consumer behaviour and consumer decisions
CO3	Discuss firm's production processes and decisions
CO4	Evaluate basic micro- economic problems

Semester III

Micro Economics Analysis II (EC3CRT03)

CO1	Explain the micro economic concepts
CO2	Analyse market and factor pricing patterns
CO3	Explain consumer and firm's behaviour and to analyse different types of market structures
CO4	Analyse the behaviour of firms in a monopoly or oligopoly and calculates the resulting changes in producer and consumer surplus
CO5	Formulate economic tools to analyse economic policies
CO6	Explain welfare Economics

Economics of Growth and Development (EC3CRT04)

CO1	Examine economic growth theory, development and policy implications
CO2	Demonstrate an awareness of economic growth problems and provide grounding in major growth strategies and development
CO3	Apply empirical analysis of growth models to developing countries and/or regions, and draw appropriate policy recommendations
CO4	Discuss the need for sustainable economic development

Semester IV

Macro Economics-I (EC4CRT05)

CO1	Explain the meaning, scope and nature of macroeconomics
CO2	Explain and analyse the various concepts of national income accounting
CO3	Examine Classical and Keynesian macro-economic theories
CO4	Discuss the functioning of an economy using the IS-LM model

Public Economics (EC4CRT06)

CO1	Explain the major items of government revenue and expenditure
CO2	Describe how the level of government revenue and expenditures is determined
CO3	Compare explanations for government intervention
CO4	Discuss the sources of market failure and potential policy responses
CO5	Explain of the design of the tax structure using the concepts of efficiency and equity
CO6	Analyse the budget and fiscal policies
CO7	Evaluate various issues between centre and state governments

Semester V

Quantitative Techniques (EC5CRT05)

CO1	Explain basic concepts of mathematics for economic analysis
CO2	Apply calculus in Economics
CO3	Illustrate set theory
CO4	Solve economic problems using probability theorems

Macro Economics - II (EC5CRT08)

CO1	Examine the theories of consumption and investment
CO2	Discuss various macroeconomic problems such as inflation and unemployment
CO3	Evaluate the role of fiscal policy and monetary policy in a developing economy
CO4	Explain features, phases of trade cycles
CO5	Analyse changing macro-economic policies and theories

Environmental Economics (EC5CRT09)

CO1	Identify the importance of natural resources and biodiversity
CO2	Demonstrate the need for sustainable development
CO3	Discuss the problem of global environmental issues and try to solve these issues
CO4	Analyse regarding human rights

Introductory Econometrics (EC5CRT10)

CO1	Construct, test, and analyse econometric models, using variables and relationships commonly found in studies of economic theory
CO2	Collect, organise, and analyse economic data, and interpret results from statistical analyses
CO3	Identify the desirable properties of estimators
CO4	Identify key classical assumptions in the field of econometrics, explain their significance, and describe the effects that violations of the classical assumptions
CO5	Apply least squares method in evaluating the relationship of one explanatory variable to the dependent variable and the relationships of multiple explanatory variable to the dependent variable

Fundamentals of Economics (ECO05PT01)

CO1	Explain the basic ideas and concepts of concepts in economics
CO2	Discuss macroeconomics and its interrelations with microeconomics
CO3	Evaluate the current economic phenomenon with existing theory and put their views on contemporary economic issues

Semester VI

Quantitative Methods (EC6CRT1)

CO1	Discuss the various aspects of primary data collection
CO2	Convert statistical data into charts and diagrams
CO3	Apply statistical methods in economics
CO4	Calculate index numbers
CO5	Demonstrate trend calculation

International Economics (EC6CRT12)

CO1	Explain the basic principles that tend to govern the flow of trade in goods and services at the global level
CO2	Explain the similarities and dissimilarities in inter-regional and international trade

CO3	Examine the standard, classical and orthodox trade theories
CO4	Explain the structure of balance of payments and discuss the measures to correct disequilibrium in balance of payments
CO5	Discuss various types of exchange rates and its merits and demerits
CO6	Examine the types and effects of tariffs and quotas
CO7	Discuss the various forms of economic integration and its merits and evaluate the working of IMF, IBRD, WTO and BRICS

Money & Financial Markets(EC6CRT13)

CO1	Analyse with the changing role of the financial sector of the economy
CO2	Identify with the basic concepts, the financial institutions and markets
CO3	Explain the working of various financial market segments
CO4	Explain the functioning of major financial market regulators

Indian Economy (EC6CRT14)

CO1	Examine the basic characteristics of Indian economy, it's potentials and weaknesses
CO2	Discuss the causes and impact of demographic changes on the development of the economy
CO3	Evaluate the planning process undertaken by the government of India and its success and failures
CO4	Analyse the progress and changing nature of different sectors of Indian economy

Business Economics (EC6CBT02)

CO1	Explain the concepts of cost, nature of production and its relationship to business operations
CO2	Apply marginal analysis to the firm under different market conditions
CO3	Analyse the causes and consequences of different market conditions
CO4	Examine the concept of price and output decisions of firms under various market structures

Complementary Course for B.A. History

Semester I

Principles of Economics (EC1CMT01)

CO1	Explain basic micro economic theory
CO2	Apply the basic principles and concepts of economics to every day issues
CO3	Explain and analyse the interrelationship among the members of the society

Semester II

Basic Economic Studies (**EC1CMT02)**

CO1	Identify and illustrate public finance, international economic issues, monetary economics, banking, national income.
CO2	Analyse general issues of Indian economy and Kerala economy
CO3	Categorize and solve common economic issues in the society

Complementary Course for BA Economic/ English Literature)

Semester I

An Introduction to Political Science (PS3CMT01)

CO1	Define and Introduce the nature & scope of the discipline Political Science.
CO2	Explain the various approaches to the study of political science.
CO3	Discuss the origin of state and the theories revolved around it
CO4	Demonstrate the key concepts in Political Science
CO5	Illustrate the basic attributes of democratic spirit of liberal thinking
CO6	Discuss the basic ideas of Gandhism, Marxism and Fascism
CO7	Describe the functioning models of democracy across the globe
CO8	Explain the classification of governments and constitutions

Semester II

Indian Constitution: Social Issues in India(PS4CMT05)

CO1	Introduce the development and striking features of Indian constitution
CO2	Discuss the core values, philosophy and Fundamental rights in the Preamble
CO3	Elaborate on Directive Principles of State Policy.
CO4	Describe the structure and features of Indian federalism and decentralization
CO5	Explain the functioning of Legislature and Judiciary
CO6	Elaborate debate on the challenges to the Indian Political System: Caste, Communalism, Terrorism, Regionalism and Naxalism.
CO7	Discussion on the major threats faced by the Indian Democracy

BA History

Semester I

Perspectives and Methodologies in Social Sciences- History (HY1CRT01)

CO1	Understand the historical setting of Social Sciences
CO2	Analyze contemporary problems at regional, national and global levels
CO3	Describe multi- disciplinary and inter disciplinary character of Social Sciences and History
CO4	Recognize notions of objectivity and subjectivity in Social Science

CO5	Understand definitions, nature and scope of History
CO6	Study different kinds of History

History of Printing and Publishing in India (Vocational Course 1)(HY1VOT01)

CO1	Explain the history of printing in Europe.
CO2	Describe the arrival and development of printing technology in India
CO3	Demonstrate the Publishing activity in the wake of freedom struggle
CO4	Discuss the different sectors of publishing in India

Semester II

Understanding Early India: From Hunting Gatherers to Land Grants (HY2CRT02)

CO1	Discuss about a brief history of India from pre-History to the early medieval period
CO2	Illustrate the cultural heritage of early India
CO3	Understand the first civilization of India, the Harappan civilization
CO4	Demonstrate how the social stratification (Varna and Jati) started and spread in India
CO5	State formations (Mahajanapadhas)
CO6	Describe Emergence of new religious and non-religious sects like Buddhism, Jainism, Ajivikas, Charvakas, etc.
CO7	Understand about society, polity and economy of two empires in India (Mauryan and Gupta Empires)

History of Publishing in Kerala (Vocational Course 2)(HY2VOT02)

CO1	Recognize the different foreign missionary groups and their contributions to the field of language and literature in Kerala.
CO2	Understanding the contributions of the native missionaries in Kerala
CO3	Identify the early periodicals in Kerala.
CO4	Discuss about the major private and public sector publishers in Kerala

Semester III

Polity, Society and Economy of Pre-Colonial India (HY3CRTC03)

CO1	Discuss the medieval history of India
CO2	Understand the important sources to reconstruct medieval history of India
CO3	Get the idea of two important administrations of India (Delhi Sultanate and the Mughal Empire)
CO4	Describe the Kingship, administration, revenue system, trade and commerce, etc. of medieval India
CO5	Understand the nature of religious movements like Bhakti movement, Sufism and the

	religious policy of Akbar
CO6	Introduce art, architecture and painting of the period
CO7	Offer the history of Vijayanagara and Deccan

Cultural Trends in Pre-Colonial Kerala (HY3CRT04)

CO1	Describe about a brief history of Kerala in early period
CO2	Discuss Physiological features of Kerala
CO3	Illustrate the Sources and historiography to study the history of early Kerala
CO4	Explain Pre-historic cultures of Kerala
CO5	Understand the life during the Sangham period
CO6	Examine the Emergence of agriculture, trade and commerce in Kerala
CO7	Discuss the arrival of religions like Buddhism, Jainism, Brahmanism, Christianity, Judaism, and Islam
CO8	Discuss about the life under the rule of Perumals of Mahodayapuram
CO9	Describe Life under the time of Swaroopams
CO10	Analyse social stratification, caste formation, customs and practice, law and justice during the time

Principles and Methods of Publishing Science (Vocational Course 3)(HY3VOT03)

CO1	Describe the anatomy of a book.
CO2	Explain the editorial procedures, proof reading and binding of a book.
CO3	Understand the principles of publishing
CO4	Describe the format, design and page makeup of newspaper, magazine and newsletter
CO5	Explain how to publish an e-book.

Semester IV

Making of Modern Kerala (HY4CRT05)

CO1	Explain Brief history of Modern Kerala
CO2	Understand the history of Kerala during the European Colonial period
CO3	Analyse the resistance movements against colonialism
CO4	Equip with an understanding of Social reform movements
CO5	Understand the role of missionaries, printing press and Educational developments, etc.
CO6	Discuss the movements for political reform and responsible government
CO7	Describe the history of Kerala since independence

Researching the Past (HY4CRT06)

CO1	Familiarize with basic terms, concepts, and categories of History
CO2	Understand the discipline as an intelligent knowledge system
CO3	Discuss the scientific understanding of History
CO4	Understand different approaches and concepts of History
CO5	Introduce methodology of historical writing with techniques and technicalities

Copyright Law (Vocational Course 4)(HY4VOT04)

CO1	Create knowledge on history of Copyright.
CO2	Understand the basics of Indian Copyright Act.
CO3	Create knowledge on Intellectual property Right (IPR) and patent.
CO4	Explain how to avoid plagiarism

Semester V

Inheritance and Departures in Historiography (HY5CRT07)

CO1	Trace the historiographical trends from the traditional phase to the contemporary scene
CO2	Improve the understanding of historical writing and perspectives
CO3	Develop an urge in taking up higher courses in History
CO4	Promote history of margins including subaltern studies, local history, oral history and women's history.

India: Nation in the Making (HY5CRT08)

CO1	Understand nation making process of India
CO2	Discuss British colonial exploitation and how India emerged out of it as an independent nation
CO3	Illustrate the phases of national movements
CO4	Describe how India got freedom and how the nation portioned into two

Environmental Studies and Human Rights in Historical Outline (HY5CRT10)

CO1	Apply environmental education for research and investigation
CO2	Take Decisions about complex environmental issues by developing and enhancing critical and creative thinking skills
CO3	Foster a new generation of informed consumers, workers, as well as policy and decision makers
CO4	Understand how their decisions and actions affect the environment
CO5	Address complex environmental issues
CO6	Keep our environment healthy and sustainable for the future

Social Implications of Modern Revolutions (Open Course)(HY5OCT02)

CO1	Understand multifarious dimensions of revolutions in the making of the modern world
CO2	View the revolutions as processes affecting the world in a comprehensive manner
CO3	Partake the multiple strands and dimensions and their mutual relationships associated with revolutions.
CO4	Understand the ideas of liberty, equality and fraternity

Publishing Management (Vocational Course 5)(HY5VOT05)

CO1	Describe the organizational structure and composition of a publishing house
CO2	Explain the different kinds of publications
CO3	Explain the publishing economics
CO4	Describe the various methods of sales, promotion and marketing of a book.
CO5	Explain how to manage a publishing house

Semester VI

Making of Contemporary India (HY6CRT11)

CO1	Illustrate the brief history of India since independence
CO2	Discuss about India's early administration, foreign policy and economy etc.
CO3	Understand major events in contemporary India
CO4	Describe about the impact of globalization in India
CO5	Demonstrate the Five Year plans and other economic reforms
CO6	Discuss about green, white, blue, yellow revolutions

Understanding Modern World (HY6CRT12)

CO1	Get an idea on modern world history
CO2	Understand the severity of world wars
CO3	Demonstrate the working style of capitalism and colonialism
CO4	Discuss about how the peace organizations like UNO works for world peace
CO5	Understand the bad effects of Nazism and Fascism
CO6	Explain Importance of anti-colonial movements in Asia and Africa
CO7	Get an idea about the unipolar and multipolar world systems existed today

Capitalism and Colonialism (HY6CRT13)

CO1	Trace the emergence and development of capitalism in Europe and the related scramble for colonies and imperialist domination around the world
CO2	Introduce the processes and debates involved in the transition from Feudalism to Capitalis in Europe

CO3	Describe process involved in the establishment and making of colonies and colonial relations
CO4	Discuss the nature of economic developments in post-colonial times

Book Production and Management (Vocational Course 6)(HY6VOT06)

CO1	Explain how to design and produce a book
CO2	Create knowledge on how to calculate the production cost of a book
CO3	Describe the basics of computer application and DTP.
CO4	Illustrate DTP software like M.S Word, PageMaker and Photoshop
CO5	Demonstrate the major printing process.

