ST. JOSEPH'S COLLEGE, MOOLAMATTOM

ARAKULAM P.O- 685591, IDUKKI, KERALA

Programme Specific Outcomes, Programme Outcomes (PO) and Course Outcomes (CO)

ST. JOSEPH'S COLLEGE, MOOLAMATTOM

Arakulam P O, Idukki 685591

Outcome Based Education (OBE)

Programme Specific Outcomes, Programme Outcomes (PO) and Course Outcomes (CO)

DEPARTMENT OF MATHEMATICS

St. Joseph's College, Moolamattom

BSc Mathematics Model I

(2017 Admission onwards)

BSc Mathematics Core Course

Domain Specific Outcomes (PSO)

At the end of the ***UG Programme*** in ***Mathematics***, the students will be able to: -

PO1: Solving Ability

Apply knowledge of Mathematics and related science fundamentals to the solution of complex problems arising in various fields including competitive examinations.

PO2: Analysis Ability

Identify, formulate, research literature and analyze complex Mathematics based problems reaching substantiated conclusions using first principles of Mathematics, natural sciences allied branches.

PO3: Design / Development of Solutions

Design solutions for complex Mathematics based problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal and environmental considerations.

PO4: Investigation

Conduct investigations of complex problems including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.

PO5: Modern Tool Usage

Create, select and apply appropriate techniques, resources, and modern tools and softwares like LaTeχ, Python including prediction and modeling, to complex activities, with an understanding of their limitations.

Domain Independent Outcomes (PO)

At the end of the ***UG Programme*** in ***Mathematics***, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. And demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

COURSE OUTCOMES FOR CORE COURSES

Semester I - MM1CRT01: Foundation of Mathematics

At the end of the course on ***Foundation of Mathematics***, the students will be able to: -

CO1: **Acquire** the knowledge of mathematical logic, **apply** the rules of inference and **distinguish** between various proof methods.

CO2: **Describe** sets, **apply** set operations, **define** functions and **describe** some of the elementary functions.

CO3: **Explain** relations and **represent** them in various forms, **discriminate** equivalence relations from partial order relations.

CO4: **Determine** the roots of an equation and **establish** relationship between the roots and coefficients. **Explore** solutions of cubic and bi-quadratic equations and **formulate** some general rules for locating roots.

Semester II - MM2CRT01: Analytic Geometry, Trigonometry and Differential Calculus

At the end of the course on ***Analytic Geometry, Trigonometry and Differential Calculus***, the students will be able to: -

CO1: **Develop** fundamental ideas of conic sections and **formulate** their properties, also **construct** their parametric and polar forms.

CO2: Differentiate between circular and hyperbolic functions, **establish** relationship between them and **separate** certain functions into real and imaginary parts.

CO3: **Evaluate** the sum of various standard trigonometric series and **rewrite** some specific polynomials into their factors.

CO4: **Estimate** the n^{th} derivatives of functions and **evaluate** certain types of indeterminate forms.

Semester III – MM3CRT01: Calculus

At the end of the course on ***Calculus***, the students will be able to: -

CO1: **Express** functions as infinite series using Taylors and Maclaurin's theorem, **apply** derivatives to **determine** the arc length, curvature, evolutes and involutes, and asymptotes and envelopes of given curves.

CO2: **Compute** the partial derivatives of functions of several variables using chain rule, **identify** saddle points and **estimate** the extrema of functions using Lagrange multipliers.

CO3: **Apply** integration to **evaluate** the arc length of curves, surface area and volume of revolution of curves about the coordinate axes and other given lines.

CO4: **Evaluate** double and triple integrals to **determine** the area and volume of given surfaces. Also **formulate** substitutions to **rewrite** and **evaluate** multiple integrals.

Semester IV – MM4CRT01: Vector Calculus, Theory of Numbers and Laplace Transform

At the end of the course on ***Vector Calculus, Theory of Numbers and Laplace Transform***, the students will be able to: -

CO1: **Determine** the vector and parametric equations of straight lines, planes and curves and also their arc length and curvature. **Construct** unit tangent lines and planes, and normal lines and planes. **Deduce** the directions in which a given function is increasing decreasing or in which direction it has zero change.

CO2: **Apply** vector integration to **calculate** the work, circulation and flux, determine whether a field is conservative and determine its scalar potential. Also **validate** Green's theorem, Gauss' Divergence theorem and Stoke's theorem for given vector fields and curves.

CO3: **Analyze** the basic properties of congruence of numbers. **State** Fermat's theorem, Wilson's theorem and Euler's Phi function and **apply** them to solve a variety of number theoretic problems.

CO4: **Acquire** the knowledge of Laplace and Inverse Laplace transforms and **employ** in solving differential and integral equations.

Semester V – MM5CRT01: Mathematical Analysis

At the end of the course on ***Mathematical Analysis***, the students will be able to: -

CO1: **Explain** finite and infinite sets and **recall** various properties of real numbers $\mathbb{R}$ and **apply** them appropriately.

CO2: **Explain** the concept of sequences and **evaluate** limits of sequences. Also **derive** various associated theorems.

CO3: **Illustrate** the idea of series, their absolute convergence and **employ** associated tests of convergence and non-absolute convergence to given series.

CO4: **Define** limits of functions, **construct** theorems associated and **create** their extensions.

Semester V – MM5CRT02: Differential Equations

At the end of the course on ***Differential Equations***, the students will be able to: -

CO1: **Acquire** the knowledge of various types first order ordinary differential equations, **classify** them and **develop** methods for solving them.

CO2: **Apply** the knowledge of geometry and differential calculus to **determine** the orthogonal trajectories of a given family of curves and **interpret** the result.

CO3: **Solve** various types of second and higher order differential equations using specified methods and **apply** given boundary conditions to **determine** particular solutions.

CO4: **Analyze** a given differential equation, **locate** and **classify** its singular points and **determine** its solution through power series method.

CO5: **Formulate** equations of various families of surfaces and **construct** the partial differential equations satisfied by them, eliminating arbitrary constants or functions involved.

CO6: **Solve** first order linear partial differential equations in three variables by Lagrange's method and **determine** the integral surfaces passing through or containing given curves.

Semester V – MM5CRT03: Abstract Algebra

At the end of the course on ***Abstract Algebra***, the students will be able to: -

CO1: **Articulate** various types of group properties, subgroups and cyclic groups and **establish** elementary properties of groups and cyclic groups, **create** group tables for finite groups.

CO2: **Define** permutations, cosets, orbits and cycles, **compose** new permutations from existing ones and **construct** theorems including Cayley's and Lagrange's.

CO3: **Explain** group homomorphism, factor groups, normal groups and **discover** their applications.

CO4: **Differentiate** between rings, integral domains, fields, ideals and factor rings, **illustrate** their simple applications.

Semester V – Human Rights and Mathematics for Environmental Studies

At the end of the course on ***Human Rights and Mathematics for Environmental Studies***, the students will be able to: -

CO1: **Recognize** the need, scope and importance of environmental studies and public awareness. **Differentiate** between various renewable and non-renewable resources and the need for their preservation.

CO2: **Debate** on the bio diversity of India and its conservation, various causes of environmental pollution and its prevention. **Critically analyze** the existing social and environmental issues in the context of various Government Acts.

CO3: **Formulate** the relationship between Fibonacci Numbers and Golden Ratio in Mathematics and **speculate** theories of their intervention in many naturally occurring phenomena.

CO4: **Interpret** the constitutional provisions of Human Rights, **judge** how the constitutions of UN and India ensure the protection and maintenance of human rights and **intervene** in related awareness programmes. **Examine** various reports and case studies in India on environmental issues and **persuade** the public to act accordingly.

Semester V – MM5OPT02: Open Course: Applicable Mathematics

At the end of the course on ***Applicable Mathematics***, the students of other streams will be able to: -

CO1: **Acquire** the knowledge of essential mathematical methods and techniques required for their higher studies, apply short cut methods of solving problems that they encounter in studies and competitive examinations.

CO2: **Summarize** the basic properties of numbers, LCM, HCF of both integers and fractions and **solve** problems related to ratio and proportion, profit and loss.

CO3: **Solve** quadratic equations, **apply** the theory of permutations and combinations in relevant situations and **estimate** heights and distances using trigonometric fundamentals.

CO4: **Compute** simple and compound interests and **develop** skill in dealing with problems related to time and work, work and wages, time and distances. **Express** certain functions as series using of exponential or logarithmic series.

CO5: **Apply** mensuration formulae appropriately, **factorize** quadratic and cubic polynomials and **illustrate** basic rules of differentiation with suitable examples.

Semester VI – MM6CRT01: Real Analysis

At the end of the course on ***Real Analysis***, the students will be able to: -

CO1: **Develop** the fundamental concepts of continuity and uniform continuity of functions, **discover** monotonicity and **determine** inverse of functions.

CO2: **Recall** the process of finding the derivatives of functions, **establish** mean value theorem and its applications. **Employ** L Hospital Rule and **apply** Taylor's Theorem in relevant situations.

CO3: **Observe** the fundamental concepts of Riemann integral, Riemann integrable functions and discuss the fundamental theorem.

CO4: **Distinguish** between pointwise and uniform convergence, **manipulate** interchange of limits and **discuss** series of functions.

Semester VI – MM6CRT02: Graph Theory and Metric Space

At the end of the course on ***Graph Theory and Metric Space***, the students will be able to: -

CO1: **Acquire** the basic definition of a graph and related terminologies, **translate** graphs into matrices and vice versa.

CO2: **Describe** trees and tours, and **illustrate** classical examples in Graph Theory.

CO3: **Explain** metric spaces and various types of sets in metric spaces. **Distinguish** between open set, closed set and Cantor set.

CO4: **Interpret** the convergence of functions in metric spaces, completeness of metric spaces and **judge** the behavior of continuous mappings in metric spaces.

Semester VI – MM6CRT03: Complex Analysis

At the end of the course on ***Complex Analysis***, the students will be able to: -

CO1: **Describe** analytic functions and their properties including Cauchy Riemann equations. **Restate** elementary functions such as exponential, logarithmic, trigonometric and hyperbolic functions and their inverses for a given complex variable.

CO2: **Compute** antiderivatives of complex functions. **Illustrate** contours, connected, disconnected and multiply connected domains. **Establish** and **apply** Cauchy Goursat theorem, Cauchy's integral formula, Liouville's theorem, fundamental theorem of algebra and Maximum Modulus Principle.

CO3: **Modify** the idea convergence of sequences and series of real numbers to complex numbers. **Derive** and **apply** Taylor's and **employ** Laurent's series to find the expansions of non-analytic functions in given domains.

CO4: **Identify** various types of singularities. **Evaluate** residues and **apply** Cauchy's residue theorem to evaluate of improper integrals.

Semester VI – MM6CRT04: Linear Algebra

At the end of the course on ***Linear Algebra***, the students will be able to: -

CO1: **Review** on algebra of matrices, **appraise** various row (column) operations on matrices, **determine** rank and column rank, **apply** elementary transformations in solving linear equations.

CO2: **Construct** the inverse of a given matrix, **describe** vector spaces and **construct** basis for them.

CO3: **Explain** linear transformations, **compute** kernel, range, rank and nullity, **construct** transformation matrices and index of nilpotency.

CO4: **Determine** eigen values, eigen vectors and eigen spaces, **apply** the process of diagonalization.

Semester VI – MM6CBT02: Basic Python and Type setting in Latex

At the end of the course on ***Basic Python and Type Setting in Latex***, the students will be able to: -

CO1: **Apply** the fundamental concepts of Python programming, including variables, data types, and control structures, to write and **compose** Python programs.

CO2: **Define** and **use** functions, understanding the scope of local and global variables.

CO3: **Create** well-structured documents with LaTeX, including document class, page style, page numbering and sections.

CO4: **Utilize** LaTeX to typeset mathematical content and expressions.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Mathematics for BSc (Physics & Chemistry Cores) and Integrated MSc Computer Science – Data Science

Semester I – MM1CMT01: Partial Differential Equations, Matrices, Trigonometry and Numerical Methods

At the end of the course on ***Partial Differential Equations, Matrices, Trigonometry and Numerical Methods***, the students will be able to: -

CO1: **Differentiate** between functions of a single and multiple variables, **compute** partial derivatives and **apply** chain rule in different contexts.

CO2: **Determine** the rank of a matrix through elementary transformations, **solve** linear equations using matrices, **construct** the characteristic equation of a matrix, **verify** Cayley's theorem and **use** it to determine the inverse and powers of that matrix.

CO3: **Express** powers of angles of sin, cos and tan in corresponding ratios of multiples of the angle and vice versa, **discuss** the relationship between circular and hyperbolic functions and **employ** them to split a complex function into its real and imaginary parts, **evaluate** the sum of various standard trigonometric series.

CO4: **Locate** and **determine** the roots of quadratic and cubic equations using bisection method, method of false position, iteration method and Newton-Raphson method.

Semester II – MM2CMT01: Integral Calculus and Differential Equations

At the end of the course on ***Integral Calculus and Differential Equations***, the students will be able to: -

CO1: **Determine** volumes of surfaces of revolution using cross sections, cylindrical shells, **calculate** arc lengths and areas of surfaces of revolution.

CO2: **Evaluate** double and triple integrals to **determine** the area and volume of given surfaces.

CO3: **Solve** ordinary differential equations by the method of separation of variables, exact equations, equations reducible to exact form, linear equations, solutions by substitutions, homogeneous equations and Bernoulli's method.

CO4: **Formulate** equations of various families of surfaces and **construct** the partial differential equations satisfied by them, eliminating arbitrary constants or functions involved, **solve** first order linear partial differential equations in three variables by Lagrange's method.

Semester III – MM3CMT01: Vector Calculus, Analytic Geometry and Abstract Algebra

At the end of the course on ***Vector Calculus, Analytic Geometry and Abstract Algebra***, the students will be able to: -

CO1: **Determine** the vector and parametric equations of straight lines, planes and curves and also their arc length and curvature, **construct** unit tangent lines and normal lines, **establish** the directions in which a given function is increasing decreasing or in which direction it has zero change.

CO2: **Apply** vector integration to **calculate** the work, circulation and flux, determine whether a field is conservative and determine its scalar potential, **validate** Green's theorem, Gauss' Divergence theorem and Stoke's theorem for given vector fields and curves.

CO3: **Convert** Cartesian coordinates into polar and vice versa, **derive** the equations of conic sections in Cartesian and polar coordinates and **construct** graphically.

CO4: **Develop** the idea and properties of groups, subgroups and cyclic groups, **construct** permutation groups, discuss group homomorphism and its properties.

Semester IV – MM4CMT01: Fourier Series, Laplace Transform and Complex Analysis

At the end of the course on ***Fourier Series, Laplace Transform and Complex Analysis***, the students will be able to: -

CO1: **Describe** periodic functions and trigonometric series, **define** and **compute** Fourier series of periodic functions in various intervals.

CO2: **Define** Laplace transform and inverse Laplace transforms of standard functions and **determine** the Laplace transforms and inverse Laplace transforms of other related functions, **employ** inverse Laplace transforms to solve differential equations and **apply** Convolution theorem to solve integral equations.

CO3: **Describe** analytic functions and their properties including Cauchy Riemann equations, **restate** elementary functions such as exponential, logarithmic, trigonometric and hyperbolic functions and their inverses for a given complex variable.

CO4: **Compute** antiderivatives of complex functions, **illustrate** contours, connected, disconnected and multiply connected domains, **establish** and **apply** Cauchy Goursat theorem, Cauchy's integral formula.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Complementary Statistics for BSc Mathematics (Main)

Semester I – ST1CMT01: Descriptive Statistics

At the end of the course on ***Descriptive Statistics***, the students will be able to: -

CO1: **Explain** statistics as data, **differentiate** between population and sample, qualitative and quantitative data, continuous and discrete data, **illustrate** types of scale, **explain** various methods of collection of data and sampling.

CO2: **Define** and **compute** various measures of averages and dispersion, weighted averages, relative measures of dispersion, **create** ogives and box plot, **test** for the uniformity and consistency of data using dispersion.

CO3: **Explain** and **compute** raw moments and central moments and their interrelation ship, **evaluate** coefficients of skewness and kurtosis using appropriate formulae and **judge** the nature of data.

CO4: **Define** and **compute** index numbers, price relatives, simple and weighted index numbers, price and quantity index numbers, various types of index numbers, **test** the appropriateness of formulae for index numbers using time and factor reversal tests, **construct** consumer price index through different methods.

Semester II – ST2CMT02: Probability Theory

At the end of the course on ***Probability Theory***, the students will be able to: -

CO1: **Define** random experiments, events and their operations, types of events, compute probability and **illustrate** various approaches to probability, **apply** addition and multiplication theorems of probability and Bayes' theorem.

CO2: **Distinguish** between continuous and discrete random variables, probability mass and density functions, conditional and unconditional probabilities, **apply** change of variable, **employ** methods of Jacobian and **construct** cumulative distribution functions.

CO3: **Explain** two components random vector, **define** and **construct** probability mass and density functions, marginal and conditional density functions and distributions, **examine** the independence of bivariate random distributions.

CO4: **Construct** bivariate frequency distributions and **define** correlation, represent bivariate data through scatter diagrams, **calculate** Karl Pearson's and Spearman's correlation coefficients, **construct** regression equations and **distinguish** between regression equations of x on y and y on x, **fit** polynomial equations to given bivariate data.

Semester III – ST3CMT03: Probability Distributions

At the end of the course on ***Probability Distributions***, the students will be able to: -

CO1: **Define** expectation of random variables and **indicate** their functions, **calculate** raw moments, central moments and **establish** their interrelationship, **determine** measures of averages and dispersion using moments, **express** Pearson's correlation coefficient in terms of expectation, **determine** characteristic functions and moment generating functions.

CO2: **Illustrate** Uniform, Bernoulli, Binomial, Poisson, Geometric, Hyper Geometric, Gamma, Exponential and Beta - **compute** their mean, variance, mgf and properties, **apply** normal distribution and all its properties.

CO3: **Describe**, **reproduce** and **apply** Chebychev's inequality, weak law of large numbers, Bernoulli's and Chebychev's forms and central limit theorem.

CO4: **Articulate** the concept of sampling from probability distributions, **recall** the concept of sampling distributions, statistic and standard error, mean and variance of sample mean when sampling is from a finite population, sampling distribution of mean and variance from normal distribution, **discuss** Chi-Square, t, F and inter relationships among them and **apply** them in relevant situations.

Semester IV - ST4CMT04: Statistical Inference

At the end of the course on ***Statistical Inference***, the students will be able to: -

CO1: **Describe** the concepts of estimation, estimators and estimates, points and interval estimates, **explain** properties of good estimators and **apply** sufficiency factorization theorem.

CO2: **Explain** various methods of moments, maximum likelihood, and invariance property of ML estimates, minimum variance, **illustrate** Cramer-Rao inequality, **solve** problems based on confidence intervals of mean, variance and proportions.

CO3: **Explain** statistical hypothesis, null, alternate, simple and composite hypothesis, Type I and Type II errors, **compute** and **sketch** critical region, **determine** size and power of a test, p-value, Neyman-Pearson approach, **apply** large sample tests for means, difference of means, proportion and difference of proportion, **use** Chi square test for independence and homogeneity.

CO4: **Apply** Normal tests for mean, difference of means and proportion, t-tests for mean and difference of means, paired t-test, test for proportion, chi square test, F-test for ratio of variances and **formulate** conclusions.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Complementary Mathematics for BBA

Semester I – BA1CMT03 Fundamentals of Business Mathematics

At the end of the course on ***Fundamentals of Business Mathematics***, the students will be able to:

CO1: **Observe** modern theory of Mathematics, **recall** sets and types of sets, and operations on sets.

CO2: **Recall** number systems, **apply** ratio and proportion, variation, sequences, arithmetic and geometric progressions, their n^{th} terms and sum to n terms, sum to infinity of a geometric progression to **solve** many routine type problems.

CO3: **Differentiate** between permutations and combinations, **apply** them to solve problems, **define** logarithm and **use** them in computations and simplification of expressions, **compute** compound interest and depreciation.

CO4: **Define** matrices and matrix operations, define and **evaluate** determinants and determine ranks of matrices, inverse of a matrix and **solve** linear system of equations using matrices.

Semester II – BA2CMT08 Mathematics for Management

At the end of the course on ***Mathematics for Management***, the students will be able to:-

CO1: **Represent** points in plane as coordinates in Cartesian coordinate system, **determine** the length of a line segment and area of a triangle, **apply** section formula and **examine** collinearity of three points.

CO2: **Define** and **calculate** gradient of a line, **employ** different forms of equation of straight lines, **apply** conditions for parallelism and perpendicularity and concurrency of three points.

CO3: **Define** arithmetic and geometric progressions, **apply** the formula to sum the n terms of arithmetic and geometric series.

CO4: **Calculate** of interests and discounts, present value and annuity, present value of money and annuities.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Complementary Statistics for BBA

Semester I – BA1CMT04 Fundamentals of Business Statistics

At the end of the course on ***Fundamentals of Business Statistics***, the students will be able to:-

CO1: **Describe** the origin, meaning, scope and limitations of Statistics, **discuss** its relationship with business and industry.

CO2: **Explain** various methods of collection, classification and tabulation of data, **represent** data through pie diagrams and graphs.

CO3: **Describe** various measures of central tendency and dispersion, **compare** their merits and demerits, **explain** correlation, **compute** Karl Pearson's coefficient of correlation and spearman's coefficient of correlation, **determine** regression equations and **use** them in forecasting.

CO4: **Describe** components of a time series, **compute** trend and seasonal variations through the average method.

Semester II –BA2CMT09 Statistics for Management

At the end of the course on ***Statistics for Management***, the students will be able to:-

CO1: **Explain** basic concepts in probability, **employ** addition and multiplication theorems in probability calculations, **calculate** conditional probability and **apply** of Baye's theorem for finding inverse probabilities.

CO2: **Distinguish** between discrete and continuous random variables, **illustrate** Binomial, Poisson and Normal Distributions, **apply** them in related problems, **calculate** their means and variance and **explore** their properties.

CO3: **Discuss** various methods of sampling, **differentiate** statistics from parameters, **explain** various sampling distributions, **compute** standard error and **apply** central limit theorem.

CO4: **Explain** hypothesis and procedure for testing hypothesis, **apply** and **validate** tests of significance for attributes and means.

CO5: **Devise** Chi square test and goodness of fit, **design** chi square test for independence, **discover** its uses and limitations.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Complementary Mathematics for BBM

Semester I - BM1CMT03 Business Mathematics I

At the end of the course on ***Business Mathematics I***, the students will be able to:-

CO1: **Discuss** ratio, proportion and variation, laws of indices, **formulate** and **solve** linear and quadratic equations.

CO2: **Explain** sets and type of sets, operate on sets, **define** relations and functions and **combine** functions.

CO3: **Discuss** and **compute** profit and loss, discounts, **explain** logarithms and its laws, **determine** simple and compound interests.

CO4: **Define** AP, and GP, **calculate** their n^{th} terms, sum to n terms, **determine** the sum, sum of squares, sum of cubes of first n natural numbers and their simple applications, sum to infinity of a GP, **discuss** HP and **establish** the relationship among AP, GP and HP.

CO5: **Distinguish** between permutations and combinations, and **apply** them to **solve** related problems.

Semester II BM2CMT08 Business Mathematics – II

At the end of the course on ***Business Mathematics II***, the students will be able to:-

CO1: **Discuss** matrices and types of matrices, **define** basic matrix operations, **describe** properties of matrices and **verify** them, **construct** associated matrices, **evaluate** determinants, **distinguish** between singular and non-singular matrices, minors and cofactors of elements, **construct** the inverse of a matrix, **apply** Cramer's Rule to **solve** linear system of equations, **determine** rank of a matrix by evaluating sub matrices.

CO2: **Define** vector and its types, dot product of vectors, **derive** conditions for vectors to be parallel and perpendicular.

CO3: **Explain** dependent and independent variables, **evaluate** limits of rational functions using formula, **find** derivatives, **apply** addition, multiplication and quotient rules of differentiation, **determine** the maxima and minima of algebraic functions.

CO4: **Perform** integration of simple algebraic, exponential and logarithmic functions, **apply** integration by parts, **employ** differentiation and integration to **estimate** marginal revenue cost and average cost.

CO5: **Define** the Cartesian coordinate system, **derive** and **apply** distance formula, **construct** equations of straight lines in slope intercept form, point slope form, two point and intercept form.

COURSE OUTCOMES FOR COMPLEMENTARY COURSES

Complementary Statistics for BBM

Semester I –BM1CMT04 Business Statistics I

At the end of the course on ***Business Statistics I***, the students will be able to:-

CO1: **Describe** meaning, scope and limitations of Statistics, **analyze** various methods of collection and editing of data, **employ** sampling techniques, **represent** data diagrammatically and graphically representation of data.

CO2: **Discuss** meaning and characteristics of a good average and a good measure of dispersion, **compute** of measures of central tendency and measures of dispersion, **compare** their merits and demerits.

CO3: **Explain** meaning, definition and types of correlation, **compute** of coefficient of correlation using Karl Pearson's and Spearman's methods and **interpret** the result.

CO4: **Explain** meaning of regression and **compute** and **identify** regression coefficients and equations.

Semester II- BM2CMT09 Business Statistics – II

At the end of the course on ***Business Statistics II***, the students will be able to:-

CO1: **Define** and **discuss** the importance of index numbers, **compute** index numbers by simple aggregative method, simple average of price relatives method, **construct** Laspeyer's, Paasche's, Fisher's, Bowley-Dorbish, Marshall-Edgeworth indices, quantity index numbers, **employ** Time, Factor Reversal and circular tests for finding an ideal index number, validate the tests and **discuss** and **compute** of cost of living index number.

CO2: **Describe** time series, its meaning and computation, **determine** trend by freehand method, semi average method and method of moving averages, **construct** straight line trend by the method of least squares and **apply** it for prediction.

CO3: **Define** and **compute** probability, **apply** addition, multiplication theorems and conditional probability to **assess** probabilities.

CO4: **Discuss** meaning, assumptions and limitations of interpolation and extrapolation, **discover** and **predict** appropriate methods of projecting required data using Newton's forward interpolation method, Newton's method of divided differences and Lagrange's method.

CO5: **Formulate** and **solve** inequalities in two variables by the method of linear programming, **minimize** cost in transportation problems by lowest cost entry method, **schedule** an assignment so that the cost in the Assignment problem minimal by Hungarian method.

DEPARTMENT OF COMMERCE

M.Com Finance and Taxation

Programme Outcomes – Domain Specific (PSO)

At the end of the PG Programme in ***M.Com Finance and Taxation***, the students will be able to: -

PO1: Enhancing Knowledge

Enhancing knowledge so as to enable the learners to carry out qualitative research and pursue academic or professional careers.

PO2: Understanding

Understanding the role and applicability of knowledge acquired in the context of society, environment and sustainable development sticking on to the ethics and values.

PO3: Problem Analysis Skills

Developing problem analysis skills and knowledge and applying the same inreal life situation.

PO4: Solving Socially Relevant Problems

Using research knowledge and aptitude acquired in the course of study forsolving socially relevant problems.

PO5: Practical Skills

Create and acquire practical skills to work as tax consultants, audit assistants and in other financial supporting services. Acquire relevant managerial/accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

Domain Independent Outcomes (PO)

At the end of the PG Programme in ***MCom Finance and Taxation***, the students will be able to: -

PO6: Critical Thinking:

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction:

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

COURSE OUTCOMES

Semester I - CM010101: SPECIALISED ACCOUNTING

At the end of the course on ***Specialized Accounting***, the students will be able to: -

CO1: **Explain** the theoretical and practical aspects of major Accounting Standards to **apply** the same indifferent practical situations.

CO2: **Determine** the value of goodwill and valueof companies based on the value of sharesand compare the real value of shares and with the market prices and **identify** the mispricing.

CO3: **Determine** the value 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, provisioning norms and to **explain** the concept of NAV of mutual funds through its computation.

Semester I - CM010102: ORGANISATIONAL BEHAVIOUR

At the end of the course on ***Organizational Behavior***, the students will be able to: -

CO1: **Discover** the concepts of organization behavior.

CO2: **Assess** about group behavior and leadership related to organizational behavior.

CO3: **Assess** about group behavior and leadership related to organizational behavior.

CO4: **Create** the knowledge base of the leaner regarding change management and deal with stress.

Semester I- CM010103: MARKETING MANAGEMENT

At the end of the course on ***Marketing Management***, the students will be able to: -

CO1: **Construct** a basic understanding about concepts like customercentricity, CRM, value chain and customer delight.

CO2: **Assess** the market segmentation process and its applications in marketing strategies.

CO3: **Develop** an idea about consumer behavior and its impact.

CO4: **Explain** about product line, product mix, brand equity, brand identity, brand personality and brand image.

Semester I - CM010104: MANAGEMENT OPTIMISATION TECHNIQUES

At the end of the course on ***Management Optimisation Techniques***, the students will be able to: -

CO1: **Develop** theoretical understanding aboutvarious business optimization models

CO2: **Acquire** the knowledge of application of Linear Programming in the areas of transportation and assignment.

CO3: **Apply** Linear Programming Models for business problems and solve the same.

CO4: **Develop** decision making skills under uncertainty, risk and replacement of assets.

Semester I - CM010105: METHODOLOGY FOR SOCIAL SCIENCE RESEARCH

At the end of the course on ***Methodology for Social Science Research***, the students will be able to: -

CO1: **Develop** a thorough understanding about the basic concepts of social science research.

CO2: The learner should be able to **formulate** a research design.

CO3: **Discover** the aspects of sampling design, the learner should be able to **draw** a sampling design.

CO4: **Determine** the instrumentdevelopment, its validation and different forms of scaling.

Semester II - CM010201: ADVANCED CORPORATE ACCOUNTING

At the end of the course on ***Advanced Corporate Accounting***, the students will be able to: -

CO1: **Consolidate** financial statements of groupcompanies.

CO2: **Prepare** the financial statements of public utility companies and deal with the disposal of surplus.

CO3: Develop an awareness on the procedure of bankruptcy under the recent Bankruptcy Procedure Code.

CO4: **Prepare the** accounts of some special lines of businesses like shipping, hospitals and hotels.

Semester II - CM010202: HUMAN RESOURCE MANAGEMENT

At the end of the course on ***Human Resource Management***, the students will be able to: -

CO1: **Explain** the basic concepts of HRM and performance appraisal.

CO2: **Define** human resource development, stress management and work life management.

CO3: **Illustrate** about various aspects of training.

CO4: **Discover** various aspects of industrial relations so as to evaluate the real cases of industrial.

Semester II - CM010203: INTERNATIONAL BUSINESS AND FINANCE

At the end of the course on ***International Business and Finance***, the students will be able to: -

CO1: **Describe** globalization, internationalization of business and the International business environment.

CO2: **Create** an understanding about theories of international trade, trade barriers and trade blocks.

CO3: **Create** an idea about various economic institutions related to international trade.

CO4: **Acquire** high level knowledge about various aspects of international monetary system.

Semester II - CM010204: QUANTITATIVE TECHNIQUES

At the end of the course on ***Quantitative Techniques***, the students will be able to: -

CO1: **Develop** an understanding aboutthe applications of quantitative techniques.

CO2: **Create** an understanding about the applications of quantitative techniques.

CO3: **Describe** the skills to identify the most suitable non parametric test for testing a hypothesis.

CO4: **Describe** the skills to apply the principles of SQC.

Semester II - **CM010205: STRATEGIC MANAGEMENT**

At the end of the course on ***Strategic Management***, the students will be able to: -

CO1: **Assess** the theoretical foundations of strategic management.

CO2: **Identify** the various models of environmental and internal analysis.

CO3: **Develop** an idea about the strategy formulation process at the corporate level.

CO4: **Determine** the various tools of strategic planning and evaluation.

THIRD SEMESTER COURSES

Semester III - CM010301: STRATEGIC FINANCIAL MANAGEMENT

At the end of the course on ***Strategic Financial Management***, the students will be able to: -

CO1: **Describe** the theoretical foundations of financial management and financial management decisions.

CO2: **Identify** long term proposals and evaluate the risk associated with long term investment.

CO3: **Assess** the decisions regarding leasing of capital assets.

CO4: **Outline** the feasibility of different options regarding discount, credit period, storage costetc related to current assets and current liabilities and estimate working capital requirements.

Semester III - CM010302: INCOME TAX - LAW AND PRACTICE

At the end of the course on ***Income Tax - Law and Practice***, the students will be able to: -

CO1: **Acquire** knowledge regarding the basic concepts of Income Tax.

CO2: **Calculate** the income from salary and House Property

CO3: **Assess** the method of computing capital gain and income from other sources.

CO4: **Determine** taxable profit of a business or profession.

Semester III - CM010303: SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

At the end of the course on ***Security Analysis and Portfolio Management***, the students will be able to: -

CO1: **Describe** the concepts of investments, different types of investments, views of investment and process of investment and apply the theoreticalknowledge in investment information for selecting the securities.

CO2: **Create** an understanding about the 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: **Assess** the tools of technical analysis, analyze the patterns and trends in the market by using various tools and enable to take investment.

CO4: **Apply** Modern portfolio theories and construct optimum portfolios.

Semester III - CM800301: INDIRECT TAX LAWS

At the end of the course on ***Indirect Tax Laws***, the students will be able to: -

CO1: **Describe** the basic concepts of the Goodsand Services Tax.

CO2: **Assess** about the levy andcollection of tax and tax credit.

CO3: **Create** the knowledge about the provisions regarding registration, preparations of books of accounts and filing of returns under the Act.

CO4: **Describe** about the powers of GSTauthorities regarding inspection, search and seizure.

FOURTH SEMESTER COURSES

Semester III - CM010401: ADVANCED COST AND MANAGEMENT ACCOUNTING

At the end of the course on ***Advanced Cost and Management Accounting***, the students will be able to: -

CO1: **Classify** activity-based absorption methods instead of conventional absorption method.

CO2: **Summarise** the marginal costing principles in decision making situations of businesses.

CO3: **Specify** practical cases of pricing decisions in different situations.

CO4: **Identify** with the practical issues related to transfer pricing.

Semester IV - CM010402: INCOME TAX – ASSESSMENT & PROCEDURES

At the end of the course on ***Income Tax – Assessment and Procedures***, the students will be able to: -

CO1: **Compute** the total income and tax liability of firms and Association of Persons.

CO2: **Calculate** assessment of companies and **determine** their tax liability.

CO3: **Detect** the assessment of cooperative societies and trusts.

CO4: **Create** an understanding about the assessmentprocedures, TDS and advance payment of tax and application in various situations.

Semester IV - CM800401: DERIVATIVES AND RISK MANAGEMENT

At the end of the course on ***Derivatives and Risk Management***, the students will be able to: -

CO1: **Create** knowledge about the derivative market inIndia, its evolution, types, players, risks involved and basic quantitative foundations.

CO2: **Analyze** the implications of risk in the perception of individuals and Institutions and measurement of risks.

CO3: **Explain** the concept offorward market and its function.

CO4: **Analyse** the operation and pricing of various types of futures.

Semester IV - CM800402: Personal Investment and Behavioral Finance

At the end of the course on ***Personal Investment and Behavioural Finance***, the students will be able to: -

CO1: **Explain** the meaning and significance of Financial Literacy, Financial Discipline & Financial Competency, the role of family and parents in financial socialization.

CO2: **Explain** the meaning of Behavioural Finance,its evolution and related theories.

CO3: **Create** an understanding different Heuristics, Biases and other Irrational Investment Behaviours.

CO4: **Analyse** the relationship between biasesand to adopt techniques to lower the impact of biases.

Department of Commerce

B.Com Finance and Taxation

Name of the courses offered by Department:

Programme Outcomes – Domain Specific (PSO)

At the end of the UG programme in ***BCom Finance and Taxation***, the students will be able to: -

PO1: Solving Ability

Apply knowledge of commerce and related finance fundamentals to the solution of complex problems arising in various fields and create the ability to engage in competitive examslike CA, CS, ICWA, and other courses.