Introduction to Mass Communication (Choice Based Core Course)(HY6CBT04)

CO1	Analyze the evolution of human Communication
CO2	Illustrate the scope, elements and different types of Communication
CO3	Analyze the theories of communication
CO4	Inculcate the knowledge of Communication models.
CO5	Explain the history of print media
CO6	Introduce the history and evolution of All India Radio, Television

Complementary Courses

Semester I

Social Formations in Pre-Modern India(HY1CMT02)

CO1	Discuss about the legacy of the social history of pre-modern India
CO2	Trace the history of the first civilization of India
CO3	Study the social history of ancient India including, Harappan civilization, Vedic period, Mauryan period, Gupta period, etc.
CO4	Enrich the knowledge about the history of medieval India including Delhi Sultanate, Mughals, Vijayanagaras, etc.
CO5	Understand the social and economic reforms of great rulers of early and medieval India likeAshoka and Akbar

Semester II

Transition to the Contemporary World (HY2CMT03)

CO1	Understand the history of the contemporary world
CO2	Discuss about how the transition of the contemporary world has happened
CO3	Analyze the legacy of great revolutions of modern world including French Revolution and

	Russian Revolution
CO4	Discuss about relevant topics of the present time like sustainable development, mass media, information technology, and terrorism
CO5	Understand the concepts of imperialism, colonialism, fascism, Nazism, and Communism
CO6	Study about the causes, course and effects of the World Wars
CO7	Explain the history of world organizations like UNO, League of Nations, NAM, etc.

B.Voc Marketing Management and IT & Retail management and IT

Semester I

Principles of Management (1.2)

CO1	Demonstrate the fundamental/systematic or coherent understanding about management principles.
CO2	Use knowledge, understanding and skills required for planning, organizing, staffing, directing &Controlling.
CO3	Identify different theories of motivation (Maslow's,Herzberg,Mc Gregory's x &y theory)
CO4	Describe essentials of a sound control system and methods of establishing control.

Basics of marketing (1.3)

CO1	Demonstrate a systematic, extensive and coherent knowledge and understanding of the academic field of study of marketing
CO2	Use knowledge, understanding and skills required for analyzing consumer Behavior.
CO3	Identify various approaches to marketing and explain the concept of Marketing Myopia.
CO4	Use PEST analysis for studying Marketing Environment.
CO5	Identify bases for market segmentation and mix.

Semester II

IT for Business (2.1)

CO1	Reflect upon and Explore about Information and Communication Technology and E-World.
CO2	Describe the basic concept of Operating system and key features of Windows, UNIX & Linux.
CO3	Describe different protocols in Computer Communication.
CO4	Explain about Network and its different types.
CO5	Discuss and Illustrate about HTML & Webpage.

E-Commerce and General Informatics (2.2)

CO1	Demonstrate an understanding of the foundations and importance of E-commerce
CO2	Analyse the impact of E-commerce on business models and strategy
CO3	Describe internal trading relationships including B2C, B2B, C2B
CO4	Access electronic payment system
CO5	Recognize and discuss E-commerce security

Basic Business Communication Skills (2.3)

CO1	Demonstrate a good understanding of communication
CO2	Differentiate between different methods of communication
CO3	Discuss different process and considerations involved in writing in business
CO4	Demonstrate his/her ability to write error free while making an optimum use of correct business vocabulary and grammar
CO5	Evaluate among various levels of organizational communication and communicational barriers while developing an understanding of communication as a process in an organization
CO6	Compare online tools like computer, internet, E-mail, video and tele-conferencing to find, evaluate and process information

Semester III

Financial Accounting (3.1)

CO1	Demonstrate knowledge of commonly used financial statement their components and how information from business transactions flow into these statements
CO2	Show knowledge of preparation of financial statements and or financial schedules in accordance with generally accepted accounting principles through analysis and synthesis of information as well
CO3	Employ accounting for non- trading institution
CO4	Generate knowledge of different forms of business organizations

Basics of MIS (3.2)

CO1	Identify the basic concepts and technologies used in the field of management information systems.
CO2	Discuss the leadership role of management information system in achieving business competitive advantage through informed decision making.
CO3	Analyse and synthesize business information and systems to facilitate evaluation of strategic alternatives.

CO4	Interpret strategic alternatives to facilitate decision making.

Retail Marketing (3.3)

CO1	Predict the nature, scope and importance of marketing
CO2	State what is retail marketing management and its impact of decisions on a service marketing
CO3	Appraise about marketing with its significance in retail
CO4	Discuss the importance of marketing mix, its integration and applicability
CO5	Examine the application of (STP) in retail
CO6	Outline the importance of branding in retail marketing decision making
CO7	Assess about retail products decisions and planning
CO8	List the concepts of innovation diffusion and adoption

Retail and Distribution Management (3.5)

CO1	Demonstrate strong conceptual knowledge in the functional area of marketing channels
CO2	Assess strategies for the selection, motivation and evaluation of channel members
CO3	Demonstrate roles expected by anyone in a store keeping position
CO4	Recognise the functions of retail communication mix

Semester IV

IT for Office (4.1)

CO1	Recognize when to use each of the Microsoft office programs to create professional and academic documents
CO2	Experiment Microsoft office programs to create personal, academic and business documents following current professional or industry standards
CO3	Apply skills and concepts for basic use of MS PowerPoint and page maker.
CO4	Recognize advanced features of Excel.

Semester V

Storekeeping and Warehousing (5.1)

CO1	Identify scope of warehousing management and state about objectives of stores and location and layout
CO2	Examine about marine insurance and A to Z claims procedure
CO3	Recognize the salient features of spares
CO4	Analyze about Retail warehousing

Conference and Event Management (5.2)

CO1	Define basic concepts related to Event Management.
CO2	Find the role of Event Management Companies
CO3	Identify key steps for planning an event.
CO4	Describe the role played by promotion, advertising, public relations and sponsorship in marketing Events.

Semester VI

Computerized Accounting (6.1)

CO1	Employ conceptual knowledge of Computerised accounting.
CO2	Show the skill of recording financial transactions and preparation of reports in Tally.
CO3	Develop the knowledge of accounting process with inventory.
CO4	Demonstrate the skill to prepare ledgers and vouchers pertaining to TDS and VAT.

Courses forMarketing Management & IT

Semester I

Laws Relating To Marketing (1.4M)

CO1	Demonstrate a fundamental /systematic or coherent understanding of the academic field of law with special reference to consumer protection act,1986
CO2	Demonstrate an understanding of Indian contract Act,1872
CO3	Demonstrate recognition of transactions involving the sales of Goods
CO4	Demonstrate understanding of consideration and capacity
CO5	Demonstrate understanding legality relating to district forum, state commission, national commission

Sales Management (1.5M)

CO1	Demonstrate understanding of the Basic principles of sales management
CO2	Apply in a competent manner sales management tools such as sales forecasting, sales compensation methods
CO3	Demonstrate an understanding of the role of the sales force as a part of the marketing mix
CO4	Evaluation of the performance by means of a team, project that creates a sales force plan

Semester II

Basic Statistics for Marketing Research (2.4M)

CO1	Tell the introduction, origin, scope and limitations of statistics
CO2	Recall the concepts of time series and its applications in different areas

CO3	Locate principles of mean, median, mode, linear regression and correlation, including least square method.
CO4	State the correlation between two variables
CO5	Sketch statistical data graphically using pie diagram

Vocational Training and Report (2.5M)

CO1	Analyze marketing operations of a different company.
CO2	Develop a report based on the study.
CO3	Demonstrate on the job skills, knowledge, attitudes and perception along with experience needed to constitute a professional identity.
CO4	Describe actual supervised professional experience

Semester III

Advertising and Sales Promotion (3.4M)

CO1	Explain meaning, scope, objectives, merits and demerits of advertising
CO2	Explain decisions regarding the most feasible advertising appeal and media mix
CO3	Conduct pre-testing, post testing and concurrent testing of advertisements to determine their effectiveness
CO4	Judge promotion techniques
CO5	Experiment the social, economic and legal aspects of advertisement

Semester IV

Distribution Management and Logistics (4.2M)

CO1	Develop a sound understanding of the important role of physical distribution in today's business environment
CO2	Identify different forms of marketing channels
CO3	Use and apply unconventional channels, multi-channel marketing systems
CO4	Demonstrate the use of inventory management and logistics

Direct and Network Marketing (4.3M)

CO1	Demonstrate cognitive knowledge of the skills required in conducting direct marketing
CO2	Analyse the confluence of marketing operations and human resource in real time delivery
CO3	Understand the key principles of relationship marketing and how a customer relationship management programme should be formulated and implemented
CO4	Emphasizes developing the knowledge and skills needed for strategic customer

	management

Services Marketing (4.4M)

CO1	Examine the nature of services and distinguish between products and services
CO2	Develop an understanding of distinctive characteristics of services
CO3	Appraise the nature and development of a service marketing strategy
CO4	Recognize the issues in marketing of services

Industry Training and Report (4.5M)

CO1	Identify and apply fundamental principles of marketing
CO2	Recall all the latest changes in technological world
CO3	Demonstrate more communication skills.
CO4	Develop to be a marketing manager with good knowledge, management, leadership and entrepreneurial skills
CO5	Demonstrate self-improvement through continuous professional development

Semester V

Financial Services Marketing (5.3M)

CO1	State how marketing theory underpins the marketing of financial services.
CO2	Appraise how recent thinking in marketing and service marketing applies to financial services.
CO3	Classify and compare about Mutual Funds and Asset Management Company.
CO4	Generate Role and Responsibilities of sales distribution channels.

Buyer Behaviour (5.4M)

CO1	Identify the relevance of buyer behavior theories and concepts to marketing decisions.
CO2	Demonstrate how knowledge of consumer behavior can be applied to marketing.
CO3	Identify and explain factors which influence consumer behavior
CO4	Examine internal dynamics such as personality, perception, learning, motivation and attitude to the choice's consumers make.

Marketing of Tourism (5.5M)

CO1	Identify and evaluate tourism as a phenomenon and as a business system.
CO2	Demonstrate the main challenges of marketing and promoting Tourism.
CO3	Appraise, evaluate and employ appropriate pricing tools for Tourism

CO4	Show how promotional campaigns for tourism can appeal to multiple target markets.
CO5	Examine which forms of advertising are best suited to promoting tourism.

Semester VI

Rural and Agricultural marketing (6.2M)

CO1	Identify various functional areas of rural marketing
CO2	Appraise on agricultural marketing, challenges and prospects for improving agricultural marketing system.
CO3	Analyse the organized retailing of Agri products.
CO4	Assess about role of agriculture in Economic Development of India.

Marketing Research (6.3M)

CO1	Demonstrate the process of marketing research and its significance.
CO2	Appraise applications of marketing Research.
CO3	Examine different research methods.
CO4	Assess the abilities and imparting the knowledge for using the information in business research area.

Brand Management (6.4M)

CO1	Demonstrate knowledge of the nature and process of branding and brand management.
CO2	.Evaluate the scope of brand management using brand knowledge pyramid.
CO3	Formulate various loyalty programmes for brand communication.
CO4	Analyse and discuss brand positioning and brand image.

Courses for Retail Management &IT

Semester I

Introduction to Retailing (1.4R)

CO1	Demonstrate a fundamental /systematic or coherent understanding about retailing and the importance of retailing.
CO2	Demonstrate an understanding of key functions of Retail
CO3	Analyze strategies for developing and applying Retail
CO4	Demonstrate various formats of Retail.
CO5	Describe and analyze key models and theory of Retail Development.
CO6	Recognize career opportunities available in retail business

Basics of Retail Management (1.5R)

CO1	Demonstrate an understanding of retailing, nature and its importance
CO2	Analyze career options in retailing.
CO3	Discuss technology induction in retailing
CO4	Evaluate future of retailing
CO5	Assess the types of retailing
CO6	Demonstrate the regulation of retail institution in India
CO7	Identify key retailing models.

Semester II

Retail Institutional Framework (2.4R)

CO1	Develop detail understanding of different types of retail institution.
CO2	Develop skill to manage the products in Retail Store
CO3	Identify store-based strategies.
CO4	Recognize about non-traditional retailing.
CO5	Co-relate about vodeo kiosks & Airport retailing.

Vocational Training and Report (2.5R)

CO1	Analyze retailing operations of a different company.
CO2	Develop a report based on the study.
CO3	Demonstrate on the job skills, knowledge, attitudes and perception along with experience needed to constitute a professional identity.
CO4	Immerse students in actual supervised professional experience

Semester III

Retail Planning (3.4R)

CO1	Demonstrate the accurate knowledge and understanding on Retail Market Segmentation & Relationship marketing in Retail.
CO2	List the statutory obligation related to IPR,Copy rights & Trade Marks, The standards of Weights and Measures Act.
CO3	Appraise the concept of Mall Management.
CO4	Recognize the importance of human resource management in retailing.