PO2: Analysis Ability

Analyze practical exposures which would equip the students to face modern day challenges in commerce and business, along with the advanced accounting courses beyond the introductory level. Affective development will also progress to the valuing and organizational level.

PO3: Creating Awareness

Creating awareness about basic concepts of income tax regime in India, its recent updates and make students able to calculate income tax in their life and career related aspects.

PO4: Evaluation

Able to recognize and evaluate features and roles of businessmen, entrepreneurs, managers, and consultants, which will help learners to possess the knowledge and other soft skills and to engage in critical decision making.

PO5: Practical Skills

Create and acquire practical skills to work as tax consultants, audit assistants and in other financial supporting services. Acquire relevant managerial/accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

Domain Independent Outcomes (PO)

At the end of the UG programme in ***BCom Finance and Taxation***, the students will be able to: -

PO6: Critical Thinking

Take informed decisions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and analyse our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen in English and in one Indian language. Communicate effectively with others and with society at large. Being able to comprehend and write effective reports and design documentation. Create effective presentations and communicate clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings, demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics, responsibilities and norms relevant to one's field of study, work/practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern for an equity centered national development, the ability to act with an informed awareness of issues, participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context of socio-technological changes.

Course Outcomes

Semester I - CO1CRT01: Dimensions and Methodology of Business Studies

At the end of the **course on *Dimensions and Methodology of Business Studies*** the students will be able to: -

CO1: **Identify** business and its role in society.

CO2: **Create** an Understanding of Business ethics and CSR to comprehend the business environment and various dimensions.

CO3: **Familiarize** Technology integration in business.

CO4: **Explain** the importance and fundamentals of business research.

Semester I - CO1CRT02: Financial Accounting (I)

At the end of the course on ***Financial Accounting (I)*** the students will be able to:

CO1: **Prepare** the students with the skill of preparing accounts.

CO2: **Compute** the financial statements of various types of business units other than corporate undertakings.

CO3: **Calculate** royalty accounts, consignment accounts etc.

CO4: **Construct** farm accounts.

CO5: **Acquire** knowledge about incomplete accounts.

Semester I - **CO1CRT03**: **Corporate Regulations and Administration**

At the end of the course on ***Corporate Regulations and Administration*** the students will be able to:

CO1: **Describe** the management and administration of joint stock companies in India as per Companies Act, 2013.

CO2: **Create** the students with a standard knowledge of the corporate affairs and governance.

CO3: **Acquire** the students motivated to start company business.

CO4: **Generate** information regarding the securities that they can invest in corporate securities.

CO5: **Describe** the contents and use of AOA and MOA.

Semester I - CO1CMT01: Banking and Insurance

At the end of the course on ***Banking and Insurance*** the students will be able to:

CO1: **Explain** the students with the basic concepts and practice of banking and the principles of Insurance.

CO2: **Explain** the basic practices of banking.

CO3: **Assess** the various types of insurances in life and other sectors.

CO4: **Describe** about the various insurance schemes and policies.

Semester II - CO2CRT04: Financial Accounting II

At the end of the course on ***Financial Accounting (II)*** the students will be able to:

CO1: **Explain** the preparation of books of accounts of various types of business activities.

CO2: **Analyse** important accounting standards.

CO3: **Describe** Garner v/s Murray in partnership accounts.

CO4: **Define** branch accounts and its applications.

Semester II - CO2CRT05: Business Regulatory Framework

At the end of the course on ***Banking and Insurance*** the students will be able to:

CO1: **Explain** the students with the legal framework influencing business decisions.

CO2: **Assess** the concept of law of agency.

CO3: **Acquire** with the basic concept of sales of goods act.

CO4: **Explain** consignments of goods and its application.

Semester II - CO2CRT05: Business Management

At the end of the course on ***Business Management*** the students will be able to:

CO1: **Explain** the students with concepts and principles of management.

CO2: **Describe** with the basic concept of business management and performance appraisal.

CO3: **Explain** about recent trends in management techniques.

CO4: **Create** an Understanding about planning and management by objectives and coordination.

Semester II - CO2CMT02: Principles of Business Decisions

At the end of the course on ***Principles of Business Decisions*** the students will be able to:

CO1: **Describe** the economic concepts and principles underlying business decision making.

CO2: **Acquire** the students able to take decisions scientifically.

CO3: **Assess** the utility of the products by understanding theories relating to utility.

CO4: **Apply** microeconomic theories in real life situations.

Semester III – CO3CRT07: Corporate Accounts I

At the end of the course on ***CorporateAccounts I*** the students will be able to:

CO1: **Describe** corporate accounting procedures.

CO2: **Compute** accounting for joint stock companies.

CO3: **Acquire** knowledge about shares of joint stock companies.

CO4: **Explain** the accounting procedure for underwriting of shares and debentures.

Semester III – CO3CRT08: Quantitative Techniques for Business

At the end of the course on ***Quantitative Techniques for Business*** the students will be able to:

CO1: **Describe** the role of statistics and quantitative techniques in business.

CO2: **Explain** them with the basic tools applied.

CO3: **Apply** the application of measures of central tendency.

CO4: **Analyze** the statistical tools available for complicated linear programming.

Semester I - CO3CRT09: Financial Markets and Operations

At the end of the course on ***Financial Markets and Operations*** the students will be able to:

CO1: **Explain** the students with financial market operations in India.

CO2: **Describe** standard knowledge about financial markets and securities.

CO3: **Create** awareness about different investment opportunities available to students.

CO4: **Develop** students motivated towards investment habits.

C05: **Identify** mutual funds as a good investment opportunity for beginners.

Semester I - **CO3CRT10**: Marketing Management

At the end of the course on ***Marketing Management*** the students will be able to:

CO1: **Create** a sound understanding of the basic principles of marketing management.

CO2: **State** marketing in the business and industry.

Classify different market segments.

CO4: **Describe** MBO, MBE and its applications in business

Semester I - CO3OCT01: Goods and Services Tax

At the end of the course on ***Goods and Services Tax*** the students will be able to:

CO1: **Outline** GST law in the country.

CO2: **List** the rules and practices of GST in India.

CO3: **State** different GST slab rates prevailing in the country.

CO4: **Assess** the practical perspective and employability of the students in commercial tax practices.

Semester IV - CO4CRT11: Corporate Accounts II

At the end of the course on **Corporate Accounts II** the students will be able to:

CO1: **Prepare** financial statements of insurance companies.

CO2: **State** accounting procedure for reconstruction and liquidation of companies.

CO3: **State** accounting procedure for Amalgamation, absorption of companies.

CO4: **Prepare** financial statements of banking companies.

Semester IV - CO4CRT12: Quantitative Techniques for Business - II

At the end of the course on ***Quantitative Techniques for Business - II*** the students will be able to:

CO1: **Acquire** the students with more advanced tools of data Analysis and forecasting.

CO2: **State** the fundamentals of the theory of Probability.

CO3: **Differentiate** the relationship between independent and dependent variable.

CO4: **Distinguish** the linear relationship between independent and dependent variable.

Semester IV - CO4CRT13: Entrepreneurship Development and Project Management

At the end of the course on ***Entrepreneurship Development and Project Management*** the students will be able to:

CO1: **Develop entrepreneurial spirit a**mong students.

CO2: **Acquire** students with sufficient knowledge to start venture with confidence.

CO3: **Identify** young minds to take up challenges and become employer than seeking employment and to make them aware of the opportunities and support.

CO4: **List** entrepreneurial development and training programmes.

CO5: **Describe** the attitude of students towards entrepreneurship.

Semester IV - CO4OCT01: Financial Services

At the end of the course on Financial Services the students will be able to:

CO1: **Acquire** the students with an overall idea of Financial Services available in the country.

CO2: **Create** an understanding of recent trends in the financial services sector.

CO3: **Describe** of Indian financial system and its importance in modern commerce.

C04: **State** the SEBI guidelines and its functions.

Semester V - CO5CRT14: Cost Accounting - 1

At the end of the course on ***Cost Accounting - 1*** the students will be able to:

CO1: **Describe** cost concepts.

CO2: **Explain** Fundamentals of cost accounting as a separate system of accounting.

CO3: **Compute** of cost of product/process/project/activity.

CO4: **Describe** how cost accounting is used for decision making and performance evaluation.

CO5: Identify the methods and techniques applicable for different types of industries.

Semester V - CO5CRT15: Environment Management and Human Rights

At the end of the course on ***Environment Management and Human Rights*** the students will be able to:

CO1: **Create** an awareness about environment management and its quality maintenance.

CO2: **Create** a general knowledge about human rights.

CO3: **Describe various** aspects of environmental resources and management.

CO4: **List** the recent developments in the field of commerce and management relating to environment.

Semester V - CO5CRT16: Financial Management

At the end of the course on ***Financial Management*** the students will be able to:

CO1: **Describe** thefunctional areas and principles of financial management.

CO2: **Construct** an idea about the time value of money.

CO3: **Assess** the importance of maintaining adequate working capital in business.

CO4: **Explain** capital structure, financial structure and capitalization.

Semester V - CO5OCT01: IncomeTax I

At the end of the course on ***IncomeTax - 1*** the students will be able to:

CO1: **Develop** a basic idea about IncomeTax.

CO2: **Compute** capital gains.

CO3: **List** the deductions from gross total income under sections 80C to 80U.

CO4: **Acquire** the students for the assessment of individuals.

Semester VI - C06CRT17: Cost Accounting - 2

At the end of the course on ***Cost Accounting - 2*** the students will be able to:

CO1: **Explain** the principles and procedure contract accounting.

CO2: **List** different methods and techniques of costing.

CO3: **Describe** cost awareness and cost reduction in personal life.

CO4: **Construct** analyse and interpret cost volume profit relationship.

CO5: **Identify** the methods and techniques applicable for different types of industries.

Semester VI - C06CRT18: Advertisement and Sales Management

At the end of the course on ***Advertisement and Sales Management*** the students will be able to:

CO1: **Describe** the concept of advertisement.

CO2: **Acquire** the students with the copywriting skills.

CO3: **Create** the ability to choose a particular medium for advertisement.

CO4: **Create** the students to decide an appropriate test for measuring the effectiveness of advertisement as they become aware of various test for measuring the effectiveness of advertisement.

Semester VI - C06CRT19: Auditing &Assurance

At the end of the course on ***Auditing &Assurance*** the students will be able to:

CO1: **Create** the students with theprinciples and procedure of auditing.

CO2: **Enable** the students tounderstand the duties and responsibilities of auditors **and to** undertake the work of auditing.

CO3: **Aware** about the different types of auditing and its applications.

CO4: **Create** skill to check the arithmetical accuracy of books of records.

Semester VI - C06CRT2: Management Accounting

At the end of the course on ***Management Accounting*** the students will be able to:

CO1: **Acquire** the students with management accounting techniquesfor the analysis and interpretation of financial statements.

CO2: **Describe** the basic framework of financial reporting.

CO3: **Create** the students able to make managerial decisions with the help of accounting tools.

CO4: **List** the different accounting ratios and its application.

CO5: **Explain** the accounting procedure for the preparation of fund flow and cash flow statements.

Semester VI - C06OCT01: Income Tax II

At the end of the course on ***Income Tax II*** the students will be able to:

CO1: **Determine** of Total Income andtax payable and to get an overview regarding returns to be filed by an individual and also assessment procedure.

CO2: **Create** knowledge about the concept of tax planning.

CO3: **Explain** the assessment procedure of income tax authorities and their powers.

CO4: **Summarise** the computation of tax liability of companies, corporative societies etc.

B.COM COMPUTER APPLICATIONS

B.Com Computer Applications

Programme Outcomes – Domain Specific (PSO)

At the end of the UG Programme in **B.Com Computer Applications**, the students will be able to: -

PO1: **Solving Ability**

Apply knowledge of commerce and related finance fundamentals to the solution of complex problems arising in various fields and create the ability to engage in competitive examslike CA, CS, ICWA, and other courses.

PO2: **Analysis Ability**

Analyze practical exposures which would equip the students to face modern day challenges in commerce and business, the advanced accounting courses beyond the introductory level, affective development will also progress to the valuing and organizational level.

PO3: Creating Awareness

Creating awareness about basic concepts of income tax regime in India, its recent updates and make students able to calculate income tax in their life and career related aspects.

PO4: Evaluation

Able to recognize and evaluate features and roles of businessmen, entrepreneurs, managers, consultants, which will help learners to possess the knowledge and other soft skills and to react aptly when confronted with critical decision making.

PO5: Practical skills

Create and acquire practical skills to work as tax consultants, audit assistants and other financial supporting services. Create relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.

Domain Independent Outcomes (PO)

At the end of the UG Programme in **B. Com Finance & Taxation**, the students will be able to: -

PO6: Critical Thinking:

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with

society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction:

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

B. Com Computer Applications

Semester 1 - CO1CRT01: Dimensions and Methodology of Business Studies

At the end of the course on ***Dimensions and Methodology of Business Studies*** the students will be able to: -

CO1: **Identify** business and its role in society.

CO2: **Create** an Understanding of Business ethics and CSR to comprehend the business environment and various dimensions.

CO3: **Integrate** Technology integration in business.

CO4: **Explain** the importance and fundamentals of business research.

Semester 1 - CO1CRT02: Financial Accounting I

At the end of the course on ***Financial Accounting I*** the students will be able to:

CO1: **Prepare** the students with the skill of preparing accounts.

CO2: **Compute** the financial statements of various types of business units other than corporate undertakings.

CO3: **Calculate** royalty accounts, consignment accounts etc.

CO4: **Construct** farm accounts.

CO5: **Acquire** knowledge about incomplete accounts.

Semester 1 - CO1CRT03: Corporate Regulations and Administration

At the end of the course on ***Corporate Regulations and Administration*** the students will be able to:

CO1: **Describe** the management and administration of joint stock companies in India as per Companies Act, 2013.

CO2: **Infer** about the corporate affairs and governance.

CO3: **Acquire** the students motivated to start company business.

CO4: **Generate** information regarding the securities that they can invest in corporate securities.

CO5: **Describe** the contents and use of AOA and MOA.

Semester 1 - CO1CMT01: Banking and Insurance

At the end of the course on ***Banking and Insurance*** the students will be able to:

CO1: **Explain** the students with the basic concepts and practice of banking and the principles of Insurance.

CO2: **Explain** the basic practices of banking.

CO3: **Understand** the various types of insurances in life and non-life sector.

CO4: **Describe** about the various insurance schemes and policies.

Semester II - CO2CRT04: Financial Accounting II

At the end of the course on ***Financial Accounting II*** the students will be able to:

CO1: **Explain** the preparation of books of accounts of various types of business activities.

CO2: **Analyse** important accounting standards.

CO3: **Describe** Garner v/s Murray in partnership accounts.

CO4: **Define** branch accounts and its applications.

Semester II - CO2CRT05: Business Regulatory Framework

At the end of the course on ***Banking and Insurance*** the students will be able to:

CO1: **Explain** the students with the legal framework influencing business decisions.

CO2: **Assess** the concept of law of agency.

CO3: **Acquire** with the basic concept of sales of goods act.

CO4: **Explain** consignments of goods and its applications.

Semester II - CO2CRT06: Business Management

At the end of the course on ***Business Management*** the students will be able to:

CO1: **Explain** the students with concepts and principles of management.

CO2: **Describe** with the basic concept of business management and performance appraisal.

CO3: **Explain** about recent trends in management techniques.

CO4: **Create** an Understanding about planning and management by objectives and coordination.

Semester II - CO2CMT02: Principles of Business Decisions

At the end of the course on ***Principles of Business Decisions*** the students will be able to:

CO1: **Describe** the economic concepts and principles underlying business decision making.

CO2: **Acquire** the students able to take decisions scientifically.

CO3: **Assess** the utility of the products by understanding theories relating to utility.

CO4: **Apply** microeconomic theories in real life situations.

Semester III - CO3CRT07: Corporate Accounts I

At the end of the course on ***Corporate Accounts I*** the students will be able to:

CO1: **Describe** corporate accounting procedures.

CO2: **Compute** accounting for joint stock companies.

CO3: **Acquire** knowledge about shares of joint stock companies.

CO4: **Explain** the accounting procedure for underwriting of shares and debentures.

Semester III - CO3CRT08: Quantitative Techniques for Business

At the end of the course on ***Quantitative Techniques for Business*** the students will be able to:

CO1: **Describe** the role of statistics and quantitative techniques in business.

CO2: **Explain** them with the basic tools applied.

CO3: **Apply** the application of measures of central tendency.

CO4: **Analyze** the statistical tools available for complicated linear programming.

Semester III - CO3CRT09: Financial Markets and Operations

At the end of the course on ***Financial Markets and Operations*** the students will be able to:

CO1: **Explain** the students with financial market operations in India.

CO2: **Describe** standard knowledge about financial markets and securities.

CO3: **Create** awareness about different investment opportunities available.

CO4: **Develop** investment habits.

C05: **Identify** mutual funds as a good investment opportunity for beginners.

Semester III - CO3CRT10: Marketing Management

At the end of the course on ***Marketing Management*** the students will be able to:

CO1: **Create** a sound understanding of the basic principles of marketing management.

CO2: **State** marketing in the business and industry.

CO3: **Classify** different market segments.

CO4: **Describe** MBO, MBE and its applications in business.

Semester III - CO3OCT01: Information Technology for Business

At the end of the course on ***Information Technology for Business*** the students will be able to:

CO1: **Explain** the role of information technology in business.

CO2: **Develop** web pages for business.

CO3: **Create** knowledge in internet management tool.

CO4: **Develop** knowledge in computer.

CO5: **Explain** the MS Office softwares.

Semester IV - CO4CRT11: Corporate Accounts II

At the end of the course on ***Corporate Accounts II*** the students will be able to:

CO1: **Prepare** financial statements of insurance companies.

CO2: **State** accounting procedure for reconstruction and liquidation of companies.

CO3: **Explain** the accounting procedure for Amalgamation, absorption of companies.

CO4: **Prepare** financial statements of banking companies.

Semester IV - CO4CRT12: Quantitative Techniques for Business - II

At the end of the course on ***Quantitative Techniques for Business - II*** the students will be able to:

CO1: **Acquire** the students with more advanced tools of data Analysis and forecasting.

CO2: **State** the fundamentals of the theory of Probability.

CO3: **Differentiate** the relationship between independent and dependent variable.

CO4: **Distinguish** the linear relationship between independent and dependent variable.

Semester IV - CO4CRT13: Entrepreneurship Development and Project Management

At the end of the course on ***Entrepreneurship Development and Project Management*** the students will be able to:

CO1: **Discover entrepreneurial spirit within.**

CO2: **Acquire** students with sufficient knowledge to start venture with confidence.

CO3: **Identify** young minds to take up challenges and become employer than seeking employment and to make them aware of the opportunities and support.

CO4: **List** entrepreneurial development and training programmes.

CO5: **Describe** the attitude of students towards entrepreneurship.

Semester IV - CO4OCT01: Financial Services

At the end of the course on ***Financial Services*** the students will be able to:

CO1: **Acquire** the students with an overall idea of Financial Services available in the country.

CO2: **Create** an understanding aboutrecent trends in financial services sector.

CO3: **Describe** of Indian financial system and its importance in modern commerce.

CO4: **State** the SEBI guidelines and its functions.

Semester IV - CO4OCT02: Information Technology for Office

At the end of the course on ***Information Technology for Office*** students will be able to:

CO1: **List** office management activities using Information Technology.

CO2: **Describe** data base management systems.

CO3: **Create** the practical applications of office packages.

CO4: **Explain** basics of office presentations tools

Semester V - CO5CRT14: Cost Accounting- 1

At the end of the course on ***Cost Accounting - 1*** the students will be able to:

CO1: **Describe** cost concepts.

CO2: **Explain** Fundamentals of cost accounting as a separate system of accounting.

CO3: **Compute** of cost of product/process/project/activity.

CO4: **Describe** how cost accounting is used for decision making and performance evaluation

CO5: **Identify** the methods and techniques applicable for different types of industries.

Semester V - CO5CRT15: Environment Management and Human Rights

At the end of the course on ***Environment Management and Human Rights*** the students will be able to:

CO1: **Create** an awareness about environment management and its quality maintenance.

CO2: **Create** a general knowledge about human rights.

CO3: **Describe various** aspects of environmental resources and management.

CO4: **List** the recent developments in the field of commerce and management relating to environment.

Semester V - CO5OCT01: Programming in C

At the end of the course on ***Programming in C*** the students will be able to:

CO1: **Develop** a C program.

CO2: **Manage** input /output operations in C program.

CO3: **Create** the practical application in C.

CO4: **Describe** the basics header files in C.

Semester VI - C06CRT17: Cost Accounting - 2

At the end of the course on ***Cost Accounting- 2*** the students will be able to:

CO1: **Explain** the principles and procedure contract accounting.

CO2: **List** different methods and techniques of costing.

CO3: **Describe** cost awareness and cost reduction in personal life.

CO4: **Analyse** and **interpret** cost volume profit relationship.

CO5: **Identify** the methods and techniques applicable for different types of industries.

Semester VI - C06CRT18: Advertisementand Sales Management

At the end of the course on ***Advertisementand Sales Management*** the students will be able to:

CO1: **Describe** the concept of advertisement.

CO2: **Acquire** the students with the copywriting skills.

CO3: **Create** the ability to choose a particular medium for advertisement.

CO4: **Create** the students to decide an appropriate test for measuring the effectiveness of advertisement as they become aware of various test for measuring the effectiveness of advertisement.

Semester VI - C06CRT19: Auditing &Assurance

At the end of the course on ***Auditing &Assurance*** the students will be able to:

CO1: **Create** the students with theprinciples and procedure of auditing.

CO2: **Explain** the duties and responsibilities of auditors **and to** undertake the work of auditing.

CO3: **Differentiate** different types of auditing and its applications.

CO4: **Compute and** check the arithmetical accuracy of books of records.

Semester VI - C06CRT2: Management Accounting

At the end of the course on ***Management Accounting*** **the students** will be able to:

CO1: **Acquire** the students with management accounting techniquesfor the analysis and interpretation of financial statements

CO2: **Describe** the basic framework of financial reporting.

CO3: **Create** the students able to make managerial decisions with the help of accounting tools.

CO4: **List** the different accounting ratios and its application.

CO5: **Explain** the accounting procedure for the preparation of fund flow and cash flow statements.

Semester VI - C06CRT2: Software for Business and Research

At the end of the course on ***Software for Business and Research*** the students will be able to:

CO1: **Create** knowledge to use IT in business research.

CO2: **List** different methods of business research analysis.

CO3: **Apply** SPSS in analysis of huge business data.

CO4: **Develop** practical skill in the applications of business software.

CO5: **Describe** core concepts behind free softwares.

Department of Social Work

Name of the courses offered by Department: MSW

Programme Outcomes – Domain Specific (PSO)

At the end of the PG Programme in ***Master of Social Work***, the students will be able to: -

PO1: **Solving Ability**

Demonstrate the ability to identify and analyze complex social issues, develop innovative and evidence-based solutions, and effectively implement interventions to address the needs of individuals, families, and communities.

PO2: Analysis Ability

Possess strong analytical skills, enabling them to critically evaluate social policies, programs, and interventions. They will be able to assess the impact of these initiatives on diverse populations and recommend data-informed improvements.

PO3: Design / Development of Solutions

Create proficiency in designing and developing comprehensive solutions to social problems. They will apply a systematic and client-centered approach to program development, drawing upon research and best practices to create effective interventions.

PO4: Investigation

Engage in conducting rigorous social research and investigations. They will utilize various research methods to gather, analyze, and interpret data, enabling them to contribute to the evidence base of social work practice and policy.

PO5: Modern Tool Usage

Create proficiency in the use of modern technology and tools relevant to the field of social work. They will effectively leverage digital resources, data analysis software (SPSS), and communication platforms to enhance their practice, advocacy, and engagement with clients and communities.

Domain Independent Outcomes (PO)

At the end of the PG programme in ***Master of Social Work***, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for Sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Course Outcomes (CO)

Semester I - SW010101: Social Sciences for Social Work

At the end of the course on ***Social Sciences for Social Work***, the students will be able to: -

CO1: **Derive** the basic concepts of sociology and **its different** dimensions.

CO2: **Deduce** ideas on application of sociology in Social Work practice.

CO3: **Infer** different dimensions of prevailing social issues in India

CO4: **Recognize** the linkage of social issues and the design of social work Interventions.

Semester I - SW010102: Human Growth and Development

At the end of the course on ***Human Growth and Development,*** the students will be able to: -

CO1: **Categorize** the structure and function of the brain.

CO2: **Explain** on developmental changes in various developmental stagesacross the life span.

CO3: **Analyses** the importance of developmental psychology insocial work practice and be able to link with real life situations.

CO4: **Identify** the use of theoretical concepts in lifespan stages insocial work practice.

Semester I - SW010103: History, Philosophy and Fields of Social Work

At the end of the course on ***History, Philosophy and Fields of Social Work,*** the students will be able to: -

CO1: **Explain** the history of social work approaches with respect to underlying ideologies and philosophies.

CO2: **Recognize** the need and importance of Social WorkEducation, Training and Practice.

CO3: **Identify** the importance of professional values andethics in social work practice.

CO4: **Distinguish** between different fields of social workintervention and the issues and concerns of social work practice in India.

Semester I - SW010104: Social Work Practice with Individuals

At the end of the course on ***Social Work Practice with Individuals***, the students will be able to: -

CO1: **Formulate** Social Case Work as a method of Social Work and apply it as an interventionmethod.

CO2: **Demonstrate** the values and Principles of Social Case Work and to develop thecapacity to practice them.

CO3: **Acquire** the required skills for practicing social case work.

CO4: **Develop** a multi- dimensional approach in assessment.

Semester I - SW010105: Social Work Practice with Communities

At the end of the course on ***Social Work Practice with Communities,*** the students will be able to: -

CO1: **Use** and **relate** of community organization in various fields of social work.

CO2: **Justify** the role of social worker in social action and social reform for social development.

CO3: **Summarise** undertake social audit, social impact assessments.

CO4: **Design** various experiments in the field of community organization in accordance with the peculiarities of communities which he dealt with.

Semester II - SW010201: Introduction to Abnormal and Social Psychology

At the end of the course on ***Introduction to Abnormal and Social Psychology***, the students will be able to: -

CO1: **Assess** the fundamentals of human behaviour.

CO2: **Explain** classification and overview of psychologicaldisorders.

CO3: **Illustrate** concepts and theories of social psychology.

CO4: **Analyse** group behaviour in social context.

Semester II - SW010202: Counselling and Psychotherapy

At the end of the course on ***Counselling and Psychotherapy***, the students will be able to: -

CO1: **Apply** theoretical and therapeutic approaches in counselling andPsychotherapies.

CO2: **Demonstrate** skills in the process and techniques ofCounselling and Psychotherapies.

CO3: **Describe** and **document** ethical practice of counselling with different clients in various settings.

CO4: **Explain** the concepts of Psychotherapy and variouspsychotherapeutic techniques.

Semester II - SW010203: Professional Skills for Social Workers

At the end of the course on ***Professional Skills for Social Workers***, the students will be able to: -

CO1: **Demonstrate** professionalism in their behaviour.

CO2: **Modify** skills in critical reflection in personal and professional practice contexts.

CO3: **Signify** competence in social life skills.

CO4: **Discover** competence in management of teams and leadership in the practice context

Semester II - SW010204: Social Work Practice with Groups

At the end of the course on ***Social Work Practice with Groups,*** the students will be able to: -

CO1: **Describe** Social Group Work as a method of Social Work.

CO2: **Demonstrate** skills to apply the method for development andtherapeutic work.

CO3: **Identify** group work as an instrument of change/development in individual in groups.

Semester II - SW010205: Social Work Research and Statistics

At the end of the course on ***Social Work Research and Statistics,*** the students will be able to: -

CO1: **Describe** Social research as a method of social work and to develop the appropriateskills to effectively implement the research methods and techniques in the field.

CO2: **Design** research proposals.

CO3: **Decide** upon an appropriate statistical tool for analysis in socialwork research.

CO4: **Evaluate** different methodological approaches within qualitative research.

Semester III - SW010301: Planning and Implementation of Development Projects

At the end of the course on ***Planning and Implementation of Development Projects,*** the students will be able to: -

CO1: **Detail** the nature, approaches and strategies of development projects.

CO2: **Explain** the changing trends in participatory programme planningapproach in Government and NGOs.

CO3: **Demonstrate** skills to handle various phases of development projects.

CO4: **Formulate** the concepts of financial management of a project.

Semester III - SW010302: Administration of Human Service Organizations

At the end of the course on ***Administration of Human Service Organizations***, the students will be able to: -

CO1: **Generalize** the evolution of administration as a science and as a method in SocialWork Practice.

CO2: **Describe** and **appreciate** the utility of the administrative structures, processes andprocedures in an organization.

CO3: **Use** different management techniques in Human Service Organizations.

CO4: **Document** the elements of management and **illustrate** concepts in organizational management.

Semester III - SW800301: Urban and Rural Community

At the end of the course on ***Urban and Rural Community,*** the students will be able to: -

CO1: **Differentiate** between rural and urban community development and the strategies and approaches for Rural & Urban Development.

CO2: **Identify** the problems and issues of People in Rural/Urban/ Tribal/Costal settings in India and the various Governmental programmes and interventions in these settings.

CO3: **Prepare** a report on the functioning of rural and urban local self-government (LSG) and cooperative institutions and their contribution towards Rural and Urban Development.

CO4: **Synthesize** the role of Civil Society and NGOS in Rural and Urban Development.

Semester III - SW800302: Environment and Disaster Management

At the end of the course on ***Environment and Disaster Management,*** the students will be able to: -

CO1: **Compile** fundamental concepts related to the environment, ecosystems, and the factors contributing to environmental degradation.

CO2: **Develop** perspective about the inter relatedness of human life and environment.in Government and NGOs.

CO3: **Formulate** problems arising out of environmental degradation andglobalization.

CO4: **Summarise** social work practice in tackling environmental issues and disastermanagement.

Semester III - SW800303: Community Health for Development Practice

At the end of the course on ***Community Health for Development Practice,*** the students will be able to: -

CO1: **Develop** the concept of health and integrated approach to health in the context ofDevelopment.

CO2: **Analyse** plans and policies/services in health and implications for social workpractice.

CO3: **Demonstrate** the concepts of Community Health, community participation, vitalindicators and demographic data of health.

CO4: **Develop** skills for intervention in community health sector.

Semester III - SW810301: Social Work Practice with Families

At the end of the course on ***Social Work Practice with Families,*** the students will be able to: -

CO1: **Employ** the theoretical foundations of family systems theory and their relevance to social work practice.

CO2: **Demonstrate** the strengths and weaknesses of families in diverse cultural and socioeconomic contexts.

CO3: **Identify** and **analyse** the impact of social, economic, and environmental factors on families and their functioning.

CO4: **Describe** effective communication and interpersonal skills when engaging with families in crisis or in need of support.

Semester III - SW810302: Policies and Programmes for Children and Youth

At the end of the course on ***Policies and Programmes for Children and Youth,*** the students will be able to: -

CO1: **Analyse** the impact of social, economic, cultural, and political factors on the formulation and implementation of policies and programs for children and youth.

CO2: **Identify** and **analyze** disparities and inequalities in access to and outcomes of policies and programs for different groups of children and youth, considering issues such as race, gender, socioeconomic status, and disability.

CO3: **Develop** critical thinking and problem-solving skills to address contemporary challenges facing children and youth, such as mental health, substance abuse, bullying, and internet safety.

CO4: **Discover** interdisciplinary collaboration and partnership building to promote holistic and integrated approaches to child and youth well-being.

Semester III - SW810303: Population dynamics and Reproductive and Child Health

At the end of the course on ***Population dynamics and Reproductive and Child Health,*** the students will be able to: -

CO1: **Interpret** the impact of population dynamics on maternal and child health outcomes, including maternal mortality, child mortality, and access to healthcare services.

CO2: **Relate** the role of gender, equity, and human rights in reproductive and child health, including issues related to gender-based violence, female empowerment, and access to healthcare.

CO3: **Explain** effectively and advocate for the importance of reproductive and child health in improving overall population well-being.

CO4: **Demonstrate** evidence-based practices and interventions in the field of reproductive and child health.

Semester III - SW820301: Clinical Assessment and Diagnosis of Psychiatric Disorders

At the end of the course on ***Clinical Assessment and Diagnosis of Psychiatric Disorders,*** the students will be able to: -

CO1: **Describe** the evolution of psychiatry and attitude towards mental illness.

CO2: **Demonstrate** skills of assessment in mental health settings.

CO3: **Develop** the nature, causes, types and treatment of mental health disorders in children, adolescents and adults.

CO4: **Summarize** Socio-Cultural Factors influencing mental health.

Semester III - SW820302: Social Work in the Field of Health

At the end of the course on ***Social Work in the Field of Health,*** the students will be able to: -

CO1: **Classify** and **analyse** different health problems in India.

CO2: **Evaluate** the scope of social work methods in medical settings.

CO3: **Demonstrate** interventions in medical social work practice.

CO4: **Appraise** the role and functions of a medical social worker in various settings.

Semester III - SW820303: Health Care Administration and Community Health

At the end of the course on ***Health Care Administration and Community Health,*** the students will be able to: -

CO1: **Demonstrate** the on concepts of Community Health, community participation, vitalindicators and demographic data of the Social Legislation and Human Rights.

CO2: **Reproduce** and **identify** from the Indian Constitution with particular emphasis on theFundamental Rights and Directive Principles.

CO3: **Explain** salient features of legislations for family, women, children and other marginalizedgroups.

CO4: **Identify** the skills of using legal procedures to defend the human rights of variousmarginalized groups

Semester IV - SW010401: Social Legislation and Human Rights

At the end of the course on ***Social Legislation and Human Rights,*** the students will be able to: -

CO1: **Evaluate** the effectiveness of different legal mechanisms, enforcement agencies, and dispute resolution systems in upholding human rights within the context of social legislation.

CO2: **Judge** the impact of social legislation on marginalized and vulnerable populations and assess the extent to which it safeguards their human rights.

CO3: **Illustrate** the role of social legislation in addressing inequalities and disparities within societies, including issues related to gender, race, disability, and socioeconomic status.

CO4: **Analyze** the key principles and concepts underpinning human rights, including civil, political, economic, social, and cultural rights.

Semester IV - SW010402: Gerontological Social Work

At the end of the course on ***Gerontological Social Work,*** the students will be able to: -

CO1: **Describe** the concept of gerontology and approaches to ageing.

CO2: **Analyze** policies and programmes for elderly in India.

CO3: **Explain** the role of social legislation in addressing inequalities and disparities within societies, including issues related to gender, race, disability, and socioeconomic status.

CO4: **Organize** and **analyze** institutional and non-institutional services for elderly.

Semester IV - SW800401: Human Resource Management for Development Practice Course

At the end of the course on ***Human Resource Management for Development Practice Course,*** the students will be able to: -

CO1: **Classify** the strategic issues and organizational challenges in Human Resource Management.

CO2: **Acquire** relevant management competencies, capabilities in HR management.

CO3: **Employ** different strategies and approaches commonly adopted in Development Practice.

CO4: **Appreciate** the issues of managing changes in Human Resource Management.

Semester IV - SW800402: Economic Development: Theory and Practice

At the end of the course on ***Economic Development: Theory and Practice,*** the students will be able to: -

CO1: **Apply** appropriate strategies and models in their development practice.

CO2: **Demonstrate** to quantify the development outcomes for strategic development planning.

CO3: **Generate** critical perspectives on various dimensions of development.

CO4: **Derive** new strategies and models for achieving sustainable development goals.