Semester IV

Retail Store and Operations Management (4.2R)

CO1	Explain the various elements of setting up of retail organization.
CO2	Demonstrate about store layout and space planning

CO3	Describe the responsibilities of a store manager.
CO4	Explain about coding system and material handling in store.
CO5	Equip with the knowledge of logistic and information system.

Retail Shopper Behaviour (4.3R)

CO1	Demonstrate how knowledge of shopper behavior can be applied to retailing.
CO2	Identify and explain factors which influence shopper Behavior.
CO3	Relate influence of socio-cultural factors in determining shopper behavior.
CO4	Identify the influence of personal factors on Shopper Behavior.
CO5	Identify and explain factors which influence shopper attitudes

Mall Management (4.4R)

CO1	Explain with professional knowledge in specialist areas within property and shopping mall management.
CO2	Demonstrate their knowledge and contribute to professional leadership in mall operations.
CO3	Develop knowledge and understanding of the strategic management of malls.
CO4	Evaluate the maintenance needs, develop and execute maintenance plan for tenants.
CO5	Develop an understanding about different retail formats.

Industry Training and Report (4.5R)

CO1	Identify and apply fundamental principles of Retailing.
CO2	Recall all the latest changes in technological world
CO3	Demonstrate more communication skills.
CO4	Develop to be a marketing manager with good knowledge, management, leadership and entrepreneurial skills
CO5	Demonstrate self-improvement through continuous professional development

Semester V

Merchandise Management (5.3R)

CO1	Define merchandising and its importance
CO2	Identify about merchandise plan.
CO3	Differentiate about merchandises.
CO4	Employ to perform categorization in the merchandise
CO5	Examine the concept of visual merchandising

Retail sales Techniques & Promotion (5.4R)

CO1	Appraise about advertising communications and promotions

CO2	Familiarize the students with promotional impacts.
CO3	Identify various sales promotional techniques.
CO4	Recognize different types of promotions done by retailers.

Retail Environment (5.5R)

CO1	Demonstrate about Functions and special characteristics of a Retailer.
CO2	Familiarize about marketing concepts applied to retailing.
CO3	Identify strategic planning in Retail.
CO4	Recognize about Global Retail Markets.
CO5	Appraise about Evolution of Retail

Semester VI

Retail Targets & locations (6.2R)

CO1	Identify and understand about demographics and life styles of customers.
CO2	Demonstrate about Consumer decision making process.
CO3	Interpret the information flows in retail.
CO4	Analyse and implement industry standard approaches to the site selection,store planning
CO5	Develop a Trade-Area Analysis.

Retail Advertising and sales promotion (6.3R)

CO1	Demonstrate a requisite knowledge in advertising
CO2	.Employ as a competent retailing professional with strong knowledge in copy writing
CO3	Recognize an understanding of various facets of sales promotion
CO4	Show decisions about trade promotion.
CO5	Experiment day to day sales promotional activities.

International Retailing (6.4R)

CO1	Arrange an insight about International Marketing
CO2	Demonstrate a deeper understanding of India's presence in International Marketing
CO3	Demonstrate knowledge in internationalization of retailing.
CO4	Discuss the selection of right retail market.
CO5	Assess about multi-country competition and global competition.

POSTGRADUATE PROGRAMMES

M.Sc/M.A/B/Mom/MSW

After the completion of the course, Students will be able to:

M.ScMathematics

Semester I

Linear Algebra (MT01C01)

CO1	Characterize a vector space using linear independent set, basis, and dimension.
CO2	Identify linear transformations of finite dimensional vector spaces and compose their matrices in specific basis
C03	Combine methods of matrix algebra to compose the change of basis matrix with respect to two basis of a vector space.
C04	Explain the dual space of vector space and develop transpose of a linear transformation.
CO5	Define determinant function with certain properties of determinant

CO6	State permutation and illustrate uniqeness of determinant
CO7	Use characteristic polynomial to compute the eigenvalue and eigenvectors of a square matrix and use them to diagonalise matrices when it possible; discriminate between diagonalisable and non diagonalisable

Basic Topology (MT01C02)

CO1	Demonstrate elementary topological characterizations
CO2	Apply basic topological analysis
CO3	Analyze basic topological properties and a few localized properties
CO4	Explain various measures of smallness for a topological space
CO5	Apply basic separation axioms to categorize topological spaces

Measury Theory & Integration (MT01C03)

CO1	Define properties of the outer measure
CO2	Explain measurable sets and lebesguemeasure ,construction of non measurable sets
CO3	Define measurable functions
CO4	Computelebasque integrals and differentiate Monotone functions
CO5	Define measure space and convergence in measure
CO6	Identify measurability in a product space

Graph Theory (MT01C04)

CO1	Identify induced subgraphs, cliques, matchings and covers in graphs
CO2	Describe connectivity of graphs
CO3	Define trees and use Cayley's formula to predict the number of spanning trees of a given connected graph
CO4	Examine whether graphs are Hamiltonian and/or Eulerian
CO5	Solve problems involving vertex and edge coloring model real world problems using graph theory
CO6	Distinguish between planar and non-planar graphs

Complex Analysis (MT01C05)

CO1	Analyze conformal mappings
CO2	Identify the images of circles and lines under Mobius transformations
CO3	Describe analytic functions in terms of power series
CO4	Find the number of zeros and poles of within a given curve using argument principle
CO5	Evaluate integrals using residue theorem/cauchy's integral formula

CO6	Describe harmonic function as the real part of an analytic function
CO7	Identify the harmonic conjugate of a harmonic function

Semester II

Abstract Algebra (MT02C06)

CO1	Construct every Finite Abelian Group
CO2	Apply factorisation of polynomials over a field
CO3	Describe Field extensions, Constructible numbers
CO4	Analyse Finite Fields
CO5	Apply Sylow's theorems
CO6	Describe automorphism of fields 2
CO7	Describe splitting fields
CO8	Apply Galois Theory

Advance Topology (MT02C07)

CO1	Explain Urysohn,Tietzecharacterisations of Normality
CO2	Analyse product space and productive/countably productive/finitely productive properties
CO3	Describe Net/Filter characterisation of topological space
CO4	Describe different notions of compactness in a topological space
CO5	Demonstrate compactification of topological space

Advanced Complex Analysis (MT02C08)

CO1	Describe analytic functions interms of power series and infinite product of complex numbers
CO2	Demonstrate Riemann Zeta function and its extension to the whole complex plane and explain normality and compactness of family of functions
CO3	Show the unit disk can be mapped conformally onto any simply connected region in the plane and discuss fuctions with mean value property
CO4	Describe elliptic functions and interpret the idea of analytic continuation of complex functions

Partial Differential Equations (MT02C09)

CO1	Solve pfaffian differential equations in three variables
CO2	Describe Integral surfaces through a curve, and Orthogonal family of curves
CO3	Solve second order non-linear differential equations

CO4	Describe family of equipotential surfaces

Real Analysis (MT02C10)

CO1	Analyse functions of bounded variations
CO2	Apply Riemann-Stieltjes Integral
CO3	Analyse uniform convergence of a sequence, series of functions
CO4	Describe exponential, logarithmic, and trignometric functions
CO5	Demonstrate algebraic completeness of Complex Field

Semester III

Multivariate Calculus & Integral Transforms (MT03C11)

CO1	Analyse multivariate, real functions
CO2	Describe Integral Transformations
CO3	Describe directional, total derivatives
CO4	Describe Chain rule
CO5	Analyse conditions for differentiability
CO6	Analyse conditions for equality of mixed partial derivatives
CO7	Describe Stokes Theorem

Functional Analysis (MT03C12)

CO1	Describe Banach space
CO2	Describe Hilbert space
CO3	Analyse Hilbert adjoint operators
CO4	Explain Hahn-Banach Theorem
CO5	Explain Category Theory

Differential Geometry (MT03C13)

CO1	Describe the geometric aspects of a multivariate function
CO2	Explain geodesic curves and parallel transport
CO3	Calculate and analyse curvature of surfaces in different settings
CO4	Demonstrate local equivalence of surfaces and parametrized surfaces

Number Theory & Cryptography (MT03C14)

CO1	Explain time estimate for an algorithm
CO2	Analyse properties of Congruence
CO3	Apply Quadratic residues to find square root modulo p
CO4	Describe Public key cryptosystem and RSA Algorithm

CO5	Calculate discrete logarithm modulo n
CO6	Explain various kind of psuedoprimes and primality test
CO7	Describe Carmichael number and characterise it
CO8	Illustrate various FactorisationAlgorithms : rho, Fermat, Quadratic Sieve

Optimization Techniques (MT03C15)

CO1	Solving Integer Linear Programming Problem: Branch and Bound, Cutting Plane Methods
CO2	Apply senstivityanalsis on Simplex Method
CO3	Solve Optimiztion problems using graphs : Flow, Potential, Scheduling
CO4	Analyse rectangular games using Simplex
CO5	Apply univariate and multivariate non-linear optimization
CO6	Apply Kuhn-Tucker Conditions and Complementary Pivot Algorithms

Semester IV

Spectral Theory (MT04C16)

CO1	Describe different notions of convergence: strong, weak, weak
CO2	Explain Banach Fixed Point Theorem
CO3	Analyse spectral properties of bounded linear operators on a Banach space
CO4	Illustrate properties of Banach Algebras
CO5	Demonstratee spectral properties of compact linear operators
CO6	Describe unbounded linear operators, and self adjoint linear operators
CO7	Discussspectral properties of bounded self adjoint linear operators
CO8	Explain properties of projections

Analytic Number Theory (MT04E01)

CO1	Describe arithmetical functions and Dirchlet multiplication of arithmetical functions
CO2	Explain existence of inverse of arithmetical functions and analyse inverse of completely multiplicative arithmetical functions
CO3	Describe Bell series and its relation with Dirchlet Multiplication
CO4	Explain asymptotic equality of arithmetical functions
CO5	Apply average order of arithmetical function to characterise lattice points visible from origin
CO6	Describe Chebyshev functions

CO7	Explain various elementary theorems : Prime Number, Shapiro
CO8	Describe system of linear congruences, polynomial congrucences
CO9	Explain the relation between primitive roots and quadratic residues
CO10	Discuss Euler's Pentagonal Theorem

Combinatorics (MT04E02)

CO1	Solve various counting problems such as the arrangement of objects in a certain way, the partition of things under a certain condition, the distribution of items according to a certain specification and so on
CO2	Describe problems that concerns with the existence of a certain kind of quantity, pattern or arrangement
CO3	Identify complicated enumeration problems, in which several properties are given, using GPIE
CO4	Use generating functions as a tool in the algebraic manipulations of sequences

Mathematical Economics (MT04E05)

CO1	Describe consumer behaviour using Indifference curves
CO2	Discuss production function and analyse elasticity of substitution
CO3	Describe various production functions : Cobb Douglas, CES Models
CO4	Explain Leontief models for input-output analysis
CO5	Solve difference equations
CO6	Apply theory of difference equations on various economic models :Harrod, CobWeb, Consumption, Income-Consumption-Investment Models

Algorithmic Graph Theory (MT04E13)

CO1	Analyze algorithms based worst-case time estimates
CO2	Describe representation of graphs on computer
CO3	Apply search algorithms on Trees 6
CO4	Discuss critical path on an activity digraph
CO5	Illustrate Max-Flow Min-Cut Algorithm on Networks
CO6	Describe notions of connectivity for a specific pair of vertices
CO7	Explain algorithm to find maximum matching in a bipartite graph
CO8	Describe factorisations and factorability of graphs
CO9	Demonstrate relation between the parameters of a block design

Semester I

Mathematical Methods in Physics (PH010101)

CO1	Recognise the physical interpretation of vector, matrices and tensors
CO2	Apply the mathematical tools in real physical circumstances
CO3	Apply the curvilinear coordinates in problems with spherical and cylindrical symmetries
CO4	Solve problems in various branches of Physics employing probability theory and statistical distributions.
CO5	Develop a concept about Linear vector space

Classical Mechanics (PH010102)

CO1	Apply the fundamental concepts of the Lagrangian and the Hamiltonian methods to various physical problems
CO2	Analyse and understand the physics of small oscillations with practical examples
CO3	Generate the concepts of canonical transformations and Poisson brackets
CO4	Discuss the basic ideas of central forces and rigid body dynamics
CO5	Demonstrate the Hamilton-Jacobi method and the concept of action-angle variables.
CO6	Identify the Lagrangian formulation of relativistic mechanics.

Electrodynamics (PH010103)

CO1	Recognise and analyse the basics of Electrostatics, Magnetostatics and Electrodynamics
CO2	Analyse the propagation of em waves through various media
CO3	Illustrate the electromagnetic field radiating out of accelerated charges
CO4	Discuss the impact of relativity in electromagnetism
CO5	Compare the propagation of electromagnetic waves through various waveguides.

Electronics (PH010104)

CO1	Analyse the principle and working of various electronic circuits using OP-amps
CO2	Examine the effect of changing parameters on the working of practical OP-amps
CO3	Analyse the frequency response of Op-amps

CO4	Design and construct various linear circuits, oscillators, converters etc
CO5	Illustrate the analogue communication systems

Semester II

Mathematical methods in Physics – II (PH010201)

CO1	Analyse the properties of complex variables and its applications
CO2	Recognise the importance of Fourier analysis in physical problems
CO3	Apply Integral transforms to different practical situations
CO4	Analyse various special functions, polynomials and their differential equations
CO5	Solve partial differential equations in different coordinate systems.
CO6	Construct and evaluate Greens function

Quantum Mechanics – I (PH010202)

CO1	Recognise the fundamental concepts of the Dirac formalism
CO2	Identify the time evolution in quantum systems
CO3	Compare the Schrodinger picture and Heisenberg picture
CO4	Identify the basics of the quantum theory of angular momentum.
CO5	Solve the hydrogen atom problem in quantum mechanics.