Semester IV - SW810401: Therapeutic Interventions in the field of Family and Child Welfare

At the end of the course on ***Therapeutic Interventions in the Field of Family and Child Welfare,*** the students will be able to: -

CO1: **Classify** the theoretical foundations of therapeutic interventions in family and child welfare, including family systems theory, attachment theory, and trauma-informed care.

CO2: **Analyze** the impact of family dynamics, adverse childhood experiences, and environmental factors on the well-being of children and families.

CO3: **Develop** skills in conducting comprehensive assessments of children and families to identify their needs, strengths, and challenges.

Semester IV - SW810402: Social Work in Education

At the end of the course on ***Social Work in Education,*** the students will be able to:

CO1: **Analyze** the impact of social, economic, and cultural factors on students' well-being and academic success.

CO2: **Develop** skills in conducting assessments of students' social and emotional needs, as well as their family and community context.

CO3: **Explore** strategies for addressing issues such as bullying, substance abuse, mental health, special education, and family dynamics within the educational context.

CO4: **Demonstrate** the development and implementation of individualized support plans and interventions for students, including those with special needs.

Semester IV - SW820401: Social Work Interventions in the Field of Mental Health

At the end of the course on ***Social Work Interventions in the Field of Mental Health,*** the students will be able to:

CO1: **Analyze** the social, cultural, and environmental factors that contribute to mental health issues and disparities in access to mental health services.

CO2: **Explore** the legal and ethical considerations in providing mental health services, including issues of confidentiality, informed consent, and mandated reporting.

CO3: **Outline** the importance of interdisciplinary collaboration with mental health professionals, such as psychologists, psychiatrists, and healthcare providers, to provide holistic care.

CO4: **Develop** the ability to create individualized treatment plans, goals, and interventions for clients with mental health challenges.

Semester IV - SW820402: School Mental Health and Social Work Practice

At the end of the course on ***School Mental Health and Social Work Practice,*** the students will be able to:

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CO1: **Develop** the history of social work in schools.

CO2: **Demonstrate** skills to work in educational settings.

CO3: **Appraise** life skills education.

CO4: **Derive** multiple levels and systems operating to define schools and ways social workers can effectively practice at these various levels and within these systems.

Department of Physics

Name of the courses offered by Department: B.Sc. Physics

Programme Outcomes – Domain Specific (PSO)

At the end of the ***UG Programme in Physics***, the students will be able to: -

PO1: **Strong Fundamentals in Electronics and Physics**

Graduates will have a solid grasp of electronics, including analog and digital circuits, semiconductor devices, and their practical applications, along with a comprehensive understanding of fundamental physics principles.

PO2: **Practical Problem Solving**

Students will be skilled in applying theoretical knowledge to analyze and design electronic systems, as well as solve real-world engineering challenges effectively, fostering critical thinking and hands-on problem-solving.

PO3: **Advanced Technology Proficiency**

Graduates will proficiently use cutting-edge tools and software relevant to electronics and physics, aligning with the National Education Policy's focus on high-tech education.

PO4: **Laboratory Expertise**

Students will gain practical experience in experimental techniques, using modern equipment to support theoretical concepts, and interpret data, enhancing their practical laboratory skills.

PO5: Global Competence:

Graduates will be prepared for the competitive global job market, equipped with the knowledge and skills to excel in fields such as physics, electronics, research, and related industries, all while adhering to strong ethical and value-based principles.

Domain Independent Outcomes (PO)

At the end of the ***UG programme in Physics***, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and **commit** to professional ethics and responsibilities and norms relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Course Outcomes (CO)

Semester I - PH1CRT01: Methodology and Perspectives of Physics

At the end of the course on ***Methodology and Perspectives of Physics***, the students will be able to: -

CO1: **Recall** the historical development of physics and the contributions of prominent scientists such as Galileo, Newton, Einstein, J.J. Thomson, Curies, Rayleigh, Max Planck, Heisenberg, and Schrödinger.

CO2: **Demonstrate** the significance of different coordinate systems in solving physics problems.

CO3: **Use** vector analysis in solving physics problems involving forces, fields, and motion.

CO4: **Contrast t**he different number systems and their relevance in various applications.

CO5: **Evaluate** experimental data and **identify** the sources of error to improve measurement accuracy.

Semester I - AE1VOT01: Principles of Electronic Components

At the end of the course on ***Principles of Electronic Components***, the students will be able to: -

CO1: **Summarize** the functioning and applications of LED and LCD display devices.

CO2: **Differentiate** transformers based on their frequency response.

CO3: **Examine** the effectiveness of different types of switches, fuses and relays for specific circuit requirements.

CO4: **Assess** the suitability of resistors, inductors, capacitors, transformers, switches, and relays for specific electronic applications.

CO5: **Design** and **construct** electronic circuits using various types of resistors, inductors, capacitors, and transformers.

Semester I - AE1VOT02: Electronic Applications

At the end of the course on ***Electronic Applications***, the students will be able to: -

CO1: **Apply** the working of different measuring instruments to perform electronic measurements and troubleshoot circuits.

CO2: **Use** time base circuits for signal analysis.

CO3: **Differentiate** transducers based on their sensitivity, accuracy, and application suitability.

CO4: **Justify** the advantages of optical recording.

CO5: **Design** and fabricate PCBs using suitable techniques and ensure reliable solder joints for electronic circuits.

Semester I - PH2CRP01: Mechanics and Properties of Matter

At the end of the course on ***Mechanics and Properties of Matter***, the students will be able to: -

CO1: **Remember** the concepts of simple harmonic motion, harmonic oscillator, and the energy of a harmonic oscillator.

CO2: **Apply** the concepts of angular velocity, angular acceleration, and moment of inertia to analyze rotational motion.

CO3: **Examine** the factors affecting surface tension and their applications in fluid dynamics.

CO4: **Appraise** experiments to determine the rigidity modulus using static and dynamic methods.

CO5: **Create** solutions for problems related to elasticity and bending of beams.

Semester II - AE2VOT03: Basics of Power Electronics

At the end of the course on ***Basics of Power Electronics***, the students will be able to: -

CO1: **Differentiate** FETs, such as JFET and MOSFET.

CO2: **Use** the concepts of FET characteristics to analyze and design FET-based circuits.

CO3: **Analyze** the drain characteristics and transfer characteristics of JFET to determine its behavior.

CO4: **Justify** the effectiveness of biasing techniques in setting the Q-Point and stabilizing FET amplifiers.

CO5: **Construct** FET-based circuits and amplifiers for specific applications, considering different FET types and biasing methods.

Semester II - AE2VOT04: Power Electronics

At the end of the course on ***Power Electronics***, the students will be able to: -

CO1: **Identify** the operation and equivalent circuit of SCR and other thyristors.

CO2: **Explain** operation and characteristics of SCS, SUS, SBS, and SAS devices.

CO3: **Analyze** the V-I characteristics of SCR and other thyristors to determine their operating regions.

CO4: **Critique** the different types of controlled rectifiers for specific power control needs.

CO5: **Create** relaxation oscillator circuits using UJT for specific frequency requirements.

Semester II - PH3CRT03: Optics, Laser and Fiber Optics

At the end of the course on ***Optics, Laser and Fiber Optics***, the students will be able to: -

CO1: **Reproduce** the basic concepts of interference, including conditions for interference and Young's double-slit experiment.

CO2: **Summarize** the principles of light propagation in optical fibers and the advantages of fiber-optic communication.

CO3: **Compare** the polarization properties of different optical materials and the behavior of polarized light in different configurations

CO4: **Examine** diffraction patterns and grating characteristics to calculate the resolving power and dispersive power of diffraction elements.

CO5: **Analyze** the interference patterns and thin films interference to determine properties of the materials involved.

Semester III - AE3VOT05: Microprocessor and Interfacing Devices

At the end of the course on ***Micro Processor and Interfacing Devices***, the students will be able to: -

CO1: **Appraise** the functioning of the Intel 8085 microprocessor and its data transfer schemes.

CO2: **Use** in a new situation the Intel 8085 instruction set to write programs for data transfer, arithmetic operations, branching, and looping.

CO3: **Analyze** the timing diagram and instruction cycle of the Intel 8085 microprocessor for different instructions.

CO4: **Contrast** applications of programmable peripheral devices, such as Intel 8255 and Intel 8257.

CO5: **Originate** programs for complex tasks using the Intel 8085 instruction set and addressing modes.

Semester III - AE3VOT06: Communication Electronics

At the end of the course on ***Communication Electronics***, the students will be able to: -

CO1: **Analyse** the principles of radio wave propagation, including ground waves, sky waves, and space waves.

CO2: **Summarize** the need for modulation in communication systems and the different types of modulation techniques.

CO3: **Assess** the operation of wave detectors for detecting AM and FM signals.

CO4: **Appraise** different communication systems, such as satellite communication, microwave communication, and cellular mobile communication.

CO5: **Construct** modulation circuits to generate AM and FM signals with specific modulation index values.

Semester IV - PH4CRT04: Semiconductor Physics

At the end of the course on ***Semiconductor Physics***, the students will be able to: -

CO1: **Assess** the working principles of different transistor configurations and their use as amplifiers.

CO2: **Apply** the knowledge of transistor configurations to analyze and design amplifiers with specific gain and frequency characteristics.

CO3: **Apply** the knowledge of modulation techniques to understand and analyze communication systems.

CO4: **Analyze** the operation and characteristics of operational amplifiers in different amplifier circuits.

CO5: **Design** and **construct** rectification, filtering and feedback circuits specific applications.

Semester IV - AE4VOT07: Linear Integrated Circuits

At the end of the course on ***Linear Integrated Circuits***, the students will be able to: -

CO1: **Describe** the functioning of active filters, including low-pass, high-pass, band-pass, and notch filters.

CO2: **Explain** the operation of IC timer (555) in various modes, such as monostable, astable, bistable, and Schmitt trigger configurations.

CO3: **Apply** the knowledge of op-amp circuits to design and **analyze** various applications like audio amplifiers, filters, and oscillators.

CO4: **Assess** the effectiveness of using op-amp circuits in specific applications based on their performance and characteristics.

CO5: **Create** and **implement** IC timer (555) based circuits for different timing functions and oscillators.

Semester IV - AE4VOT08: Applications of Microprocessors

At the end of the course on ***Applications of Microprocessors***, the students will be able to: -

CO1: **List** the basic features and differences between microprocessors and microcontrollers

CO2: **Infer** the components and functioning of the 8051 microcontroller, including its oscillator, CPU registers, flags, memory, and input/output pins.

CO3: **Apply** the understanding of 8051 microcontroller architecture to program and control its various components, such as timers, interrupts, and input/output ports.

CO4: **Compare** the features and capabilities of different microcontrollers and select the most suitable one for specific tasks.

CO5: **Design** and **implement** control systems and signal generation circuits using Intel 8085 microprocessor for specific applications.

Semester V -PH5CRT05: Electricity and Electrodynamics

At the end of the course on ***Electricity and Electrodynamics***, the students will be able to: -

CO1: **Explain** Maxwell's equations, continuity equations, and Poynting's theorem, and their significance in describing electromagnetic wave propagation.

CO2: **Apply** Gauss's law and boundary conditions to calculate electric fields and apply Biot-Savart law and Amperes' law to calculate magnetic fields for different current distributions.

CO3: **Analyze** the behavior of electromagnetic waves in vacuum and their energy.

CO4: **Evaluate** the significance of wattless current, choke coils, and transformers on no load in AC circuits.

CO5: **Design** and **construct** complex electrical circuits using network theorems and AC elements.

Semester V - PH5CRT06: Classical and Quantum Mechanics

At the end of the course on ***Classical and Quantum Mechanics***, the students will be able to: -

CO1: **Recall** the general formalism of quantum mechanics, including eigenfunctions, eigenvalues, Hermitian operators, and the postulates of quantum mechanics.

CO2: **Examine** the physical interpretations of wave functions, probability density, and probability current density in quantum mechanics.

CO3: **Analyze** the properties and solutions of one-dimensional Schrödinger equation, particularly for a particle in a box.

CO4: **Justify** the role of Planck's radiation law, the photoelectric effect, and the De Broglie hypothesis in the development of quantum theory.

CO5: **Appraise** the applicability of Lagrangian and Hamiltonian approaches in classical mechanics for various systems, and their advantages over other methods.

Semester V - PH5CRT07: Digital Electronics and Programming

At the end of the course on ***Digital Electronics and Programming***, the students will be able to: -

CO1: **List** the rules and laws of Boolean algebra, including the duality theorem and **apply** De Morgan's theorems.

CO2: **Deduce** the concepts of counters, including binary ripple counters, and their applications in sequential logic. **Determine** the functionality and behavior of different types of flip-flops (RS, JK, D, T) and registers.

CO3: **Apply** combinational logic to design and implement half adders, full adders, half subtractors, full subtractors, multiplexers, demultiplexers, encoders, and decoders.

CO4: **Analyze** and **compare** different logic gates and understand their application in digital circuits.

CO5: **Create** programs in C++ to solve real-world problems, demonstrating the use of conditional statements, loops, arrays, and functions.

Semester V - PH5CRT08: Environmental Physics and Human Rights

At the end of the course on ***Environmental Physics and Human Rights***, the students will be able to: -

CO1: **Apply** the principles of human rights to address issues related to gender equality, minority rights, and human rights awareness.

CO2: **Evaluate** the merits and demerits of different non-renewable and renewable energy sources in the context of sustainable development.

CO3: **Evaluate** the effectiveness of human rights awareness initiatives in promoting human rights education and advocacy.

CO4: **Evaluate** the impact of environmental pollution on human health and the environment.

CO5: **Design** and **propose** strategies for sustainable water resource management and rainwater harvesting.

Semester V - PH5OPT02: Physics in Daily Life

At the end of the course on ***Physics in Daily Life***, the students will be able to: -

CO1: **Name** the characteristics of stars, galaxies, and black holes in the universe.

CO2: **Appraise** the principles of light, motion, electricity, matter and energy, and the universe. **Assess** the implications of these principles for our everyday lives.

CO3: **Use** the principles of physics to explain natural phenomena.

CO4: **Analyze** the implications of different natural phenomena for our understanding of the universe. **Analyze** the behavior of light through various optical devices, such as mirrors, lenses, and prisms.

CO5: **Analyze** the characteristics and properties of electromagnetic waves and their applications in technology.

Semester VI - PH6CRT09: Thermal and Statistical Physics

At the end of the course on ***Thermal and Statistical Physics***, the students will be able to: -

CO1: **Define** the basic concepts of thermodynamics, such as the equation of state for gases, the zeroth law of thermodynamics, the first laws of thermodynamics, heat engines, the second law of thermodynamics, entropy, thermodynamic relations, conduction, and radiation.

CO2: **Describe** the principles of thermodynamics, the second law of thermodynamics, and the concept of entropy. Understand the different ways in which thermodynamics is used in technology.

CO3: **Use** the principles of thermodynamics to explain natural phenomena.

CO4: **Analyze** the advantages and disadvantages of different thermodynamic processes. Analyze the implications of different natural phenomena for our understanding of the physical world.

CO5: **Evaluate** the impact of thermodynamics on our understanding of the physical world.

Semester VI - PH6CRT10: Relativity and Spectroscopy

At the end of the course on ***Communication Electronics***, the students will be able to: -

CO1: **Identify** the different types of spectra and their applications. Describe the different types of energy levels in atoms and molecules.

CO2: **Describe** the principles of relativity, atomic spectroscopy, molecular spectroscopy, and NMR and ESR spectroscopy. Understand the different ways in which these concepts of spectroscopy are used in technology.

CO3: **Use** the principles of relativity, atomic spectroscopy, molecular spectroscopy, and NMR and ESR spectroscopy to explain natural phenomena.

CO4: **Analyze** the fine structure of Sodium D lines and explain the quantum mechanical reasoning for the anomalous Zeeman effect and the Paschen-Back effect.

CO5: **Create** connections between the postulates of the Special Theory of Relativity and its consequences on time, space, and energy, to form a coherent understanding of relativistic phenomena.

Semester VI - PH6CRT11: Nuclear, Particle Physics and Astrophysics

At the end of the course on ***Nuclear, Particle Physics and Astrophysics***, the students will be able to: -

CO1: **Identify** the different types of nuclear particles and their properties. **Describe** the different types of nuclear reactions and their products.

CO2: **Evaluate** the implications of nuclear physics, particle physics, and astrophysics principles for our understanding of the universe.

CO3: **Analyze** the process of radioactive decay, including alpha, beta, and gamma decays, and calculate half-life and decay constants for radioactive isotopes.

CO4: **Evaluate** the hazards associated with nuclear radiation and **assess** the principles of radiometric dating and its application in determining the age of materials using radioactive isotopes.

CO5: **Create** a detailed analysis of astrophysical concepts, including the classification of stars, the Hertzsprung-Russell diagram, and stellar evolution leading to white dwarfs, neutron stars, and black holes.

Semester VI - PH6CRT12: Solid State Physics

At the end of the course on ***Solid State Physics***, the students will be able to: -

CO1: **Define** polarization and susceptibility in dielectric materials, recognize magnetic materials based on their response to a magnetic field.

CO2: **Explain** the structures of simple crystal structures such as hcp, fcc, bcc, and simple cubic.

CO3: **Analyze** the properties of Fermi level to differentiate between metals, insulators, and semiconductors based on band theory.

CO4: **Integrate** understanding of superconductivity, Meissner effect, critical temperature, and the BCS theory to explain the occurrence of superconducting materials.

CO5: **Evaluate** the response of materials to magnetic fields and classify magnetic materials as diamagnetic, paramagnetic, ferromagnetic, antiferromagnetic, and ferrimagnetic, based on Langevin's classical theory and Weiss theory.

Department: Chemistry

Name of the courses offered by Department: B.Sc. Chemistry

Programme Outcomes - Domain Specific (PSO)

At the end of the UG Programme in Chemistry the students will be able to: -

PO1: Solving Ability

Read, understand and interpret chemical information-verbal, mathematical, physical and graphical. The students are equipped to think critically by asking questions on the fundamental concepts in Chemistry.

PO2: Scientific Temper and Social Development

To create men and women free from superstitions with scientific vigilance. Make the students socially responsible by giving awareness regarding the role of chemistry in social development. Making them actively participating in discussions about the destructive possibilities of science.

PO3: Research Culture

Acquire a foundation of chemistry of sufficient breadth and depth in research methodology.

PO4: Analysis Ability

Perform experiments and interprets the results of observation. It will help the students to be efficiently participate in academic as well as industrial organizations.

PO5: Green Approach

To give the importance of green chemistry and educating them to utilize resources in a green method by limiting the use of organic solvents, hazardous chemicals etc.

Programme Outcomes - Domain Independent Outcomes (PO)

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Course Outcomes (CO)

Semester 1 - CH1CRT01: General and Analytical Chemistry

At the end of the course on ***General and Analytical Chemistry***, the students will be able to:

CO1: **Develop** the scientific aptitude and critical thinking.

CO2: **Explain** fundamental idea regarding the elements of chemistry and periodic properties of atoms.

CO3: **Implement** scientific skills, observation, interpretation and evaluation of chemical analysis.

CO4: **Employ** basic statistical tools for analyzing data.

Semester II - CH2CRT02: Theoretical and Inorganic Chemistry

At the end of the course on ***Theoretical and Inorganic Chemistry***, the students will be able to:

CO1: **Relate** atomic structure, electronic configuration and their governing rules.

CO2: **Explain** the formation of different types of bonds and the various hybridization types.

CO3: **Describe** Molecular Orbital theory of bonding, hydrogen bonding and their applications.

CO4: **Recognize** the periodic properties of s and p block elements.

CO5: **Compare** the properties and applications of transition metals and lanthanides.

Semester I and II: Core Practical CH2CRP01- Volumetric Analysis

At the end of the course on ***Volumetric Analysis***, the students will be able to:

CO1: **Generate** standard solution.

CO2: **Differentiate** neutralization titrations- acidimetry and alkalimetry.

CO3: **Compare** complexometric titrations and redox titration.

CO4: **Interpret** different end points in volumetric analysis.

Semester III - CH3CRT03: Organic Chemistry - I

At the end of the course on ***Organic Chemistry - I***, the students will be able to:

CO1: **Generalize** naming of organic compounds based on IUPAC system and develop an idea about fundamentals of Organic Chemistry.

CO2: **Analyze** Optical isomerism and Geometrical isomerism with conformational Analysis.

CO3: **Differentiate** the reactions of alkanes, alkenes, alkynes, and alkyl halides.

CO4: **Identify** the aromaticity in benzenoid hydrocarbons and aryl halides.

CO5: **Summarize** basic idea of different pericyclic reactions.

Semester IV - CH4CRT04: Organic Chemistry - II

At the end of the course on ***Organic Chemistry - II***, the students will be able to:

CO1: **Differentiate** the Chemistry of alcohols, phenols, ethers, and epoxides.

CO2: **Summarize** the reactions and rearrangements of carbonyl compounds.

CO3: **Describe** the methods of preparation of Carboxylic Acids, Sulphonic Acids and their Derivatives and **evaluate** their reactions.

Semester III and IV - CH4CRP02: Qualitative Organic Analysis

At the end of the course on ***Qualitative Organic Analysis***, the students will be able to:

CO1: **Create** the skills for qualitative organic analysis.

CO2: **Estimate** presence of nitrogen, halogens, sulphur, unsaturation, and aromatic character in organic compounds.

CO3: **Prepare** derivatives of different organic compounds.

CO4: **Test** the physical constants of organic solids and liquids.

Semester V - CH5CRT05: Theoretical and Inorganic Chemistry

At the end of the course on ***Theoretical and Inorganic Chemistry***, the students will be able to:

CO1: **Interpret** fragility and sensitivity of environment in particular the biosphere and the importance of its protection.

CO2: **Recognize** the harmful effects of pollution, find solutions and foster a sense of social responsibility.

CO3: **Evaluate** population explosion, related problems and outline various environmental movements.

CO4: **Hypothise** the causes of ecological stress posed upon ecosystems by the presence of various chemicals and create an awareness of human rights.

Semester V - CH5CRT06: Organic Chemistry- III

At the end of the course on ***Organic Chemistry- III***, the students will be able to:

CO1: **Differentiate** preparation and reactions of various nitrogen containing compounds like

aromatic and aliphatic amines diazonium salts.

CO2: **Compare** various heterocyclic compounds and their synthetic applications.

CO3: **Explain** the preparation and reactions of active methylene compounds used in the synthesis of various industrially significant compounds.

CO4: **Organize** the structure, reactivity and biological importance of carbohydrates.

CO5: **Generate** awareness of Drugs dyes, Polymers and applications.

Semester V - CH5CRT07: Physical Chemistry - I

At the end of the course on ***Physical Chemistry - I***, the students will be able to:

CO1: **Generalize** kinetic theory of gases and application of kinetic gas equation.

CO2: **Interpret** basic idea about Maxwell distribution of molecular velocities.

CO3: **Compare** the intermolecular forces in gases, liquids and solids.

CO4: **Extrapolate** the basic concepts of crystallography.

CO5: **Summarize** different absorption theories and properties of colloids.

Semester V - CH5CRT08: Physical Chemistry- II

At the end of the course on ***Physical Chemistry- II***, the students will be able to:

CO1: **Compare** fundamentals of classical and quantum mechanics.

CO2: **Interpret** the applications of quantum mechanics to various systems.

CO3: **Differentiate** valence bond and molecular orbital theory.

CO4: **Relate** the principle and applications of microwave, IR, NMR, ESR and Raman spectroscopy.

Semester V - CH5OPT01: Chemistry in Everyday Life [Open Course]

At the end of the course on ***Chemistry in Everyday Life [Open Course]***, the students will be able to:

CO1: **Differentiate** the different classes of food additives like preservatives, flavours, sweetners, emulsifying agents, antioxidants and leavening agents.

CO2: **Compare** Soaps and detergents, their differences in action and environmental impact.

CO3: **List** cosmetics to get an awareness about the damages that cosmetics can do to human body.

CO4: **Summarize** plastics, paper and dyes and the environmental aspects of their uses.

CO5 **Interpret** drugs, structure, their therapeutic uses, and mode of action and abuse.

CO6: **Explain** the effect of Chemistry on agriculture.

CO7: **Create** awareness of nanomaterials among students.

Semester VI - CH6CRT09: Inorganic Chemistry

At the end of the course on ***Inorganic Chemistry***, the students will be able to:

CO1: **Generalize** the classification, structural aspects and isomerization of coordination compounds.

CO2: **Compare** Valence bond theory and Crystal field theory and enable the students to interpret the splitting pattern of tetrahedral and octahedral complexes.

CO3: **Interpret** SN1 and SN2 reactions and their mechanisms.

CO4: **Summarize** the classification, properties and applications of organometallic compounds along with bioinorganic Chemistry.

CO5: **Relate** Boron compounds, Interhalogen and noble gas compounds with their applications.

Semester VI - CH6CRT10: Organic Chemistry - IV

At the end of the course on ***Organic Chemistry - IV***, the students will be able to:

CO1: **Differentiate** Chemistry of natural products like terpenoids and alkaloids.

CO2: **Infer** the Chemistry and mode of action of soaps and detergents,

CO3: **Compare** the fundamentals of fats and oils, vitamins, lipids, hormones and steroids

CO4: **Generalize** the structure and functions of enzymes, aminoacids, proteins and nucleic acids.

CO5: **Interpret** the fundamentals of rotational, vibrational, NMR and mass spectrometry with suitable examples.

Semester VI - CH6CRT11: Physical Chemistry - III

At the end of the course on ***Physical Chemistry - III***, the students will be able to:

CO1: **Generalize** basic concepts of thermodynamics.

CO2: **Compare** first law, second law and third law of thermodynamics in detail.

CO3: **Explain** the Law of mass action and differentiate between chemical equilibria, Ionic equilibria and phase equilibria.

CO4: **Evaluate** the direction of a chemical reaction.

Semester VI - CH6CRT12: Physical Chemistry - IV

At the end of the course on ***Physical Chemistry - IV***, the students will be able to:

CO1: **Differentiate** mechanism of electrical conductance, theories of electrical conductance, and coductometric titrations.

CO2: **Design** different types of electro chemical cell and able to calculate its potential.

CO3: **Interpret** with electro analytical methods and corrosion of metals.

CO4: **Generalize** basic principles of Photochemistry and Group Theory.

Semester VI - CH6CBT01: Polymer Chemistry

At the end of the course on ***Polymer Chemistry***, the students will be able to:

CO1: **Generalize** polymers and explain the configuration of polymers and properties like glass transition temperature and melting point of polymers.

CO2: **Formulate** preparation, properties and applications of polymers.

CO3: **Interpret** the mechanism of polymerization.

CO4: **Find** various polymer processing technologies and explain thermal methods of analysis of polymers.

CO5: **Create** the recent advances in Polymer Chemistry.

Semester VI - CH6CRP03: Qualitative Inorganic Analysis

At the end of the course on ***Qualitative Inorganic Analysis***, the students will be able to:

CO1: **Apply** the theoretical concepts while performing experiments.

CO2: **Analyze** the anions and cations qualitatively present in a mixture of inorganic salts.

CO3: **Analyze** the results of chemical experiments.

CO4: **Judge** the effective usage of chemicals among students.

Semester VI - CH6CRP04: Organic Preparations and Laboratory Techniques

At the end of the course on ***Organic Preparations and Laboratory Techniques***, the students will be able to:

CO1: **Apply** the theoretical concepts while performing experiments.

CO2: **Relate** practical skill in preparing organic compounds and in their purification by crystallization.

CO3: **Create** the habit of working safely with the chemicals and handling of equipment.

CO4: **Arrange** Chromatographic techniques that will enable the students to develop the skills to purify impure organic compounds.

Semester VI - CH6CRP05: Physical Chemistry Practical

At the end of the course on ***Physical Chemistry Practical***, the students will be able to:

CO1: **Generate** practical skill in physical chemistry experiments such as Cryoscopy, Transition Experiments, Phase Rule Experiments, Conductometric titrations, Potentiometric titrations, colorimetry and Chemical Kinetics.

CO2: **Organize** experiments in a skillful manner.

Semester VI - CH6CRP06: Gravimetric Analysis

At the end of the course on **Gravimetric Analysis**, the students will be able to:

CO1: **Formulate** standardized procedures for the Gravimetric analysis.

CO2: **Retrieve** the skills of Precipitation process, digestion, filtration, incineration etc.

CO3: **Analyze** the results of chemical experiments.

Department: M.Sc. Chemistry

Programme Outcomes - Domain Specific (PSO)

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Programme Outcomes - Domain Independent Outcomes (PO)

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Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

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Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

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Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Course Outcomes (CO)

Semester I - CH500101: Organometallics and Nuclear Chemistry

At the end of the course on ***Organometallics and Nuclear Chemistry***, the students will be able to:

CO1: **Differentiate** the structure, synthesis and reactions of commonly known.

CO2: **Generalize** the important applications of organometallic compounds in catalysis.

CO3: **Compile** the important aspects of organometallic polymers.

CO4: **Organize** the functions and applications of bioorganic compounds.

CO5: **Chart** a basic idea about nuclear Chemistry and its applications.

Semester I - CH500102: Structural and Molecular Organic Chemistry

At the end of the course on ***Structural and Molecular Organic Chemistry***, the students will be able to:

CO1: **Generalize** the basic concepts and mechanism in Organic Chemistry.

CO2: **Compile** the various kinetic and thermodynamic factors which control the organic reactions.

CO3: **Compare** stereochemistry and various possible conformations of organic compounds and how it affects the reaction outcome.

CO4: **Familiarize** with the important photochemical reactions in Organic Chemistry.

Semester I - CH500103: Quantum chemistry and Group Theory

At the end of the course on ***Quantum chemistry and Group Theory***, the students will be able to:

CO1: **Differentiate** the basic postulates of quantum mechanics.

CO2: **Develop** simple quantum mechanical models such as simple harmonic oscillator, particle in a 1D-box, rigid rotor, H atom etc.

CO3: **Compile** the quantum mechanical aspect of angular momentum and spin.

CO4: **Predict** the point group of important molecules and correlate their classified.

CO5: **Differentiate** space groups and to learn the theory of molecular symmetry.

CO6: **Apply** group theory to vibrational and electronic spectroscopy.

Semester I - CH500104: Thermodynamics, Kinetic Theory and Statistical Thermodynamics

At the end of the course on ***Thermodynamics, Kinetic Theory and Statistical Thermodynamics***, the students will be able to:

CO1: **Differentiate** the basic concepts in classical thermodynamics and to learn the thermodynamic aspects of various processes.

CO2: **Compile** the different aspects of statistical thermodynamics and its applications.

Semester II - CH500201: Coordination Chemistry

At the end of the course on ***Coordination Chemistry***, the students will be able to:

CO1: **Relate** the structure and bonding of important coordination compounds.

CO2: **Compare** the magnetic properties of complexes and to know how Magnetic moments can be employed for the interpretation of their structure.

CO3: **Generalize** overview about the stereochemistry of coordination compounds.

CO4: **Differentiate** the reaction mechanisms of metal complexes.

CO5: **Construct** structure of metal complexes using various spectroscopic methods.

CO6: **Compare** the basic coordination chemistry of Lanthanides and Actinides.

Semester II - CH500202: Organic Reaction Mechanism

At the end of the course on ***Organic Reaction Mechanism***, the students will be able to:

CO1: **Familiarize** with the mechanism of organic reactions and different factors which affect the reaction rate.

CO2: **Differentiate** the role of various reaction intermediates like carbanion, carbocation, carbenes, radicals etc. in organic reactions.

CO3: **Generalize** the chemistry of carbonyl compounds.

CO4: **Compare** the different types of concerted reactions in organic chemistry and orbital correlation approaches.

Semester II - CH500203: Chemical Bonding and Computational Chemistry

At the end of the course on ***Chemical Bonding and Computational Chemistry***, the students will be able to:

CO1: **Differentiate** the requirement of approximation methods in quantum mechanics.

CO2: **Compile** the knowledge to apply important approximation methods to problems in quantum mechanics.

CO3: **Compare** valance bond theory molecular orbital theory and the concept of hybridization.

CO4: **Generalize** the applications of group theory in chemical bonding.

CO5: **Constitute** the emerging world of Computational Chemistry.

CO6: **Generalize** basic idea about Computational Chemistry calculations.

Semester II - CH5002C04: Molecular Spectroscopy

At the end of the course on ***Molecular Spectroscopy***, the students will be able to:

CO1: **Differentiate** the basics principle of different techniques employed in molecular spectroscopy.

CO2: **Compile** origin, instrumentation and important applications of Microwave, IR, Raman, UV, NMR, EPR and EQR techniques.

Semester II - CH500205: Inorganic Chemistry Practical - 1

At the end of the course on ***Inorganic chemistry Practical - 1***, the students will be able to:

CO1: **Compare** separate less familiar ions such as Tl, W, Se, Mo, Ce, Th,Ti, Zr, V, U etc.

CO2: **Estimate** calorimetrically ions such as Fe, Cu, Ni, Mn, Cr etc.

Semester II - CH500206: Organic Chemistry Practical - 1

At the end of the course on ***Organic Chemistry Practical - 1***, the students will be able to:

CO1: **Organize** separation and purification of an organic mixture by chemical/solvents separation methods.

CO2: **Specify** to draw the structure of compounds using Chemdraw software.

Semester II - CH500207: Physical Chemistry Practical - 1

At the end of the course on ***Physical Chemistry Practical - 1***, the students will be able to:

CO1: **Compare** important principles in Physical Chemistry and to determine various physical properties.

CO2: **Compile** some simple computational chemistry calculations.

Semester III - CH500301: Structural Inorganic Chemistry

At the end of the course on ***Structural Inorganic Chemistry***, the students will be able to:

CO1: **Differentiate** structure and different properties of solids.

CO2: **Generalize** important aspects of inorganic chains, rings, cages and metal clusters.

CO3: **Illustrate** Chemistry and applications of materials such as glasses, ceramics, composites, nanomaterials etc.

Semester III - CH500302: Organic Syntheses

At the end of the course on ***Organic Syntheses***, the students will be able to:

CO1: **Compare** various methods employed for reactions like oxidation, reduction, carbocyclic and heterocyclic ring formation etc.

CO2: **Generalize** novel reactions and reagents in organic synthesis.

CO3: **Specify** the utility of protecting group strategy in organic synthesis.

CO4: **Restructure** basic principles of retro syntheses, Biosynthesis and Biomimetic synthesis.

Semester III - CH010303: Chemical Kinetics, Surface Chemistry and Crystallography

At the end of the course on ***Chemical Kinetics, Surface Chemistry and Crystallography***, the students will be able to:

CO1: **Differentiate** theories of reaction rates and factors affecting reaction rates.

CO2: **Compile** the idea about the different types of catalysis and their mechanisms.

CO3: **Compare** the Chemistry of surfaces and different types of surface phenomena.

CO4: **Generalize** the various techniques employed for the characterization of surfaces.

CO5: **Generalize** the general properties of colloids and macromolecules.

CO6: **Create** an idea about the important aspects of crystallography.

Semester III - CH500304: Spectroscopic Methods in Chemistry

At the end of the course on **Spectroscopic Methods in Chemistry**, the students will be able to:

CO1: **Compare** various spectroscopic methods used for the characterization of organic compounds.

CO2: **Demonstrate** structure of compounds by analyzing the Spectrum.

Semester IV - CH800401: Advanced Inorganic Chemistry

At the end of the course on ***Advanced Inorganic Chemistry***, the students will be able to:

CO1: **Manipulate** the application of group theory in Coordination Chemistry.

CO2: **Compile** the utility of spectroscopic methods such as IR, Raman, EPR and Mossbauer techniques for the characterization of inorganic complexes.

CO3: **Distinguish** the photochemistry of inorganic compounds.

CO4: **Familiarize** the emerging field of nano chemistry, synthesis and characterization of nanomaterials and evolving interfaces of nanotechnology to the students.

CO5: **Differentiate** acid –base concept in non-aqueous media and reactions in non-Aqueous media.