Statistical Mechanics (PH010203)

CO1	Identify the relation between thermodynamics and statistical mechanics
CO2	Recognise the basic concepts and physical quantities in classical and quantum statistics
CO3	Discuss the systems in classical and quantum mechanical ensembles with physical significance
CO4	Illustrate the thermodynamics of blackbody radiation
CO5	Outline the Phase transitions

Condensed Matter Physics (PH010204)

CO1	Analyse the X-ray diffraction through crystals and determine the diffraction intensity
CO2	Evaluate the reciprocal lattice to different crystal systems
CO3	Identify the symmetry elements in crystals
CO4	Classify insulators, conductors, and semiconductors on the basis of band theory of solids
CO5	Comprehend the lattice dynamics and classify the theories of specific heat
CO6	Discriminate types of magnetic materials with underlying theory

Semester III

Quantum Mechanics – II (PH010301)

CO1	Recognise the different stationary state approximation methods and apply them to various quantum systems
CO2	Apply the time-dependent perturbation theory to semi-classical theory of atom-radiation interaction
CO3	Comprehend the theory of identical particles and its application to helium
CO4	Interpret the concept of Born approximation and the method of partial waves.
CO5	Identify the basic concepts of relativistic quantum mechanics.

Computational Physics (PH010302)

CO1	Apply least square fitting method to fit given data to the curve
CO2	Formulate interpolating polynomials through various methods
CO3	Compute using various numerical differentiation and integration methods
CO4	Solve ordinary differential equations and system of equations through numerical methods
CO5	Evaluate partial differential equations through finite difference method
CO6	Develop algorithms for computation through each method

Atomic and Molecular Physics (PH010303)

CO1	Recognise the atomic structure and spectra of typical one- electron and two-electron systems.
CO2	Identify the theory behind the origin of various types of molecular spectra such as microwave, IR, Raman and Electronic spectra.
CO3	Analyse the structure from spectral data
CO4	Classify the spin resonance spectroscopies such as NMR and ESR.
CO5	Comprehend the basic ideas of Mossbauer spectroscopy

Solid State Physics for Materials(PH010301)

CO1	Classify types of crystal defects and analyse their effects
CO2	Categorise various diffusion mechanisms
CO3	Distinguish between types of bonds present in crystals
CO4	Assess the phase diagrams in various processes
CO5	Illustrate the excitations in solids

Semester IV

Nuclear and Particle Physics (PH010401)

CO1	Recall the basic properties of the nucleus and the nuclear forces.
CO2	Discuss the major models of the nucleus and the theory behind the nuclear decay process
CO3	Identify the physics of nuclear reactions
CO4	Analyse the interaction between elementary particles and the conservation laws in particle physics.
CO5	Develop a basic concept of nuclear astrophysics and the practical applications of nuclear physics.

Science of Advanced Materials (PH010402)

CO1	Classify the ceramics, polymers and composites based on their properties and structure
CO2	Evaluate the optical properties of materials
CO3	Analyse the semiconducting lasers and their properties
CO4	Discuss about various photonic materials and their working principle
CO5	Explain the theory of Superconductors
CO6	Discuss techniques for thin films fabrication and crystal growth

Nanostructures and Materials Characterisation(PH010403)

CO1	Discuss about the synthesis and properties of Nanostructures
CO2	Discriminate types of Nanomaterials and identify their applications
CO3	Classify various types of Optical Absorption and Emission spectroscopy
CO4	Illustrate Chemical, thermal and X-ray diffraction methods of characterization

M.Sc Chemistry

Semester I

Organometallics and Nuclear Chemistry (CH500101)

CO1	Explain Synthesis, Structure, Bonding and fundamental reactions of Organometallic Compounds
CO2	Describe chemistry and important applications of organometallic catalysis in organic chemistry
CO3	Discuss about the basics of membrane structure and transport properties
CO4	Create awareness about metal toxicities, their detection and permissible levels in

	the body
CO5	Explain different oxygen carriers present in the body with their structure and function
CO6	Identify and define the basics of nuclear chemistry applications: nuclear power, medical treatment, isotopic labelling, and carbon dating.

Structural and Molecular Organic Chemistry (CH500102)

CO1	Illustrate the knowledge gained on the concepts of organic chemistry such as resonance, hyperconjugation, inductive effect, electromeric effect etc. and their application in detail.
CO2	Acquire detailed knowledge on photoreactions of carbonyl compounds and elucidate the reaction mechanisms using isotope effects
CO3	Recognize the importance of stereochemistry and depict different stereoisomers.
CO4	Identify and differentiate prochirality and chirality at centers, axis, planes and helices and assess configuration of the stereoisomers.
CO5	Evaluate the stability of various conformers of acyclic and cyclic systems using steric, electronic and stereo electronic effects and correlate them to reactivity.

Quantum Chemistry and Group Theory (CH500103)

CO1	Describe the fundamental ideas, mathematical concepts, applications of Group theory.
CO2	Analyse various symmetry elements and points groups of different molecules and demonstrate the group multiplication tables of different point groups.
CO3	Discuss the mathematical concepts and ideas related to quantum mechanics to molecular systems.
CO4	Analyse the experimental foundations of quantum mechanics and illustrate the postulates of quantum mechanics.
CO5	Demonstrate the applications of quantum mechanics in various systems like SHO, Hydrogen atom etc.

Thermodynamics, Kinetic Theory andStatistical Thermodynamics (CH500104)

CO1	Apply principles and laws of equilibrium thermodynamics to multicomponent systems
CO2	Determine the thermodynamic properties of ideal gases and real gases.
CO3	Describe the laws of thermodynamics and to derive Maxwell's law of distribution of velocities

CO4	Discuss the principles and techniques of statistical thermodynamics and able to calculate thermodynamic functions and equilibrium constants.
CO5	Evaluate the macroscopic and microscopic approach in science.

Semester II

Coordination Chemistry (CH15O0201)

CO1	Recognize the bonding in transition compounds by VBT and CFST theories.
CO2	Predict the geometry of coordination compounds and type of hybridization
CO3	Illustrate the knowledge of Formation, Reaction mechanism, stability and properties of the coordination complexes.
CO4	Demonstrate the various mechanisms operative in inorganic complexes during substitution and in electron transfer reactions.
CO5	Explain the Coordination Chemistry of Lanthanoids and Actinoids
CO6	Describe the understanding on organometallic complexes of the lanthanoids- σ-bonded complexes, cyclopentadienyl complexes,organolanthanoid complexes as catalysts.

Organic Reaction Mechanism (CH500202)

CO1	Discuss deep insight into the fundamental mechanistic processes relevant in organic-chemical reactions and analyse reactions and rearrangements of radical chain
CO2	Describe different approaches to the formation of carbanions/carbocations, discuss their structures, stabilities/reactivities and applications in synthesis.
CO3	Demonstrate generation and applications of several intermediates such as carbenes, carbenoids, nitrenes and arynes.
CO4	Recognize mechanisms of different reactions related to carbonyl compounds.
CO5	Comprehend orbital interactions and orbital symmetry correlations of various pericyclic reactions with a thorough examination on the mechanism of organic reactions involving reactive intermediates and concerted processes and apply these reactions in organic synthesis.
CO6	Identify and solve problems on chemical reactions and explore new areas of research.

Chemical Bonding and Computational Chemistry (CH500203)

CO1	Apply and evaluate group theoretical concepts in spectroscopy.
CO2	Describe quantum mechanics from one electron system to many electron

	systems and various theories of chemical bonding.
CO3	Discuss variousapproximation methods in quantum mechanics.
CO4	Apply MO theory in various molecules like H_2, H_2^+ etc.
CO5	Describe basic ideas and scope of computational chemistry.
CO6	Explain Hartee-Fock method and selfconsistent field (SCF) procedure.
CO7	Differentiation of ab initio, semi empirical and DFT methods.

Molecular Spectroscopy (CH500204)

CO1	Describe the basic principles and theory of various Spectroscopic Techniques.
CO2	Demonstrate the applications of microwave spectroscopy in linear and non-linear molecules.
CO3	Discuss various FT techniques in spectroscopy.
CO4	Explain polarizability and classical theory of Raman spectrum.
CO5	Illustrate the term symbols of diatomic molecules.
CO6	Describe the basic theories of NMR, EPR and Mossbauer Spectroscopy

Semester III

Structural Inorganic Chemistry (CH15O0301)

CO1	Explain the band structure of solids and determine the optical electrical and magnetic properties of solids
CO2	Describe the theory of conductivity and phenomena of super conductivity
CO3	Discuss solid state reactions, of Zinc blende, Wurtzite, Rutile, fluorite, antifluorite, Nickel Arsenide, Perosvskite:
CO4	Analyze structure and properties of inorganic chains and rings
CO5	Explain the relevance of Organometallic Polymers
CO6	Describe the designing and development of Magnetic Nanoparticles.

Organic Synthesis (CH500302)

CO1	Synthesise organic molecules and use their understanding of organic mechanisms to predict the outcome of reactions.
CO2	Use various reagents and organic reactions for synthetic organic chemistry.
CO3	Use of retrosynthetic analysis for the logical dissection of complex organic molecules and devise synthetic methods.
CO4	Describe the use protection and deprotection of various functional groups usually applied in protein synthesis and biochemical industry.
CO5	Illustrate different approaches towards the synthesis of carboxylic and

	heterocyclic ring systems.

Selected Topics in Physical Chemistry (CH020303)

CO1	Describe the various theories of reaction rates in chemical kinetics and catalysis.
CO2	Explain the concepts of oscillating chemical reactions
CO3	Evaluate the advanced concepts related to Electrochemistry and Electromotive Force.
CO4	Discuss the different adsorption theories like Langmuir theory, BET theory and Gibbs adsorption etc.
CO5	Illustrate utilization of solar energy, solar cells and their working.
CO6	Apply principles of thermodynamics in non-equilibrium irreversible processes.
CO7	Explain the thermodynamics of biological processes like glycolysis, respiration etc.

Spectroscopic Methods in Chemistry (CH500304)

CO1	Apply different spectroscopic methods to solve spectral data problems
CO2	Explain important organic reactions and functional transformations
CO3	Determine structural elucidation using spectroscopic techniques
CO4	Explain spectral analysis of various reactions/functional transformations like Pinacol-Pinacolone rearrangement, Benzoin condensation etc

Semester IV

Analytical Procedures (CH820401)

CO1	Discuss research methodology of chemistry and explain the statistical treatment of analytical data using various procedures.
CO2	Describe conventional analytical procedures.
CO3	Illustrate analytical procedures involved in environmental monitoring, water quality parameters such as-BOD, COD etc.
CO5	Discuss the analytical principles of food adulteration and analysis.
CO6	Explain basic principles and significance of forensics.

Instrumental Methods of Analysis (CH820402)

CO1	Demonstrate knowledge on various instrumental methods employed in chemical analysis.

CO2	Recognize working standards and utilization of analytical instruments such as IR, UV-visiblespectroscopy, NMR, Raman spectroscopy, AAS, AES, GC-MS-HPLC, -SIMS SEM etc.
CO3	Perform work on real samples to get acquainted with instrumentation and equipment of UV-visible spectroscopy and IR spectroscopy.
CO4	Develop understanding on various kinds of research, its objectives, research designs and sampling.

Modern Analytical Techniques (CH820403)

CO1	Describe the basic principles of electro analytical methods such as Potentiometry, polarometry, amperometry and Electrogravimetry.
CO2	Discuss thermal and radiochemical methods such as TG, DTG etc.
CO3	Demonstrate various chromatographic techniques like plane chromatography, GC, HPLC etc.
CO4	Explain green chemistry principles and its applications.
CO5	Illustrate nanoscience and nano chemistry

M.Sc Botany

Semester I

Microbiology and Phycology (PC1)

CO1	Describe about the pathogenic microorganisms and their mode of entry and control measures.
CO2	Classify and describe the life, cycle, structure and function of algae around them.
CO3	Illustrate algae from their natural habitat on the basis of characters
CO4	Develop the cultures of algae and bacterial strains

Mycology and Crop Pathology (PC2)

CO1	Compare different fungi with special reference to diseases in crop plant and symptomsof fungal diseases.
CO2	Understand the scope and importance of plant pathology.
CO3	Explain the control measures of plant diseases.
CO4	Demonstrate skills in laboratory, field and glasshouse work related to mycology and plant pathology.
CO5	Identify the common plant diseases according to geographical locations and device control measures.

Bryology and Pteridology (PC3)

CO1	Explain an understanding of Bryophytes, Pteridophytes .
CO2	Describe on plant evolution and their transition to land habitat.
CO3	Demonstrate proficiency in the experimental techniques and methods of appropriate analysis of Bryophytes, Pteridophytes.
CO4	Discuss the economic importance of the Bryophytes and Pteridophytes.

Environmental Biology (PC4)

CO1	Analyze the phytogeography or phytogeographical division of India
CO2	Illustrate energy sources of ecological system
CO3	Identify the threats to biodiversity and its habitat loss.
CO4	Discuss about the natural resources which can be conserving for future and sustainable development.

Semester II

Gymnosperms, Evolution and Developmental Biology (PC5)

CO1	Explain the meaning of fossil and its use in the determination of age of plant materials,
CO2	Understand the applied knowledge and different aspects of Paleobotany.
CO3	Describe the evolutionary tendencies and comparative morphology of Cycadales, Cycadeodales and Pteridospermales
CO4	Compare the characters of different orders &relationship of each order from Cordaitales to Gnetales.
CO5	Identify the characters of three orders of Gymnosperm i.e., Ginkogales, Coniferales, and Taxales
CO6	Discuss on germination of seeds.
CO7	Recognize the structure of anther and role of gene expression during pollen development. They will get to know about fertilization and how pollen stigma interaction takes place

Cells and Molecular Biology (PC6)

CO1	Develop knowledge about nucleus and its ultra-structure. They will also identify various forms of DNA.
CO2	Identify the importance of cell wall and plasmodesmata
CO3	Discuss the role of various cell organelles. They will have developed knowledge about various phases of cell division.

CO4	Describe the central dogma of molecular biology and realize the formation of a cell and its metabolism

Plant Anatomy and Principles Of Angiosperm Systematics (PC7)

CO1	Identify floral structure of Angiosperm plants and how stamens and carpels are evolved. They will also understand adaptive feature of pollinators.
CO2	Acquire knowledge about scope, aim, principles of taxonomy. They will get knowledge about concepts of taxa, genus etc.
CO3	Understand about various taxonomic evidences. They will also understand how to prepare herbarium sheets and how to read floras.
CO4	Produce key to the respective flora.

Genetics and Biochemistry (PC8)

CO1	Illustrate the process of mutation and its role in crop improvement and permutation.
CO2	Demonstrate the different structural and numerical changes occuring in chromosome and use thetrisomic and monosomic for chromosome mapping.
CO3	Describe the history of gene and one gene one enzyme one character hypothesis.
CO4	Understand the interaction of gene, genetic recombination producing the characters differently.

Semester III

Research Methodology, Biophysical Instrumentation, Biostatistics and Microtechnique (PC9)

CO1	Illustrate high level of scientific excellence in botanical research with specific emphasis on the role of plants.
CO2	Create, select and apply appropriate techniques, resources and modern technology in multidisciplinary way.
CO3	Demonstrate subject knowledge to design experiments, analyze and interpret data to reach to an effective conclusion.
CO4	Formulate authentic research paper in approved format

Plant Physiology And Plant Breeding (PC10)

CO1	Demonstrate the importance of photosynthesis in plants.
CO2	Discuss on the role of respiration in normal functioning of body.
CO3	Describe the importance of metabolism to maintain living state of cells.

CO4	Understand role of nitrogen cycle in environment
CO5	Identify important functions of enzymes in body, in digestion and metabolism.
CO6	Understand about pathways of water through xylem and phloem.
CO7	Demonstrate management of crop diversity

Biotechnology (PC11)

CO1	Acquire knowledge about recombinant DNA technology for the production of vaccines.
CO2	Demonstrate genetic engineering used to enhance yields & nutritional quality
CO3	Understand about genetically modified bacteria which can be used to develop drugs.
CO4	Describe tissue culture technique and gene technology which helped in improving various qualities in Crops

Taxonomy of Angiosperms (PC12)

CO1	Identifying floral variation
CO2	Understand the interesting features & systematic position of cucurbitaceae, cactaceae, orchidaceae, etc
CO3	Identify the probable ancestors of angiosperms, extinct species.
CO4	Develop an understanding about the role of biodiversity in Ecosystemfunctions

Semester IV

Tissue Culture and Microbial Biotechnology (PE1)

CO1	Illustrate the tissue culture and regeneration of plants.
CO2	Discuss various culture methods
CO3	Describe the use of cell cultures for the production of secondary metabolites
CO4	Evaluate use of various microbes in industrial field.
CO5	Demonstrate and handle varies aseptic technique used in microbial biotechnology.
CO6	Identify the techniques for conservation and preservation for tissue culture materials.

Genetic Engineering (PE2)

CO1	Evaluate and apply various techniques of genetic engineering.
CO2	Use various plant transformation techniques in creating transgenic plants.

CO3	To teach the application of immunological techniques.
CO4	Demonstrate and conduct the isolation of plant genome, and are able to separate DNA by Agarose gel electrophoresis.
CO5	Students will have knowledge about creative genetically modified bacteria. They will get knowledge that advance proteomic technologies can help us to develop better drugs.

Genomics, Proteomics and Bioinformatics (PE3)

CO1	Use of computational approach to analyze, manage & store biological data.
CO2	Demonstrate theuse of information technology in biotechnology for data storage, analyzing the DNA sequences.
CO3	Analyze the methods and principles of genome sequencing and genome mapping.
CO4	Apply skills in computer based approaches in biological processes.
CO5	Identify the concepts of genomics as a tool in evolutionary studies.

M.Sc Psychology

Semester I

Cognitive Psychology (PY010101)

CO1	Understand the basic concepts of cognitive psychology
CO2	Explain theoretical understanding of perception, memory and thinking, including current research trends and their outputs
CO3	Understand and ask questions in relation to the functioning of mind
CO4	Demonstrate knowledge and understanding of well-established theories in cognitive psychology, as well as an appreciation for the complexity of cognitive processes
CO5	Describe research methods in cognitive psychology and the ability to critically evaluate research in this area
CO6	Develop skills of applying cognitive methods to explore the realm of cognition
CO7	Demonstrate skills of identifying and segmenting basic psychological mechanisms

Personality and Personal Development (PY010102)

CO1	Demonstrate knowledge and understanding of the methods used to assess

	personality
CO2	Describe and distinguish among the major theoretical approaches to understanding personality
CO3	Describe and explain the impact of culture on personality development
CO4	Understand the theoretical contrast in understanding human personality mechanism
CO5	Understand the theoretical orientations and nature of man presented by each perspective in psychology
CO6	Acquire self enhancement and personality development through exploring one's own self

Psychopathology (PY010103)

CO1	Apply understanding of psychopathology to the problems faced by people with mental illness in a range of settings: educational; employment and accessing services
CO2	Demonstrate an ability to integrate theoretical and empirical research findings from biological, socio-cultural and psychological perspectives concerning the causes and treatment of the major psychological disorders
CO3	Illustrate knowledge and understanding of the legal, ethical and professional issues associated with individuals experiencing psychological disorders and their treatment
CO4	Demonstrate written and spoken communication skills appropriate for discussion of psychopathology
CO5	Acquire an understanding of the classification system of Mental Disorders and the approach to revising and developing it.
CO6	Discuss knowledge and understanding of psychology with regard to issues relating to psychological assessment, including in the areas of neuropsychological, intelligence and personality testing

Testing and Measurement in Psychology (PS1PC4)

CO1	Describe about the foundation on the basics of Psychological testing
CO2	Apply methods to construct psychological tests
CO3	Outline the skills needed in analysing decisions and applying tests.
CO4	Examine the current trends in psychological testing
CO5	Describe ethical concern in psychological testing

Semester II

Psychology of Intelligence, Learning and Motivation (PS2PC5)

CO1	Explain different theoretical approaches to the concept of intelligence
CO2	Outline the role and importance of emotional intelligence
CO3	Describe the process by which learning takes place
CO4	Identify the need and the role of motivation and emotion on behaviour
CO5	Analyse the knowledge of different theoretical frame work in learning
CO6	Evaluate the different theoretical frame works in motivation

Health Psychology (PY010202)

CO1	Familiarize the role of psychology in health and wellbeing
CO2	Identify stress and coping strategies, prevent illness and promote good health
CO3	Investigate the biopsychosocial correlates of illness and to take up the role of Health Psychologist
CO4	Evaluate the importance of new research area of psychoneuroimmunology
CO5	Assess mind-body relationship, human immune functioning, relevance of healthy life style, role of coping mechanisms, stress management, etc.

Research Methodology (PS2PC8)

CO1	Explain foundation on the basics of research methods in Psychology
CO2	Evaluate students on the importance of scientific research and ethical issues
CO3	Demonstrate the skill in writing proposals, designing research and report writing.
CO4	Analyse the qualitative and quantitative analysis of data
CO5	Describe the sampling procedures
CO6	Illustrate the function of statistical package of social science

Positive Psychology (PY010204)

CO1	Integrate and apply core concepts of positive psychology into one's own lives and professional practice
CO2	Apply the various principles of positive psychology for self-development
CO3	Assist in enhancing positive development in others
CO4	Recognise the need and importance of positive psychology in different contexts- educational institutions and workplace

Semester III

Neuropsychology (PY01010301)

CO1	Evaluate and diagnose neuropsychological disorders with reference to internationally accepted consensus criteria and taxonomies
CO2	Acquire theoretical knowledge of the neuroanatomy and structure of the brain and its relation to psychological functioning and behaviour.
CO3	Discuss knowledge of the neuropsychological test methods and applications
CO4	Demonstrateknowledge and understandingof account for and interpret the overall anatomical, structural and functional subsystems and related behaviour
CO5	Labell different brain imaging techniques, applications, strength and major limitations of such methods
CO6	Describe differences between congenital and accrued brain abnormalities and the major risks factors for early brain developmental related deviations

Counselling Psychology (PY010302)

CO1	Equip with major counseling skills, would have thorough knowledge on different perspectives in the field
CO2	Recognize the scope of counseling needs for special population
CO3	Describe exposure to real life counseling
CO4	Recognise the role and functions of counsellors in a variety of settings.
CO5	Demonstrate the skill to organize counselling programs.

Cognitive and Behaviourally Oriented Therapies (PS3PC10)

CO1	Evaluate the role of learning in the geneses of adaptive and maladaptive behaviour
CO2	Demonstrate the learning principles in everyday life.
CO3	Discuss the behaviour techniques and its application in different field like school setting and work setting.
CO4	Analyse the function and importance of cognitive behaviour therapies
CO5	Examine assertive behaviour and its real life management

Clinical Psychology and Assessment (PY010301)

CO1	Describe knowledge of the core theoretical areas, major models, and basic techniques TV of clinical psychology
CO2	Discuss comprehend concepts regarding the diagnosis, assessment, prognosis and treatment of mental disorders, including severe and persistent mental

	illness
CO3	Identify current methods of clinical and evaluation research
CO4	Demonstrate the technical skills and ethical decisions needed for the people with clinically significant distress needed particular attention
CO5	Engage in psychological practice with attitudes and behaviors that are ethical, driven by science and the welfare of affected individuals, respectful and tolerant of diversity, and critically self-evaluative
CO6	Demonstrate broad knowledge and clinical skill in the areas of psychopathology, psychological evaluation, and psychological intervention.
CO7	Use research skills, including statistical skills, methodology, framing of psychological questions, and critical analysis, to evaluate published research.

Psychotherapy (PS4PE15B3)

CO1	Evaluate and examine different types of psychotherapy
CO2	Analyse different techniques of psychotherapy
CO3	Discuss the need and importance of humanistic and existential psychotherapies in modern world.
CO4	Evaluate the nature, techniques and application of play therapy.
CO5	Apply the role of family in therapeutic settings and understand the process of family therapy

Specializations in Clinical Psychology (PY800403)

CO1	Demonstrate competency in the filed with high-level applied, active learning experiences in psychology involving research and clinical practice
CO2	Identify and diagnose specific mental pathology from diverse symptoms
CO3	Understand the risk factors, prognosis of a disorder
CO4	Demonstrate efficiency and skill in the clinical intervention of disorders
CO5	Use research skills, including statistical skills, methodology, framing of psychological questions, and critical analysis, to evaluate published research
CO6	Describe the technical skills and ethical decisions that are appropriate for the situations addressed

Semester IV

Contemporary Social Issues and Role of Psychology in Social Engineering (PY010401)

CO1	Analyze social origin of personal problems.
CO2	Develop critical thinking and perspective taking skills to understand and

	explain human rights violations.
CO3	Apply psychological and principles methods to facilitate social change.
CO4	Describe psychological principles and methods to understand social issues and to facilitate social change.
CO5	Demonstrate the ability to put social issues into a psychological perspective, communicate it in simple manner to others and suggest solutions for it.

M.Sc Statistics (Applied)

Semester I

Probability Theory (ST030101)

CO1	Understand the concepts of random variables, Borel field, probability and measure.
CO2	Determine the characteristic functions of r.v's and discuss its various properties.
CO3	Explain the four modes of convergence, properties, counter examples and their inter-relationships.
CO4	Understand the central limit theorem and large-sample approximations for common statistics.

Distribution Theory (ST500101)

CO1	Understand the most common discrete and continuous probability distributions and their real life applications.
CO2	Compute marginal and conditional distributions from joint distributions.
CO3	Describe the transformations of univariate and multivariate densities. Understanding of distribution helps to understand the nature of data and to perform appropriate analysis.
CO4	Apply compound, Truncated, mixture and non-central probability distributions to solve problems.
CO5	Discuss distributions of functions of random variables, including distributions of maximum and minimum observations, r^{th} order, r^{th} and s^{th} order statistics, distribution of range midrange and sample median are completed using this course.

Analytical Tools for Statistics (ST500102)

CO1	Explain concepts of matrices and matrix algebra
CO2	Describe methods of solving systems of linear equations

CO3	Explain basic concepts of vector spaces
CO4	Describe concepts of linear transformations
CO5	Illustrate methods of computing using eigenvalues and eigenvectors.

Sampling Theory (ST030103)

CO1	Understand the basic principles underlying survey design and estimation.
CO2	Distinguish between probability sampling and non-probability sampling.
CO3	Apply the different sampling methods for designing and selecting a sample from a population.
CO4	Implement Cluster sampling, Ratio and Regression estimation in real life problems.
CO5	Apply unequal probability sampling designs viz. PPSWR, PPSWOR including Lahiri's method and Murthy's estimator for survey.