Semester IV - CH800402: Advanced Organic Chemistry

At the end of the course on ***Advanced Organic Chemistry***, the students will be able to:

CO1: **Compare** emerging branches in chemistry like Supramolecular Chemistry, Nano Chemistry, Medicinal Chemistry, Polymer Chemistry and its applications. **Explain** the principles of green chemistry and to know the various green protocols inorganic synthesis.

CO2: **Generalize** the important stereoselective transformations in organic synthesis.

CO3: **Differentiate** the basic aspects of natural product Chemistry.

CO4: **Synthesize** research process and **apply** various research methods and techniques.

Semester IV - CH800403 Advanced Physical Chemistry

At the end of the course on ***Organometallics and Nuclear Chemistry***, the students will be able to:

CO1: **Compile** the structure and properties of solid crystals and Liquid crystals.

CO2: **Generalize** characterization of crystals using X-Ray diffraction.

CO3: **Familiarize** the important aspects of gaseous state and electrochemistry.

CO4: **Compare** the principle, instrumentation and applications of diffraction method, fluorescence spectroscopy, atomic spectroscopy and electro analytical techniques.

Semester IV - CH010405: Inorganic Chemistry Practical - 2

At the end of the course on ***Inorganic Chemistry Practical - 2***, the students will be able to:

CO1: **Estimate** the binary mixtures of metallic ions by volumetric and gravimetric methods.

CO2: **Analyze** some common alloys and ores.

Semester IV - CH010406: Organic Chemistry Practical - 2

At the end of the course on ***Organic Chemistry Practical - 2***, the students will be able to:

CO1: **Prepare** organic compounds using greener protocols.

CO2: **Analyse** organic compounds via two step synthetic sequences.

CO3: **Differentiate** enzyme/coenzyme catalyzed reactions.

Semester IV - CH010407: Physical Chemistry Practical - 2

At the end of the course on ***Organometallics and Nuclear Chemistry***, the students will be able to:

CO1: **Compare** the various physical properties using instrumental methods like polarimetry, refractometry etc.

Programme Name: BBM

Course Outcomes

Semester I - Management Methodology

At the end of the course on ***Management Methodology***, the students will be able to:-

CO1: **Identify** the primary functions of management, roles of managers.

CO2: **Illustrate** the work of major management scientists and their contribution to the field of management.

CO3: **Explain** how managers align the planning process with company mission, vision, and values.

CO4: **Describe** the nature and purpose of organization, common organizational structures and the advantages and disadvantages of each.

CO5: **Develop** various styles and qualities of efficient leadership, and their application in an organizational setup.

Semester I - BM1CRT02: Soft Skill Management

At the end of the course on ***Soft Skill Management***, the students will be able to:-

CO1: **Develop** awareness about basic soft skills and hard skills and find new ways of thinking and problem solving.

CO2: **Discover** the various barriers in communication andbridge the gap between individuals and groups through flow of information and understanding between them.

CO3: **Elucidate** the importance of public speaking in personal development and career advancement, overcome the speech anxiety and fine tune the verbal and non-verbal communication skills.

CO4: **Identify** the interview techniques and identify the various tips to perform and excel in an interview asa job selection process.

CO5: **Discover** the thinking, listening and speaking skills through group discussions and find out its role in problem solving, decision making and personality assessment.

Semester II - BM2CRT06: Financial Accounting

At the end of the course on ***Financial Accounting***, the students will be able to:-

CO1: **Assess** the accounting equation and understand the effect of transactions on the accounting equation.

CO2: **Describe** fundamental concepts of generally accepted Accounting Principles and rules that govern accounting.

CO3: **Acquire** a thorough understanding of the basic reporting structure of accounting information.

CO4: **Identify** the need for preparing journal, ledger, trial balance.

CO5: **Develop** an awareness regarding the final accounts of a sole trader.

Semester II - BM2CRT07: Entrepreneurship Development

At the end of the course on ***Entrepreneurship Development***, the students will be able to:-

CO1: **Develop** the entrepreneurial abilities, cultivate unique skills and think outside the box.

CO2: **Acquire** an opportunity to explore their business ideas and establish own ventures.

CO3: **Develop** an awareness regarding Entrepreneurship Development Programmes and different institutions conducting EDPs in India.

CO4: **Acquire** a thorough understanding of the various entrepreneurial functions and elements involved in business environment.

CO5: **Identify** different avenues of project financing and various ways to manage the same.

CO6: **Evaluate** the need for project management and gain an idea about project report and its preparation.

Semester III - BM3CRT11: Corporate Accounting

At the end of the course on ***Corporate Accounting***, the students will be able to:-

CO1: **Identify** the procedures of raising Share capital, forfeiture of shares etc of a company.

CO2: **Assess** in detail about the redemption of shares and debentures.

CO3: **Prepare** the final accounts of companies.

CO4: **Identify** the importance of human resources and various provisions regarding Human Resource Accounting.

CO5: **Discover** the new trends in accounting and reporting.

Semester III - BM3CRT11: Corporate Laws

At the end of the course on ***Corporate Laws***, the students will be able to:-

CO1: **Produce** an insight into the historical background and formation of company.

CO2: **Develop** awareness about the liabilities, rights and duties of promoters and directors.

CO3: **Develop** an idea about requirements for registration and incorporation of a company.

CO4: **Explain** the types of meeting and its essential requirements.

CO5: **Illustrate** about the procedure of winding up of company.

Semester III - BM3CRT11: Human Resource Management

At the end of the course on ***Human Resource Management***, the students will be able to:-

CO1: **Identify** the concept of human resource management, recent trends, and how it relates to management process.

CO2: **Illustrate** the techniques for forecasting an organization's future human resource needs and to understand, the various aspects needed to perform a job effectively.

CO3: **Elucidate** the general recruitment practices and selection procedures followed.

CO4: **Identify** various training methods, needs assessment, and employee development strategies to enhance skills, knowledge, and abilities within the workforce.

CO5: **Explain** the need and techniques to improve managerial performance.

Semester III – BM3CRT14: Retail Management

At the end of the course on ***Retail Management***, the students will be able to:-

CO1: **Explain** the concept of Channel of Distribution, retail management and retailing process.

CO2: **Identify** the different retail formats and focus on the need for attracting customers to different store forms and online sales.

CO3: **Assess** the significance of retail management in the success of any retail store.

CO4: **Illustrate** the merchandising techniques which retailers use to influence customer intent and reach their sales goals.

CO5: **Elucidate** the significance of Human resource in retail and evaluating the consumer's buying habits.

Semester III – BM3CMT15 : Business Informatics

At the end of the course on ***Business Informatics***, the students will be able to: -

CO1: **Identify** characteristics of certain structures of document and explain how structure governs function.

CO2: **Develop, select** and **apply** appropriate formatting techniques and PageMaker tools including modelling to desktop publishing activities.

CO3: **Recognize** the need for slides, and have the preparation and ability to engage in the context of presentation package.

CO4: **Apply** the fundamentals of Mathematics, excel fundamentals, to the solution of complex spreadsheets problems.

CO5: **Discover** PowerPoint technologies, equipment's in the creation of works of slides and implement network topologies.

Semester IV -BM4CRT16: Cost Accounting

At the end of the course on ***Business Informatics***, the students will be able to: -

CO1: **Analyse** the concepts of Cost Accounting and Financial Accounting and **prepare** Cost Sheet.

CO2: **Calculate** the cost of material issues based on LIFO, FIFO and purchase procedure.

CO3: **Determine** labour cost and different methods of wage payment.

CO4: **Explain** Marginal Costing, Construction of breakeven chart, profit volume analysis.

CO5: **Outline** an introduction to Marginal Costing, Construction of breakeven chart, profit volume analysis.

Semester IV - BM4CRT17 : Commercial Laws

At the end of the course on ***Commercial Laws***, the students will be able to:-

CO1: **Discover** the sources and significance of commercial law, the nature and classification of contracts and the elements of contract.

CO2: **Organize** the modes of discharge of the contract, remedies for breach of contract, as well about contingent and quasi contracts.

CO3: **Recognize** the contract of indemnity, the contract of guarantee, its elements, rights and duties of parties to both contracts.

CO4: **Determine** the contract of bailment, rights and duties of parties to the contract, contract of pledge, its nature and elements.

CO5: **Explain** the essentials of contract of sale, classification of goods, condition and warranties, right of unpaid seller and right of buyer of goods against the seller.

Semester IV -BM4CRT18: Compensation and Performance Management

At the end of the course on ***Compensation and Performance Management***, the students will be able to:-

CO1: **Interpret** the traditional and modern techniques of performance appraisal.

CO2: **Distinguish** between basic and supplementary compensation and also on different types of incentives.

CO3: **Illustrate** theories on compensation, wage structure and fixation of wages and DA.

CO4: **Create** and lucid perception about rewards and incentives to sales personnel.

CO5: **Outline** various regulatory bodies for compensation management like wage board and pay commission.

Semester IV - BM4CRT19 : Managerial Economics

At the end of the course on ***Managerial Economics***, the students will be able to:-

CO1: **Elucidate** the basic concept of National income, inflation, Business Cycles and related theories, identify the factors that affect the working of a business - ranging from internal matters to external issues.

CO2: **Develop** awareness with the Indian Economy, various sectors covered and contribution towards GDP.

CO3: **Identify** the two important market forces: Demand and supply, analyse how it helps both consumers and business owners to make better economic choices.

CO4: **Determine** the role of production in generating value and how it contributes to the utility of the individuals, analyse the achievement of optimum efficiency in production by minimising cost of production.

CO5: **Explain** the meaning of Business economics that helps in establishing relationships between different economic factors, such as income, profits, losses and market structure.

Semester IV - BM4CMT20 : Computerized Accounting

At the end of the course on ***Computerized Accounting***, the students will be able to:-

CO1: **Analyze** the need for spreadsheet application, and **identify** different components of excel.

CO2: **Explain** the usefulness of various addressing modes and functions.

CO3: **Elucidate** the concept of Tally fundamentals and processing transactions.

CO4: **Create** awareness about computerized accounting transactions in tally.

CO5: **Identify** the methods for generating and printing accounting reports.

Semester V - BM5CRT21: Foundations of Individual Behavior

At the end of the course on ***Foundations of Individual Behavior***, the students will be able to:-

CO1: **Describe** the importance of Organizational Behaviour in the context of the contemporary situation.

CO2: **Recognize** the impact of individuals and groups on behavior within organization so that they can identify factors that will improve organization effectives.

CO3: **Create** awareness about organizational change and **identify** the need for organizational development.

CO4: **Analyze** the importance of motivation in management and its role in gaining valued outcomes from employees working in an organization.

CO5: **Acquire** the concepts of leadership and **identify** where and when to adapt each leadership style.

Semester V - BM5CRT22: Marketing Management

At the end of the course on ***Marketing Management***, the students will be able to:-

CO1: **Comprehend** the significance, evolution and trends and waves in marketing.

CO2: **Assess** market segmentation, bases of segmentation and consumer buying process.

CO3: **Acquire** an idea on marketing mix and product life cycle.

CO4: **Create** awareness about pricing methods, policies and strategies.

CO5: **Recognize** various channels of distribution and its selection.

Semester V - BM5CRT23: Environment Science and Human Rights

At the end of the course on ***Environment Science and Human Rights***, the students will be able to:-

CO1: **Analyze** the need for environmental protection, and create awareness about environmental problems among peoples.

CO2: **Describe** the usefulness of biodiversity conservation thinking in relation to environmental management in organizations.

CO3: **Comprehend** the concept of business and sustainability, ways in which business responds to environmental issues.

CO4: **Apply** the environment friendly activities to enable improvement of economic and environmental performance of a business firm.

CO5: **Elucidate** human rights and identify how human rights can be translated into social and political reality.

Semester V – BM5CRT24: Income Tax- Law & Practice

At the end of the course on ***Income Tax - Law &Practice***, the students will be able to:-

CO1: **Recognise** basic concepts of Income Tax Act, Rates and other important concepts.

CO2: **Describe** the Residential Status and the Incomes exempted from tax.

CO3: **Compute** Income from Salary.

CO4: **Develop** them tocompute House Property Income and the exemptions allowed.

CO5: **Compute** Profits & Gains from Business or Profession and various deductions allowed in that.

Semester V - BM5OPT25: Open Course - Modern Banking

At the end of this course on ***Modern Banking***, Students will be able to:-

CO1: **Identify** the relationship between a banker and a customer.

CO2: **Elucidate** different types of bank account like savings a/c, current a/c, recurring a/c, no frill a/c CASA products and many more.

CO3: **Acquire** the concepts of negotiable instruments and endorsement.

CO4: **Explain** clearly idea about reforms in banking sector including demonetization and cashless payment.

CO5: **Discover** various avenues of financial supermarket.

Semester VI - BM 6 CRT26 : Group Dynamics & Organizational Change

At the end of this course on ***Group Dynamics & Organizational Change***, the students will be able to:-

CO1: **Recognize** the various types of groups, theories on group formation, stages in group formation and techniques of group decision-making.

CO2: **Identify** the sources of conflict, process of conflict management, job frustration and all about inter-group conflicts in organizations.

CO3: **Evaluate** the organisational structure and elements, stress management and its consequences, organisational power, politics and culture and all about inter-group conflicts in organizations.

CO4: **Recognise** organizational changes, various change models, organizational development and intervention techniques.

CO5: **Update** the concept of MBO, Quality Wok Life, the process of team building, transactional analysis and the various factors influencing organisational effectiveness.

Semester VI – BM6CRT27 : Investment Management

At the end of the course on ***Investment Management***, the students will be able to:-

CO1: **Determine** the economic and financial meaning of investment and identify the different types of investment opportunities available in India.

CO2: **Identify** the major features and objectives of stock markets in India and evaluate their prominent role in the consolidation of the national economy and development of industrial sector.

CO3: **Explain** the objectives of investment and find answers to the questions of how to invest, where to invest and when to invest.

CO4: **Categorize** numerous Tax saving investment schemes and **analyse** how to reduce the income tax burden and claim deductions as per Income Tax Act, 1961.

CO5: **Describe** the types of mutual funds and **differentiate** their relative merits and demerits as an avenue for investment.

Semester VI - BM6CRT28: Advertisement and Sales Management

At the end of the course on ***Advertisement and Sales Management***, the students will be able to:-

CO1: **Elucidate** advertisement practice and media of advertisement.

CO2: **Acquire** an idea about sales promotion, its role and objectives.

CO3: **Formulate** clearly and lucidly the idea about marketing research and its scope and procedure of research.

CO4: **Create** awareness about strategy and tactics used in marketing.

CO5: **Summarize** recruitment, selection, compensation and training of sales management.

Semester VI - BM6CBT31 : Financial Management

At the end of the course on ***Financial Management***, the students will be able to:-

CO1: **Identify** the nature, scope and significance of financial management, along with financial decisions and planning.

CO2: **Identify** different sources of raising finance and determine how the financial resources are to be used and invested effectively and efficiently so that the venture is profitable, sustainable and viable in the long-run.

CO3: **Estimation** of capital requirements of an organization from time to time, determine the capital structure and composition and make the choice of source of funding for the capital needs.

CO4: **Recognise** the planning, organizing, and controlling of financial activities like the procurement and utilization of funds.

CO5: **Organize** various dividend policies and decide on how the surplus or profits of the organizations must be utilized wherein the value of the firm is maximised.

Semester VI - BM6CBT34 : Income Tax- Assessment & Procedure

At the end of the course on ***Income Tax - Assessment & Procedure***, the students will be able to:-

CO1: **Identify** the provisions regarding profit earned on transfer of capital asset.

CO2: **Recognise** concepts under the head Income from other sources and in computation of income.

CO3: **Comprehend** the provisions with regard to clubbing of income, aggregation of income, deductions under Chapter VI A and to compute total income.

CO4: **Elucidate** Income Tax Authorities, their powers and functions.

CO5: **Evaluate** Assessment procedures, Return of Income, computing tax liability and filing of return of income.

BA Economics

Name of the courses offered by Department: Economics

Programme Outcomes – Domain Specific (PSO)

At the end of the ***UG Programme in BA Economics***, the students will be able to: -

PO1: Solving Ability

Secure knowledge regarding the basic concepts of Micro and Macro Economics and to use these concepts to analyse specific questions.

PO2: Analysis Ability

Get acquainted with quantitative tools for economic analysis and understand techniques for the systematic study of economic problems.

PO3: Creating Awareness

Creating awareness regarding the catastrophic impacts of environmental issues and need for sustainable development as a path to economic development.

PO4: Investigation

Investigating the trajectories towards development with the help of economic development models.

PO5: Research Skills

Creating the ability to solve the socio-economic problems systematically by using established research methods.

Domain Independent Outcomes (PO)

At the end of the ***UG Programme in BA Economics***, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for Sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

Name of the Programme: BA Economics Core Course)

Semester I – EC1CRT01: Perspectives and Methodology of Economics

Course Outcomes (CO)

At the end of the course on ***Perspectives and Methodology of Economics***, the students will be able to: -

CO1: **Outline** a foundation of microeconomic theories.

CO2: **Document** a framework for economic analysis and **problem solving** in microeconomic perspectives.

CO3: **Explain** the concepts of demand and supply and the basic forces that determine equilibrium in market economy.

Semester II – EC2CRT02: Micro Economic Analysis 1

Course Outcomes (CO)

At the end of the course on ***Micro Economic Analysis - 1***, the students will be able to: -

CO1: **Outline** a foundation for analysing microeconomic theories.

CO2: **Construct** a framework for economic analysis and problem solving in microeconomic perspectives.

CO3: **Detect** the concepts of demand and supply and the basic forces that determine equilibrium in market economy.

CO4: **Formulate** the concepts of demand and supply and the basic forces that determine equilibrium in market economy.

Semester III – EC3CRT03 : Micro Economic Analysis II

Course Outcomes (CO)

At the end of the course on ***Micro Economic Analysis - II***, the students will be able to: -

CO1: **Analyse** consumer and firms' behaviour and to analyse different types of market structure.

CO2: **Use** economic tools to analyse economic policies.

CO3: **Interpret** economic concepts and **use** them to analyse specific micro economic questions.