Database Management System (ST010102)

CO1	Understand about Database Management Systems
CO2	Impart knowledge on Database administration
CO3	Generate E-R Model and construct E-R diagrams
CO4	Comprehend Relational Model and Relational DB
CO5	Understand about Relational Algbra
CO6	Differentiate between Tuple and Domain Relational Calculus
CO7	Comprehend Extended Relational Algebra
CO8	Learn how to modify a Database

Semester II

Estimation Theory (ST500201)

CO1	Understand the notion of point and interval estimation of the parameters.
CO2	Describe the desirable properties of a good estimator.
CO3	Obtain the sufficient statistic, minimal sufficient statistic, m.l.e., moment estimator of the parameter.
CO4	Understand the concept of MVUE, MVBUE, UMVUE.
CO5	Describe the concept of Bayesian inference and their real life applications.

Stochastic Processes (ST500202)

CO1	Understand the stochastic processes, Markov chains, Transition probability matrix and various types of states.
CO2	Explain Random walk, Gambler ruins problem and apply Poisson process in

	real life situations.
CO3	Formulate and solve problems which involve setting up stochastic models.
CO4	Understand renewal theory and branching processes with applications
CO5	Illustrate essential stochastic modelling tools including Markov chains and queuing theory.

Multivariate Distributions (ST500203)

CO1	Apply the general knowledge of bivariate distributions in Statistics and their applied fields.
CO2	Describe the concept of multivariate data and distributions.
CO3	Jacobian of various matrix transformations
CO4	Understand Wishart distribution and its basic properties, characteristic function,generalized variance and its distribution.
CO5	Understand Simple, partial and multiple correlation- distributions ,properties.and their inter-relationships

Data Science I –Using R / Python (ST030201)

CO1	Applications of topics covered in Sampling Theory
CO2	Problems on Estimation Theory
CO3	Analyse numerical problems on Stochastic Processes.
CO4	Analyse problems on Multivariate Distributions.

Object Oriented Programming Using Java (ST030202)

CO1	Understand internet and various protocols
CO2	Explain development of application and applet programmes
CO3	Describe Exception Handling
CO4	Demonstrate Server side programme development using JDBC and servelets.

Semester III

Testing of Hypotheses (ST500301)

CO1	Formulate null and alternative hypotheses and apply small, large sample and non-parametric tests in real life problems.
CO2	Apply Neyman-Pearson lemma to construct MP and UMP tests .
CO3	Understand Neymann structure tests and Likelihood ratio tests and its applications.
CO4	Determine UMA and UMAU confidence sets using UMP and UMPU tests.
CO5	Carry out sequential probability ratio tests.

Design and Analysis of Experiments (ST500302)

CO1	Describe the important role of experimentation in new product design
CO2	Compare the pairs of treatment means using different methods when null hypothesis in rejected in ANOVA.
CO3	Analyze the data using split plot and factorial experiments.
CO4	Construct fractional factorial experiments and apply confounding in real life problems.
CO5	Understand the analysis of BIBD, PBIBD, and Graeco-latin square designs and their applications.

Multivariate Analysis(ST500303)

CO1	Explain notion of likelihood ratio tests, Hotellings-T^2 and Mahalnobis-D^2 statistics-their properties, interrelationships and uses.
CO2	Describe classification problems: Discriminant Analysis and Bayes' procedure.
CO3	Apply the tests-Independence of sets of variables, Equality of dispersion matrices and Sphericity test.
CO4	Understand Multivariate General linear models-MANOVA (one way and two way),

Time Series Analysis (ST500304)

CO1	Understand the concept of time series with its components and able to compute ACF.
CO2	Identify and interpret various types of behaviour of the time series.
CO3	Remove trend and seasonality using different methods to convert the time series into stationary.
CO4	Apply auto regressive, moving average, ARMA, ARIMA models, Box Jenkins approach to forecast time-series data empirically.
CO5	Check and validate models with its residual analysis and diagnostic checking.

Web Development and PHP (ST030301)

CO1	Explain JavaScript, the Advantages of JavaScript and writing JavaScript into HTML.
CO2	Describe PHP&MYSQL
CO3	Apply MYSQL using PHP.
CO4	Distinguish between the echo and print Commands.

Semester IV

Econometric Methods (ST5 0401)

CO1	Understand the basic concepts related to the economy of a nation and to interpret various parameters used to measure economic status of a nation.
CO2	Understand simple and multiple linear regression models, estimation and tests concerning the parameters.
CO3	Describe multicollinearity, heteroscedasticity and autocorrelation.- consequences, detection, remedial measures
CO4	Explain simultaneous equation models and different methods of estimation.
CO5	Discuss the identification of a model and estimate the parameters.

Industrial Statistics (ST830402)

CO1	Explain various available statistical tools of quality monitoring.
CO2	Understand basic of production process monitoring and apply concept of control charts on it.
CO3	Apply the acceptance and continuous sampling plans in production process.
CO4	Compute capability indices.
CO5	Know and apply the concept of weighted control charts.

Programming Using Python (ST030401)

CO1	Explain the Python interpreter, Overview of programming in Python and Python built-in types.
CO2	Describe Control Statements:-if statements, while statement, for statements, functions,
CO3	Explain formal arguments, variable-length arguments, Exceptions, detecting and handling exceptions.
CO4	Apply a Database, Insert and Update Records, Retrieve and Delete Records.

Statistical Reliability Modelling and Analysis (ST830401)

CO1	Understand the elements of reliability, hazard function and its applications.
CO2	Understand the concept of censoring, life distributions and ageing classes.
CO3	Define some common life time models: Exponential, Weibull, Lognormal, Pareto, Gamma, Makeham and Rayleigh distributions.
CO4	Estimate nonparametric survival function of the data.
CO5	Describe stress-strength models: Reliability and its estimation.

Data Science II (ST830403)

CO1	Evaluate numerical questions based on Testing of Hypotheses
CO2	Evaluate problems on Design and Analysis of Experiments
CO3	Analyse problems on Multivariate Analysis

MA English

Semester I

Chaucer And The Roots Of English (LEN01PC1)

CO1	Understand the major themes in Ancient and Medieval English literature as an expression of Anglo-Saxon culture and society as it emerges into a Britain-consciousness.
CO2	Equip to access and understand the personal experiences of people living in a society very different from our own.
CO3	Evaluate the standard creative consolidation initiated by Chaucer and his peers.
CO4	Sensitize him/her to the major literary works of the period.

Writings of the Renaissance (LENO1PC2)

CO1	Identify the literature, thought and culture of the Renaissance period in England- a historical watershed marking the transition from the medieval to the modern.
CO2	Evaluate the era and the texts in the light of recent theoretical interventions like New Historicism and Cultural Materialism which had a special interest in Renaissance texts.
CO3	Imbibe the true spirit of Renaissance and Humanism making them capable of identifying the relationship between Renaissance writings and its socio-political context.
CO4	Describe the authors within their social/historical backgrounds.

Revolution and the Enlightenment (LENO1PC3)

CO1	Identify the English literary texts which reflect the austere Puritan ideals of the late seventeenth century, the neoclassical vigour of the eighteenth century and the perspectival shift manifested in the transitional literature towards the end of this era.
CO2	Analyse Ian Watt's perspective on the inception of the new genre-'novel' in England and also introduce the learners to an in-depth critique of the philosophy of the Enlightenment.

CO3	Explain the poetry of John Milton, the epic poet of the late seventeenth century, the neoclassical satirists such as John Dryden and Alexander Pope, AphraBehn the first professional woman writer of England, and Thomas Gray, the transitional poet.
CO4	Evaluate the acclaimed fiction and non-fictional works of the aforementioned period.

Literary Criticism and Academic Writing (LENO1PC4)

CO1	Discuss the key concepts and texts of literary criticism ever since its emergence
CO2	Demonstrate theoretical familiarity with the range, approaches, and mechanics of critique.
CO3	Appraise the historical, political and aesthetic dimensions of the growth of literary criticism.
CO4	Debate upon issues like canon formation, evolution of the genres, methods of literary analysis.

Indian English Literature (LENO1PC5)

CO1	Identify the historical, cultural and literary heritage of India.
CO2	Examine the origin and growth of Indian English in the colonial and postcolonial context
CO3	Analyse the problem of modernisation in Indian writing in English, diaspora and quest for identity
CO4	Discuss texts including translations and understand regionalism and Indian philosophy

Semester II

Literature of the Nineteenth Century (LENO2PC6)

CO1	Identify the fundamental premises of the Romantic Movement and Victorian literature, their theoretical and ideological frameworks, and the major trends and offshoots across various genres.
CO2	Examine the historical significance of the Ode as a poetic form best suited to observe the subjective and individualistic imagination of the romantic poet.
CO3	Analyse Victorian Sensibility- increased attention being paid to the decline of the romantic sensibility, the growth of reason, ascent of materialism etc.

CO4	Illustrate their competence with reference to the narratives in English.

Modernism in Context (LEN02PC7)

CO1	Examine the literary trends of the early twentieth century in the context of the sensibility of literary modernism in the wake of the World War.
CO2	Assess the changed literary perspectives in the twentieth century, along with the social, economic and political background.
CO3	Discuss the effects of the Imperial expansion which had reached boiling point, the onset of the World War I coupled with the attempts at creating a new world order.
CO4	Define the impact of the Soviet experiment at the global level against the backdrop of the spread and influence of Marxism.
CO5	Analyse the reaction against Romanticism and Victorianism which led to experimentation in writing in all genres.
CO6	Examine movements like the Avant Garde, the Pink Decade and so forth.

Dimensions of the Postmodern (LENO2PC8)

CO1	Identify the postmodern works of literature which defy categorisation and prove to be experimental in nature, subverting what is conventionally revered as the norm.
CO2	Elaborate the eclectic dimensions of postmodern thought as reflected in these literary works in which the boundaries that demarcate the different genres are often blurred.
CO3	Assess the heterogeneity of thought and articulation.
CO4	Explain the theoretical concepts of postmodernism.
CO5	Trace the evolution of postmodern fiction over the decades with its culmination in the cyberpunk.

Language and Linguistics (LENO2PC9)

CO1	Explain the basic concepts of linguistics, the scientific study of language with an understanding of the history of English language.
CO2	Identify the important areas in linguistics and explain the recent advances in the theory of language study.
CO3	Discuss the evolution of language and its study.
CO4	Illustrate and debate upon the current trends in language.

Theories of Knowledge (LENO2PC10)

CO1	Identify and understand the aspects of literary theory and the current developments in this domain.
CO2	Evaluate the texts which will serve as signposts that mark the moments that retrospectively are termed as turns to/within 'theory', the theoretical ruminations on Authorship and Discourse.
CO3	Explain issues pertaining to the Unconscious and Cognition.
CO4	Evaluate how insights from psychoanalysis enrich our understandings of contemporary [literary] cultures.
CO5	Discuss and debate upon normative heterosexual assumptions of Identity and even Feminism.
CO6	Demonstrate understanding of the way the [dominant-normative] Self disavows its encounter with the Othered-Marginal.

Semester III

American Literature (LENO3PC11)

CO1	Analyse the processes and texts chiefly responsible for the evolution of American Literature as a separate branch possessing characteristic features which sets it apart from others.
CO2	Examine the major conflicts, struggles and movements that are closely connected with the experiences of a group of people struggling to establish themselves as a nation.
CO3	Determine the essence and different writing style of the authors with respect to their national identity.

Cultural Studies (LENO3PC12)

CO1	Identify interpretive strategies commonly employed in Cultural Studies
CO2	Explain interdisciplinary approaches in exploring cultural processes and artifacts.
CO3	Discuss remapping of humanities and draws attention to the pervading cultural semiosis
CO4	Define the terms, analytical techniques, and interpretive strategies employed in Cultural Studies

Gender Studies (LENO3PC13)

CO1	Describe the historic, cultural, thematic concerns that literature attempts against the backdrop of gender issues
CO2	Examine gender issues paying special attention to the fundamental political, social and religious issues that shape gender relations
CO3	Examine the concept of masculinity which looms in a large patriarchal social order.
CO4	Discuss the problematic lesbian and black identity

Modes of Fiction (LENO3PC14)

CO1	Analyse the evolution of European fiction over the latter half of the nineteenth and early twentieth century
CO2	Discuss the major movements that shaped the growth of the European novel and the makers of European Fiction
CO3	Discuss the writings of major novelists belonging to France, Germany, Russia, Greece, Italy and Austria spanning movements as varied as Realism, Existentialism, Naturalism
CO4	Find the origins of folk -story telling tradition

Texts and Performance (LENO3PC15)

CO1	Analyse the basic structural, thematic and theoretical patterns which govern the poetic process, especially in its relation to the performative or the theatrical.
CO2	Discuss Drama ,Body Performance and Performativity
CO3	Explain the aspects of construction and performance of power and powerlessness
CO4	Describe performance patterns like dance, performance in the form of gender/autobiography
CO5	Explain anti-Aristotelian notions like Alienation Effect /modern dramatic modes like Comedy of Menace and the techniques of cinematic adaptations

SemesterIV

Literature and the Empire (LENO4PC16)

CO1	Evaluate the historical, cultural and literary heritage of India and also the major movements and figures of Indian literature in English
CO2	Discuss the consequences of European expansion and the creation and exploitation of the "other "worlds
CO3	Describe internal colonisation of diverse kinds including the double colonization of women of colour
CO4	Recall texts they have encountered in previous semesters.

Modern European Drama (LENO4PE1)

CO1	Identify the social &cultural contexts of Modern European Drama
CO2	Clarify the illusionistic nature of Realism
CO3	Recall the relationship between realism &social revolution
CO4	Locate the origin of theories like Marxism, Psychoanalysis, developments in the Physical Sciences

Dalit Studies (LENO4PE6)

CO1	Discuss the development of Dalit writing in different regions of India
CO2	Identify translations from regional languages into English
CO3	Find and locate the origin and development during Dalit writing in India
CO4	Recall the major issues discussed in the paper such as interrogation of Brahmanic culture, aspiration for dignity and political power

The Indian Poetic Tradition (LENO4PE8)

CO1	Evaluate the historical, cultural and literary heritage of India and also the major movements and figures of Indian literature in English
CO2	Explain the origin and growth of Indian writing in English
CO3	Analyse the evolution of the colonisers language in the native soil
CO4	Discuss select literary texts including translations of regional literatures
CO5	Explain the cultural diversity of the country as well as the Indian philosophy reflected in the select writings
CO6	Evaluate the problem of modernisation in Indian writing in English, the Diaspora and the quest for identity

Modern European Fiction (LENO4PE9)

CO1	Discuss the evolution of European fiction over the latter half of the nineteenth and early twentieth century

CO2	Describe the major movements that shaped the growth of the European novel and the makers of European Fiction
CO3	Analyse the writings of major novelists belonging to France, Germany, Russia, Greece, Italy and Austria spanning movements as varied as Realism, Existentialism and Naturalism
CO4	Find the origins of folk -story telling tradition

MA Economics

Semester I

Micro Economics - I (EC010101)

CO1	Demonstrate an understanding of relevant microeconomic concepts
CO2	Demonstrate a capacity to explain and evaluate critically theoretical arguments
CO3	Analyse firm's production processes and decisions
CO4	Analyse consumer behaviour and consumer decisions
CO5	Apply economic techniques on various policy issues

Macro Economics I (EC010102)

CO1	Know of the major issues as they arise in the field of macroeconomics
CO2	Examine alternative approaches to modelling consumption, and investment
CO3	Critically evaluate the usefulness of macroeconomic techniques

Development Economics (EC010103)

CO1	Demonstrate an understanding of concepts of economic development
CO2	Discuss the recent literature, both empirical and analytical, on theories of underdevelopment in developing countries
CO3	Evaluate critically alternative theories of development and growth
CO4	Discuss various approaches to development
CO5	Evaluate critically some of the results in the literature, particularly those related to development issues

Indian Economy-I (EC010104)

CO1	Discuss the structure and growth of Indian economy
CO2	Discuss the pre-reform and post-reform development experiences of the Indian Economy

CO3	Analyse the status, issues and policies of the Indian economy at the aggregated (macro) as well as sectoral levels.
CO4	Analyse Indian economic problems in the light of relevant economic theories, and in a comparative perspective

Mathematical Methods For Economic Analysis (EC010105)

CO1	Understand applications of matrices in Economics
CO2	Discuss several mathematical tools used in modern economics
CO3	Explain differential and integral calculus in Economics.
CO4	Demonstrate understanding of static optimization and dynamic systems applicable to economics.

Semester II

Micro Economics - II (EC010201)

CO1	Explain Decision Making In The Context Of Market Interdependence, Complexity, Uncertainty And Informational Asymmetry;
CO2	Critically Examine The Developments In The Areas Of General Equilibrium And Welfare Economics
CO3	Apply Microeconomic Principles In The Areas Of Industrial Organization, Exchange, and Welfare.

Public Economics (EC010203)

CO1	Discuss the rationale for and role of government intervention in economic activities and how the government makes economic decisions
CO2	Identify major issues in public finance for a critical evaluation of policies
CO3	Apply their skills in finding complete or partial solutions to those identified issues and also enable them to demonstrate it through their presentations and contribute to the debate and policy in terms of a public policy paper appropriate to the discipline
CO4	Demonstrate a clear understanding of established concepts and theoretical results on collective choice, optimal income taxation, and the effects of income redistribution

	on the provision of public goods

Indian Economy-II (EC010204)

CO1	Explain the various concepts used in the measurement of employment and unemployment by NSSO
CO2	Explain the various dimensions of employment and unemployment in India
CO3	Examine the growth of employment in post-reform period
CO4	Identify the income and non-income dimensions of poverty in India
CO5	Identify the income and non-income measures of inequality
CO6	Analyse the level of inequality in India
CO7	Examine the status of India in terms of inclusive growth
CO8	Explain the policy implications on poverty, inequality and inclusive growth
CO9	Explain the principles governing fiscal federalism
CO10	Evaluate the role of Finance Commission and examine the various recommendations of Finance Commissions

Statistical Methods For Economic Analysis (EC010205)

CO1	Explain inferential statistics as well as the interpretation of data.
CO2	Understand the notion of probability, probability distributions of discrete and continuous random variables and joint distributions.
CO3	Describe several sampling methods and sampling Distributions.
CO4	Discuss estimation of parameters and testing of hypothesis.

Semester III

International Trade (EC010301)

CO1	Examine main economic theories and models of international trade
CO2	Explain distributional consequences of trade and thus of conflicting interests within an economy regarding trade liberalization
CO3	Discuss economists' arguments concerning trade policy and its analysis
CO4	Apply economic reasoning to issues of the day surrounding globalization
CO5	Explain open-economy macroeconomics and the determinants of exchange rates and the balance of payments

Econometrics-1 (ECO010302)

CO1	Demonstrate their understanding of the appropriate econometric methods for

	analysing data
CO2	Interpret computer output for the estimation and testing of econometric relationships
CO3	Interpret and discuss results of econometric analysis
CO4	Demonstrate their understanding of problems encountered in estimation and inference in the context of the single-equation linear regression model.

Heterodox Economics (ECO010303)

CO1	Explain the paradigm of Austrian, feminist, institutional –evolutionary, Marxian, post- Keynesian radical, social and Sraffian economics
CO2	Examine the contemporary heterodox approaches to economic research both from a micro economic and macroeconomic perspective

Environmental Economics (ECO010304)

CO1	Discuss the interrelationship between environment and economic growth
CO2	Identify the reasons for global environment issues
CO3	Outline the various methods of environmental valuation
CO4	Examine sustainable development
CO5	Evaluate economic and environmental policy issues

Kerala Economy (ECO010305)

CO1	Analyse current and critical issues, challenges and problems of the Kerala Economy
CO2	Examine Kerala's development experiences in historical perspective

Semester IV

International Finance (ECO1O4O1)

CO1	Explain the organisation and institutional details of foreign exchange and international money markets
CO2	Explain and apply orthodox theories of exchange rates and open economy macroeconomics
CO3	Analyse the causes of historical exchange rate movements, and some of the contributory factors to a variety of financial crises, with reference to the models covered.
CO4	Apply the theories and models covered to the issue of optimal currency areas, with specific reference to the design and operation of the euro.

Econometrics –II (ECO010402)

CO1	Interpret the results from regression models involving panel data and instrumental variables
CO2	Demonstrate the knowledge to use instrumental variables to account for endogenous regressors
CO3	Demonstrate the knowledge to estimate binary response models
CO4	Demonstrate the knowledge to set up, estimate and analyse panel data regression models
CO5	Explain the basic concepts of stationary and non-stationary time series;
CO6	Apply basic linear models for univariate and multivariate time series;
CO7	Explain the concepts of integration and cointegration and how to test for these phenomena in time series.

Agricultural Economics(EC800401)

CO1	Explain the concepts, significance and uses of production economics in an agricultural context
CO2	Examine the agricultural policies and its effect on sustainable agricultural development
CO3	Evaluate the impact of globalisation on agricultural development
CO4	Understand the various kinds of risk in farming, risk management strategies and mechanisms and insurance policies
CO5	Explain various aspects of agro-food marketing and examine the issues in agricultural markets

Industrial Economics (EC800402)

CO1	Explain a broad range of the methods and models applied by economists in the analysis of firms and industries
CO2	Solve analytically problems relating to industrial economics
CO3	Discuss policy debates involved in industrial development in India
CO4	Explain the history of competition policy and the functioning of different experimental market intuitions and the key results of these experiments

Labour Economics (EC800403)

CO1	Analyse the functioning of labour markets

CO2	Discuss formal theoretical models
CO3	Examine labour market reforms
CO4	Defend social security of labour

M.Com

Semester I

Specialised Accounting (CM010101)

CO1	Acquire an in depth understanding about theoretical and practical aspects of major accounting Standards to apply the same in different practical situations.
CO2	Identify the value of goodwill and value of companies based on the value of shares and compare the real value of shares and with the market prices and identify the mispricing.
CO3	Understand about the determination of purchase consideration in the event of amalgamation and to prepare post amalgamation financial statements
CO4	Develop a clear understanding about different types of NBFCs, their provisioning norms and to understand the concept of NAV of mutual funds through its computation.
CO5	Describe with the theoretical aspects of emerging areas in accounting.

OrganisationalBehaviour (CM010102)

CO1	Assess the basic concepts of organizational behaviour.

CO2	Identify the individual behaviour, personality and motivation
CO3	Explain group behaviour and leadership related to Organizational behaviour.
CO4	Modify the knowledge base of the leaner regarding change management and deal with stress.
CO5	Acquire the knowledge about the role of organisational culture and conflict on organizational behaviour

Marketing Management (CM010103)

CO1	Recall basic understanding about concepts like customer centricity,
CO2	The learner can generate the idea about CRM, value chain and customer delights.
CO3	The learner can recognize market segmentation process and its applications in marketing strategies.
CO4	The learner can identify consumer behaviour and its impact.
CO5	-Illustrate product line, product mix, brand equity, brand identity, brand personality and brand image.
CO6	The learner can acquires ideas regarding services marketing and service quality.

Management Optimisation Technique (CM010104)

CO1	The learner can recognize the various business optimization models.
CO2	Develop Linear Programming Models for business problems and Solve the same.
CO3	To Employ Linear Programming in the areas of transportation and assignment.
CO4	Develop decision making skills under uncertainty, risk and replacement of assets
CO5	Identify and apply network analysis techniques for project implementation.

Methodology for Social Science Research (CM010105)

CO1	Develop a thorough understanding about the basic concepts of social science research.
CO2	Acquire a research design after completing this module
CO3	Employ a sampling design, after studying the theoretical aspects of sampling design
CO4	Demonstrate instrument development, validation and different forms of scaling.
CO5	Use the technique of research reporting.

Semester II

Advanced Corporate Accounting (CM010201)

CO1	The learner can produce consolidated financial statements of group companies.

CO2	The learner can solve the financial statements of public utility companies and deal with the disposal of surplus.
CO3	Evaluate the procedure of bankruptcy under the recent Bankruptcy Procedure Code.
CO4	The learner can produce the accounting procedures of liquidation of companies and preparation of various statements required as per the Companies Act.
CO5	The learner can illustrate the accounts of some special lines of businesses like shipping, hospitals and hotels.

Human Resource Management (CM010202)

CO1	The learner can explain the basic concepts of HRM and performance appraisal.
CO2	Describe human resource development, stress management and work life management.
CO3	The learner can acquire high level knowledge about various aspects of training.
CO4	The learner can recognise the various aspects of industrial relations so as to evaluate the real cases of industrial relations.
CO5	The learner can illustrate HR outsourcing, HR accounting and HR audit.

International Business And Finance (CM010203)

CO1	The learner can choose the globalisation, internationalization of business and the international business environment.
CO2	Describe theories of international trade, trade barriers and trade blocks.
CO3	Acquires idea about various economic institutions related to international trade.
CO4	Recognises high level knowledge about various aspects of international monetary system.
CO5	Develop an understanding about the international investment environment.

Quantitative Techniques (CM010204)

CO1	The learner can explain the applications of quantitative techniques.
CO2	The learner can experiment different types of quantitative techniques.
CO3	After learning this course, the student should be in a position to identify appropriate parametric test for testing the hypotheses.
CO4	The learner should be equipped with the skills to identify the most suitable non parametric test for testing a hypothesis.
CO5	The learner can use the skills to apply the principles of SQC

Strategic Management (CM010205)

CO1	Explains the theoretical foundations of strategic management.
CO2	Recognises the various models of environmental and internal analysis.
CO3	Generation of an idea about the strategy formulation process at the corporate level.
CO4	Illustrates familiarization with various tools strategic planning and evaluation.
CO5	Locate the modes of implementation and control of strategies.

Semester III

Strategic Financial Management (CM010301)

CO1	The Learner Can Summarise The Theoretical Foundations Of Financial Management And Financial Management Decisions.
CO2	Estimate The Feasibility Of Different Options Regarding Discount, Credit Period, Storage Cost Etc Related To Current Assets And Current Liabilities And Estimate Working Capital Requirements.
CO3	Apprise The Long Term Proposals And Evaluate The Risk Associated With Long Term Investment.
CO4	To Assess The Decisions Regarding Leasing Of Capital Assets.
CO5	Evaluate and Compare the performance of business entities.

Income Tax - Law and Practice (CM010302)

CO1	Acquire knowledge regarding the basic concepts of Income Tax.
CO2	The learner can generate the income from salary and house property.
CO3	Employ the taxable profit of a business or profession.
CO4	The learner can formulate the capital gain and income from other sources.
CO5	The learner can assess the Gross Total Income of an individual.
CO6	Estimate the eligible deductions and compute Taxable Income and tax liability of an individual.

Security Analysis And Portfolio Management (CM010303)

CO1	Recognize the concepts of investments, different types of investments, views of investment and process of investment and apply the theoretical knowledge in investment information for selecting the securities.
CO2	Explain types of risk in security market and applying various tools for the valuation of bonds as well as economic indicators to predict the market.

CO3	Develop the tools of technical analysis, analyse the patterns and trends in the market by using various tools and enable to take investment decisions after understanding market efficiency level also.
CO4	Demonstrate Modern portfolio theories and construct optimum portfolios.
CO5	Estimate the constructed portfolios as per risk and return association by using different strategies.

Indirect Tax Laws (CM800301)

CO1	Explain the basic concepts of the Goods and Services Tax
CO2	Develop a clear idea about the levy and collection of tax and tax credit
CO3	Acquire the knowledge about the provisions regarding registration, preparations of books of accounts and filing of returns under the Act
CO4	Identify the powers of GST authorities regarding inspection, search and seizure
CO5	Locate the basic understanding about the Customs Law in India.

Semester IV

Advanced Cost And Management Accounting (CM010401)

CO1	Acquire Apply activity based absorption methods instead of conventional absorption method.
CO2	The learner can use the marginal costing principles in decision making situations of business.
CO3	Demonstrate practical cases of pricing decisions in different situations
CO4	Develop the concept of standard costing, and the process of cost control through it.
CO5	Identify the practical issues related to transfer pricing

Income Tax – Assessment & Procedures (CM010402)

CO1	Formulate the total income and tax liability of firms and Association of Persons
CO2	Demonstrate the assessment of companies and determine their tax liability
CO3	To employ Make the assessment of co-operative societies and trusts.
CO4	Develop the assessment procedures, TDS and advance payment of tax and application in various situations
CO5	Identify the tax planning concepts and apply the same

Derivatives And Risk Management (CM800401)

CO1	Identify the derivative market in India, its evolution, types, players, risks involved and basic quantitative foundations
CO2	Distinguish the implications of Risk in the perception of individuals and Institutions measurement of risks
CO3	Explains the concept of forward market and its function,
CO4	Evaluate Analyse the operation and pricing of various types of futures
CO5	Identifies the concepts and methodology of option trading and apply the models of pricing the option contracts
CO6	Develop an idea of exchanges through swaps

Personal Investment And Behavioural Finance (CM800402)

CO1	Demonstrate the meaning and significance of financial literacy, Financial Discipline & Financial Competency, the role of family and parents in financial socialisation
CO2	To recognize the Significance of savings on financial destiny and it relationship with Consumerism and to understand the different elements/steps in Personal Financial Planning to attain Financial Well Being and Evaluate the different retail investment avenues.
CO3	Acquire the meaning of Behavioural Finance, its evolution and related theories
CO4	classify the different Heuristics, Biases and other Irrational Investment Behaviours
CO5	Develop the relationship between biases and to adopt techniques to lower the impact of biases

MSW

Semester 1

Social Sciences for Social Work (SW010101)

CO1	Demonstratebasic concepts of sociology and its different dimensions
CO2	Apply the concepts of sociology in Social Work practice.
CO3	Analyze different dimensions of prevailing social issues in India
CO4	Recognize the linkage of social issues and the design of social work interventions.

CO5	Describebasic economic concepts and the economic situation in India
CO6	Appraise the effect of national/global economy on social life in a society

Human Growth and Development (SW010102)

CO1	Demonstrate knowledge of the major influences in human development.
CO2	Explain the structure and function of the brain.
CO3	Analyze the developmental changes in various developmental stages across the life span.
CO4	Describe the importance of developmental psychology in social work practice and be able to link with real life situations
CO5	Identify the use of theoretical concepts in lifespan stages in social work practice
CO6	Applythe theories related to human development

History, Philosophy and Fields of Social Work (SW010103)

CO1	Summarize the history of social work approaches with respect to underlying ideologies and philosophies.
CO2	Appreciate social work as a profession and to recognize the need and importance of Social Work Education, Training and Practice.
CO3	Identify the importance of professional values and ethics in social work practice.
CO4	Appraise different fields of social work intervention and the issues and concerns of social work practice in India.
CO5	Analyze the social movements and role of social reformers in social welfare.
CO6	Evaluate the present issues faced by social work profession.

Social Work Practice with Individuals (SW010104)

CO1	Analyze Social Case Work as a method of Social Work and apply it as an intervention method.
CO2	Demonstrate knowledge of the values and Principles of Social Case Work and to develop the capacity to practice them.
CO3	Acquire the required skills for practicing social case work.
CO4	Demonstrate ability to adopt a multi- dimensional approach in assessment.
CO5	Illustrate document and social case work practice
CO6	Apply social case work method in various settings.

Social Work Practice with Communities (SW010105)

CO1	Display an depth knowledge about the community organization process.
CO2	Analyze the use and practice of community organization in various fields of social work.
CO3	Explain the role of social worker in social action and social reform for social development.
CO4	Undertake social audit, social impact assessments
CO5	Correlate the ongoing community organization programmes.
CO6	Identity the emerging trends and experiments in community organization

Semester 2

Introduction to Abnormal and Social Psychology (SW010201)

CO1	Analyze the fundamentals of human behaviour
CO2	Demonstrate knowledge of classification and overview of psychological disorders.
CO3	Develop insight about the theories of human personality
CO4	Evaluate knowledge of concepts theories of social psychology
CO5	Examine individual behaviour in social context.
CO6	Analyze the group behaviour in social context.

Counselling and Psychotherapy (SW010202)

CO1	Analyze the process, the skills necessary and the principles to be abided by in helping individuals
CO2	Acquire knowledge of the theoretical and therapeutic approaches in counselling and Psychotherapies
CO3	Demonstrate knowledge and skills in the process and techniques of Counselling and Psychotherapies
CO4	Demonstrate skills for ethical practice of counselling with different clients in various settings
CO5	Validate the concepts of Psychotherapy and various psychotherapeutic techniques
CO6	Demonstrate knowledge of skills and techniques of various psychotherapeutic interventions

Professional Skills for Social Workers (SW010203)

CO1	Demonstrate professionalism in their behaviour

CO2	Validate the skills in critical reflection in personal and professional practice contexts
CO3	Display knowledge and competence in life skills
CO4	Demonstrate skills in communication
CO5	Explain the ability to document social work practice in respective domain areas
CO6	Display competence in management of teams and leadership in the practice context

Social Work practice with Groups (SW010204)

CO1	AnalyzeSocial Group Work as a method of Social Work and apply it as an intervention method.
CO2	Demonstrate skills to apply the method for development and therapeutic work
CO3	Evaluate the scope of Social Group Work in different settings.
CO4	Examine group work as an instrument of change/development in individual in groups
CO5	Develop skills to work with different stages and record the process
CO6	Display therapeutic skills for Group Work practice

Social Work Research and Statistics (SW010205)

CO1	Develop an analyzing about the scientific approach to human inquiry
CO2	AnalyzeSocial research as a method of social work and to develop the appropriate skills to effectively implement the research methods and techniques in the field.
CO3	Demonstrate skills in literature search
CO4	Design research proposals
CO5	Evaluate the relevance and able to carry out appropriate statistical analysis in social work research.
CO6	Evaluate independently different methodological approaches within qualitative research

Semester3

Planning and Implementation of Development Projects (SW010301)

CO1	Validate in detail the nature, approaches and strategies of development projects
CO2	Analyze systematic approach to programme planning.
CO3	Develop an analyzing of the changing trends in participatory programme planning approach in government and NGOs.
CO4	Demonstrate skills to handle various phases of Development projects

CO5	Evaluate the concepts of financial management of a project
CO6	Write project proposals

Administration of Human Service Organizations (SW010302)

CO1	Develop analyzing of the evolution of administration as a science and as a method in Social Work Practice.
CO2	Develop analyzing and appreciate the utility of the administrative structures, processes and procedures in an organization.
CO3	Acquire knowledge and skills in the use of different management techniques in HSO.
CO4	Develop an analyzing of elements of management and
CO5	Analyzeconcepts in organizational management.
CO6	Acquire knowledge of the concept of social marketing and its scope in social work practice

Semester 3: Elective Courses (Specialization Groups)

Group 1: Community Development (CD)

Rural & Urban Community Development (SW800301)

CO1	Analyzethe concepts of rural and urban community development and the strategies and approaches for Rural & Urban Development.
CO2	Examinethe problems and issues of People in Rural/Urban/ Tribal/Costal settings in India and the various Governmental programmes and interventions in these settings.
CO3	Study the functioning of rural and urban local self-government (LSG) and cooperative institutions and their contribution towards Rural and Urban Development.
CO4	Study the role of Civil Society and NGOS in Rural and Urban Development

Environment and Disaster Management (SW800302)

CO1	Develop perspective about the interrelatedness of human life and environment.
CO2	Develop an awareness of problems arising out of environmental degradation and globalization.
CO3	Study the role of social work practice in tackling environmental issues and disaster management.
CO4	Develop the consciousness of social policies in the field of Environmental Protection

Community Health for Development Practice (SW800303)

CO1	Analyzethe concept of health and integrated approach to health in the context of Development.
CO2	Critically analyze plans and policies/services in health and implications for social work practice.
CO3	Demonstrate knowledge on concepts of Community Health, community participation, vital indicators and demographic data of health
CO4	Develop skills for intervention in community health sector

Semester 3: Elective Courses (Specialization Groups)

Group 2: Medical and Psychiatric Social Work (MPSW)

Clinical Assessment and Diagnosis of Psychiatric Disorders (SW820301)

CO1	Acquire knowledge on the evolution of psychiatry and attitude towards mental illness.
CO2	Demonstrate knowledge and skills of assessment in mental health settings.
CO3	Demonstrate knowledge of clinical psychopathology.
CO4	Explain the nature, causes, types and treatment of mental health disorders in children, adolescents and adults.
CO5	Acquire knowledge of Socio-Cultural Factors influencing mental health.
CO6	Develop a critical analyzing of Mental Health Policies.

Social Work in the Field of Health (SW820302)

CO1	Develop an analyzing of the holistic concept of Health.
CO2	Analyzeandanalyze different health problems in India
CO3	Assess the scope of social work methods in medical settings.
CO4	Demonstrate skills for interventions in medical social work practice.
CO5	Validaterole and functions of a medical social worker in various settings
CO6	Assess the standards of social work practice in health setting

Health Care Administration and Community Health (SW820303)

CO1	Examinethe concept of health and integrated approach to health in the context of Development.

CO2	Analyze plans and policies/services in health and implications for social work practice.
CO3	Demonstrate knowledge on concepts of Community Health, community participation, vital indicators and demographic data of health
CO4	Develop skills for intervention in community health sector

Semester 4

Social Legislation and Human Rights (SW010401)

CO1	Examine the Indian Legal System and its functioning.
CO2	Appraise and appreciate the Indian Constitution with particular emphasis on the fundamental Rights and Directive Principles.
CO3	Analyzethe nature of social legislation and the various
CO4	Explain salient features of legislations for family, women, children and other marginalized groups.
CO5	Explain the concept of social policy and demonstrate skills in social policy analysis.
CO6	Demonstrate skills of using legal procedures to defend the human rights of various marginalized groups

Gerentological Social Work (SW010402)

CO1	Analyzethe concept of gerontology and approaches to ageing
CO2	Validate the process and issues of ageing
CO3	Examine policies and programmes for elderly in India.
CO4	Demonstrate skills in working with elderly
CO5	Demonstrate knowledge and skills for interventions in Gerentological Social Work
CO6	Explain and analyze institutional and non-institutional services for elderly

Elective (Specialization) – Medical and Psychiatric Social Work

CO1	Explain policies, laws and government programmes applicable to the client systems of the agency
CO2	Demonstrate the ability in assessing, intervening and working with elderly.
CO3	Identify the role of professional social workers in school setting
CO4	Analyzefunctioning of a multidisciplinary team
CO5	Acquire knowledge in making social diagnosis and applying Social Work intervention techniques in medical and school settings

Elective Courses (Specialization Groups)

Group 1: Community Development (CD)

Human Resource Management for Development Practice (SW800401)

CO1	Analyze the strategic issues and organizational challenges in Human Resource Management
CO2	Demonstrate relevant management competencies, leadership skills and analytical capabilities in HR management
CO3	Appraise the different strategies and approaches commonly adopted in Development practice
CO4	Identify the issues of managing changes in Human Resource Management.
CO5	Recognize strong network and connections within the sector
CO6	Illustrate confidence to pursue a career in the Human Resource Management sector.

Economic Development: Theory and Practice (SW800402)

CO1	Examinecritical perspectives on various dimensions of development
CO2	Apply appropriate strategies and models in their development practice
CO3	Demonstrate skills to quantify the development outcomes for strategic development planning
CO4	Evolve new strategies and models for achieving sustainable development goals.

Elective Courses (Specialization Groups)

Group 3: Medical and Psychiatric Social Work (MPSW)

Social Work Interventions in the field of mental health (SW820401)

CO1	Apply Psycho Social Treatment Methods for persons with Mental and Emotional Disorders.
CO2	Analyze Institutional approaches to provision of Mental Health Services.
CO3	Demonstrate knowledge and skill in the practice of Community Psychiatry and Rehabilitation

CO4	Assess the psychological and social aspects of the client and their situation

School Mental Health and Social Work Practice (SW820402)

CO1	Analyzethe basics of child mental health and issues of children
CO2	Develop knowledge of the history of social work in schools
CO3	Demonstrate knowledge and skills to work in educational settings.
CO4	Analyze multiple levels of system operating to