Semester III – EC3CRT04: Economics of Growth and Development

Course Outcomes (CO)

At the end of the course on ***Economics of Growth and Development***, the students will be able to: -

CO1: **Categorize** basic concepts and issues of economic growth and development.

CO2: **Summarize** insights about the modern approaches to economic development.

CO3: **Determine** different determinants and indicators of economic development.

Semester IV – EC4CRT05: Macro Economics I

Course Outcomes (CO)

At the end of the course on ***Macro Economics - 1*** the students will be able to: -

CO1: **Explain** major macroeconomic ideas and implications.

CO2: **Appraise** insights regarding the Keynesian macroeconomics.

CO3: **Summarize** classical and Keynesian ideologies of macroeconomics.

Semester IV – EC4CRT06: Public Economics

Course Outcomes (CO)

At the end of the course on ***Public Economics*** the students will be able to: -

CO1: **Assess** the impacts of public policies on the allocation of resources.

CO2: **Compare** of different activities of welfare state and its budgetary mechanism.

CO3: **Critique** the working of the Indian public finance

Semester V – EC5CRT07: Quantitative Techniques

Course Outcomes (CO)

At the end of the course on ***Quantitative Techniques***, the students will be able to: -

CO1: **Create** mathematical skills essential tool for analysing economic theories.

CO2: **Assess** various types first order ordinary differential equations, **classify** them and **develop** methods for solving them

CO3: **Formulate** the body of Mathematics to enable the study of economic theory.

CO4: **Use** Mathematics and Statistics for understanding microeconomic theory, macroeconomic theory, and econometrics at the undergraduate level

Semester V – EC5CRT08: Macro Economics II

Course Outcomes (CO)

At the end of the course on ***Macro Economics II***, the students will be able to: -

CO1: **Explain** the concepts regarding theories of consumption and investment.

CO2: **Interpret** macro-economic problems such as inflation and unemployment.

CO3: **Obtain** the trajectories of a given family of curves and **interpret** the result

CO4: **Organize** trade cycle and stabilization policies.

Semester V – EC5CRT09: Environmental Economics

Course Outcomes (CO)

At the end of the course on ***Environmental Economics***, the students will be able to: -

CO1: **Compare** the conflicting nature of economic development and environmental conservation.

CO3: **Create** an awareness regarding the needs of environmental protection.

CO4: **Demonstrate** the fundamentals regarding human rights.

Semester V – EC5CRT10: Introductory Econometrics

Course Outcomes (CO)

At the end of the course on ***Introductory Econometrics***, the students will be able to: -

CO1: **Describe** the basic concepts in econometrics.

CO2: **Recognize** the uses of econometric models to study economic problems

CO3: Develop **incorporate** econometric methods in their research works.

Semester V – EC6CRT11 : Quantitative Methods

Course Outcomes (CO)

At the end of the course on ***Quantitative Methods***, the students will be able to: -

CO1: **Develop** statistical skills needed to collect, analyse and interpret empirical data

CO2: **Provide** an introduction to statistical methods and tools that are essential for the study of economics at the undergraduate level.

Semester VI – EC6CRT12: International Economics

Course Outcomes (CO)

At the end of the course on ***International Economics***, the students will be able to: -

CO1: **Constitute** the basic terms used in international economics.

CO2: **Relate** various foreign exchange markets.

CO3: **Analyse international** trade policies with respect to economic theories.

Semester VI – EC6CRT13: Money & Financial Markets

Course Outcomes (CO)

At the end of the course on ***Money & Financial Markets***, the students will be able to: -

CO1: **Distinguish** financial market institutions, regulators, and their instruments for stabilizing the economy.

CO2: **Explain** the concept and functions of money

CO3: **Summarize** the functioning of stock market in India

Integrated M.Sc. Programme in COMPUTER SCIENCE - DATA SCIENCE

Integrated Programme M. Sc. Computer Science (Data Science) -5 Years

Programme Outcomes – Domain Specific (PSO)

At the end of the ***UG Programme in Integrated MSc Computer Science Data Science***, the students will be able to: -

PO1: Academic Competence

Understand fundamental concepts in Computer Science, Mathematics and Statistics. Demonstrate and Use of various Software Tools in Computer Science and Data Science. Use specialist software tools for data storage, analysis and visualization.

PO2: Personal and Professional Competence

Become a skilled Data Scientist in industry academia or government. Solve case studies by applying various technologies, comparing results and analyzing inferences Develop problem solving approaches and present output with effective presentation and communication skills

PO3: Research Competence

Design and develop tools and algorithms. Contribute to existing open-source platforms.

Independently carry out research/investigation to solve practical problems.

PO4: Entrepreneurial and Social Competence

Cater or provide solutions to particular domain specific problems by having in depth domain knowledge. Exposure to emerging trends and technologies to prepare students for industry. Develop skill required for social interaction.

PO5: Data Management

Students will become professional in the statistical analysis of data and use of computational tools for data management.

Domain Independent Outcomes (PO)

At the end of the ***UG Programme in Integrated MSc Computer Science Data Science***, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. And demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio- technological changes

Semester I - ICSC1CR2: Programming in C

Course Outcomes (CO)

At the end of the course on ***Programming in C***, the students will be able to: -

CO1: **Determine** the usage of decision-making statements and looping structures and develop a C program **using the** decision-making statements and looping structures.

CO2: **Illustrate** the concepts of one-dimensional array, two-dimensional array, modular programming using user defined functions and **Implement** them using c language.

CO3: **Demonstrate** the concept of strings, structures and Unions and the use of files for input and Output.

CO4: **Develop** programs for string manipulation, and **Implement** structures, Union and create files

CO5: **Recognize** basic ideas on dynamic storage allocation and command line arguments

Semester I - ICSC1CR3: Introduction to Computer

Course Outcomes (CO)

At the end of the course on ***Introduction to Computer***, the students will be able to: -

CO1: **Define** basic functions of computer hardware, software components including memory & operating systems.

CO2: **Interpret** the concept of networking and internet.

CO3: **Recognize IT** and its impact on society and **Interpret** Society enhancement and development using IT strategies.

Semester I - ICSC1CR4: Database Management Systems

At the end of the course on ***Database Management Systems***, the students will be able to: -

CO1: **Describe** the concept on databases, data models, architecture and components of DBMS

CO2: **Recognize** entity, attributes, associations and relationships.

CO3: **Illustrate** the concept of tables and its properties, table creation and manipulation of tables and databases using SQL and **Implement** them using SQL queries.

CO4: **Implement** the concept of DDL and DML facilities.

Semester I - ICSC1CM5: Graph Theory and Operations Research

At the end of the course on ***Graph Theory and Operations Research***, the students will be able to: -

CO1: **Use** and **apply** the fundamental concepts in graph theory.

CO2: **Identify** parts of a tree and **Use** different tree traversal methods.

CO3: **Choose** mathematical models used in Operations Research

CO4: **Apply** linear programming problems, Transportation problems and assignment problems.

Semester II - ICSC2CR2: Object Oriented Programming Using C++

Course Outcomes (CO)

At the end of the course on ***Object Oriented Programming Using C++***, the students will be able to: -

CO1: **Summarize** Object oriented programming concepts and introduction of C++ Programming language.

CO2: **Explain** the concepts of control structures and functions in C++ and **Implement** them using C++

CO3: **Apply** the concepts of class and objects in programming and Identify importance of constructors, destructors, Operator overloading.

CO4: **Demonstrate** the concept of inheritance and polymorphism and **Implement** them using C++

Semester II - ICSC2CR4: Operating Systems

At the end of the course on ***Operating Systems***, the students will be able to: -

CO1: **Explain** the fundamental concepts regarding an OS.

CO2: **Identify** the concept of a process and management.

CO3: **Define** Inter process synchronization methods and deadlock handling

CO4: **Distinguish** various memory management techniques and **understand** the concept of file and various file handling methods.

Semester II - ICSC2CM5: Linear Algebra

At the end of the course on ***Linear Algebra***, the students will be able to: -

CO1: **Develop** a better intuition for machine learning and deep learning algorithms.

CO2: **Use** proper hyper parameters and develop a better model

Semester II - ICSC2CR3: Data Structures using C++

At the end of the course on ***Data Structures using C++***, the students will be able to: -

CO1: **Describe** fundamental concepts of data structures.

CO2: **Illustrate** the representation of arrays in memory and operations on it.

CO3: **Compare** and Contrast different searching and sorting techniques.

CO4: **Design** operations on linear data structures such as stacks and queues and **implement** operations on various types of linked lists.

Semester III - ICSD3CR1: Introduction to Data Science

At the end of the course on ***Introduction to Data Science***, the students will be able to: -

CO1: **Develop** fundamental knowledge of concepts underlying data science and give a hands-on experience with real-world problems.

CO2: **Interpret** standard methods of data analysis and information retrieval.

CO3: **Formulate** the problem of knowledge extraction as combinations of data filtration, analysis and exploration methods.

Semester III - ICSC3CR2: Python Programming

At the end of the course on ***Python Programming***, the students will be able to: -

CO1: **Acquire** basic knowledge in python programming and Implement basic concepts using Python programming.

CO2: **Demonstrate** Object oriented concepts in Python.

CO3: **Use** Python standard library for programming.

CO4: **Design** and **Develop** Python applications for Data Science.

Semester III - ICSC3CR3 R: Programming & Mathematics for Artificial Intelligence

At the end of the course on ***R Programming and Mathematics for Artificial Intelligence***, the students will be able to: -

CO1: **State basic concepts of** R language including different data types and functions, specifically defined for data analysis.

CO2: **Use** the concepts arrays, vectors, data frame and **Apply** them for data analysis, Data organization and Data Cleaning and **Identify** Mapping models to Machine Learning, Evaluating and Validating models.

CO3: **Determine** different concepts of functions, relations and partial orders and **Develop** data processing applications using them.

CO4: **Acquire** basics of Linear Algebra, support Vector Machines and PCA.

Semester III - ICSC3CR4: Computer Organization and Architecture

At the end of the course on ***Computer Organization and Architecture***, the students will be able to: -

CO1: **Describe** the fundamental organization of a computer system

CO2: **Explain** addressing modes, instruction formats and program control statements

CO3: **Analyze** the organization and performance of system memory hierarchy.

CO4: **Describe** basic concept of parallel computing and fundamentals concepts of pipeline and vector processing.

Semester III - ICSD3CM5: Probability and Statistics

At the end of the course on ***Probability and Statistics***, the students will be able to: -

CO1: **Describe** the mathematical foundations of probability and statistics for data science activities.

CO2: **Use** probability with underlying motivation being statistics for data science.

CO3: **Acquire** hands-on on generating random numbers and programming for statistics.

Semester IV - ICSC4CR3: Data Mining

At the end of the course on ***Data Mining***, the students will be able to: -

CO1: **Identify** the scope and essentiality of Mining

CO2: **Analyze** data, choose relevant models and algorithms for respective applications.

CO3: **Develop** research interest towards advances in data mining.

CO4: **Recognize** the basic concepts and techniques of Data mining

Semester IV - ICSC4CR4: Software Engineering

At the end of the course on ***Software Engineering***, the students will be able to: -

CO1: **Recognize** the importance of basic processes in software Development life cycle.

CO2: **Summarize** the various activities associated with different models and their significance.

CO3: **State** the basic concepts of Software Engineering and classical Software design and development techniques.

CO4: **Familiarize** with various software testing techniques and tools and **Use** them.

Semester IV - ICSC4CR5: Basics of Artificial Intelligence

At the end of the course on ***Basics of Artificial Intelligence***, the students will be able to: -

CO1: **Acquire** the basics of AI.

CO2: **Identify** appropriate AI methods to solve a given problem.

CO3: **Use** the concept of differentiation and its applications

CO4: **Apply** the concepts of probability, correlation and regression

Semester V - ICSC5CR1: Principles of Machine learning

At the end of the course on ***Principles of Machine Learning***, the students will be able to: -

CO1: **Explain** the basic concepts and techniques of Machine Learning.

CO2: **Conclude** the supervised learning techniques such as Linear Regression, Logistic Regression, Support Vector Machine, and Naïve Bayes Classifier.

CO3: **Use** the biological neural networks and **Develop** neuron models.

Semester V - ICSC5CR2: Web application Development Using PHP

At the end of the course on ***Web Application Development Using PHP***, the students will be able to: -

CO1: **Summarize** basic concepts of PHP- variables, functions, and control structures.

CO2: **Develop** web applications using PHP and MySQL database.

CO3: **Create** java scripts and jQuery in client side.

CO4: **Apply** CSS concepts in Webpage designing.

Semester V - ICSC5CR3: Programming in Java

At the end of the course on ***Programming in Java***, the students will be able to: -

CO1: **Recall** basic concepts of OO programming.

CO2: **Update** the concept of constructors, packages and multithreading.

CO3: **Demonstrate** the concepts of GUI programming using swing.

CO4: **Create** applets and **implement** database connectivity.

Semester V - ICSC5CR4: IT and Environment

At the end of the course on **IT and Environment**, the students will be able to: -

CO1: **Familiarize** basic concepts of OO programming.

CO2: **Reproduce** the concept of constructors, packages and multithreading.

CO3: **Demonstrate** the concepts of GUI programming using swing.

CO4: **Create** applets and **Implement** database connectivity.

Name of Semester: Sixth Semester

Semester VI - ICSC6CR1: Linux and Shell Programming

At the end of the course on ***Linux and Shell Programming***, the students will be able to: -

CO1: **Describe** Linux environment..

CO2: **Develop a clear** view on Linux file system.

CO3: **Explain** process scheduling in Linux.

CO4: **Apply** basics of shell programming and **create** and manage user profiles.

Semester VI - ICSC6CR2: Computer Networks

At the end of the course on ***Computer Networks***, the students will be able to: -

CO1: **Define** the concepts of signals and OSI layer functions.

CO2: **Discuss** the process of Multiplexing, switching and difference between guided and unguided media in networks.

CO3: **Analyse** various data link, networks, and transport layer protocols.

CO4: **Explain** the use of cryptography and network security.

Semester VI - ICSD6CR3: Mobile Application

At the end of the course on ***Mobile Application***, the students will be able to: -

CO1: **Explain** the basics of Kotlin programming.

CO2: **Develop** Android applications using Kotlin.

Semester VII - ICSC7CR1: Computational Mathematics

At the end of the course on ***Computational Mathematics***, the students will be able to: -

CO1: **Define** set relations and functions, Use of Permutation and Combination for arranging objects.

CO2: **Apply** Predicate and Propositional Calculus for Precise reasoning.

CO3: **Use** the methods of fuzzy logic, fuzzy set theory, and recognize fuzzy logic membership function, Understand Fuzzification and Defuzzification.

CO4: **Use** concepts in automata theory and formal languages and determine solution to simple automata problems and Recognize real-world problems that are amenable to mathematical analysis, and formulate mathematical models of such problems.

Semester VII - ICSD7CR2: Applied Statistics for Data Science

At the end of the course on ***Applied Statistics for Data Science***, the students will be able to: -

CO1: **Summarize** the key statistical concepts for applying strong knowledge base in Analytics domain.

CO2: **Select** various statistical theories to solve real life situations by doing projects.

CO3: **Apply** R as a tool for statistical application.

Semester VII - ICSD7CR3: Advanced Python Programming for Data Science

At the end of the course on, the students will be able to: -

CO1: **Identify** Python functionality and techniques that are commonly used.

CO2: **Practice** and use functionality of various Python libraries for different scientific and mathematical tasks.

CO3: **Use** advanced concepts and various python libraries in Machine Learning for problem solving.

CO4: **State** the frameworks in Python and **analyze** large data sets in Python for Data Science.

Semester VII - ICSD7CR4: Data Engineering in Data Science

At the end of the course on ***Data Engineering in Data Science***, the students will be able to: -

CO1: **Define** the concepts in representing data, accessing it and analyzing it.

CO2: **Demonstrate** application side of query processing, data Wrangling, Cleaning etc.

CO3: **Develop** suitable data science ecosystem for the given application.

CO4: **Explain** various data storage and retrieval techniques and **analyze** data using Python and Data Wrangling.

Semester VII - ICSD7CP6: Lab VIII - Data Engineering Lab

At the end of the course on ***Data Engineering Lab***, the students will be able to: -

CO1: **Demonstrate** Read and write operations on CSV, JSON and XML files.

CO2: **Manipulate** the Excel file using Pandas.

CO3: **Analyse** the Tables using Python library.

CO4: **Apply** the basis of Data clean-up operation on the given dataset and **explore** the web scraping in Python.

Semester VIII - ICSC8CR1: Advanced Deep Learning Techniques

At the end of the course on ***Advanced Deep Learning Techniques***, the students will be able to: -

CO1: **Explain** the theoretical foundations, algorithms and methodologies of Neural Network.

CO2: **Design** and develop an application using specific deep learning models.

CO3: **Provide** the practical knowledge in handling and analyzing real world applications.

Semester VIII - ICSC8CR2: Data Visualization

At the end of the course on ***Data Visualization***, the students will be able to: -

CO1: **Illustrate** and Practice visual representation methods and techniques that increase the understanding of complex data.

CO2: **Analyze** good design practices for visualization and **practice** the core principles using widely available tools like Tableau.

CO3: **Apply** fundamental concepts of data visualization on projects.

Semester IX - ICSD9CR1: Text Analytics & Natural Language Processing

At the end of the course on ***Text Analytics and Natural Language***, the students will be able to: -

CO1: **Recognize** Text analytics concepts and applications.

CO2: **Describe** fundamentals of Information retrieval and natural language processing Text analytics framework.

CO3: **Use** Theoretical techniques and applications in text analytics (e.g. social media).

Semester IX - ICSD9CR2: Web Analytics

At the end of the course on **Web Analytics**, the students will be able to: -

CO1: **Collect** an overview of web analytic activities.

CO2: **Identify** different model of analysis, showcasing the work, log file analysis and page tagging.

CO3: **Use** web analytics Tools like Google Analytics, Yahoo Analytics.

Department of English

BA English - Language and Literature (Vocational Model II) Copy Editor

Programme Outcomes – Domain Specific (PSO)

At the end of the UG Programme in **BA English (V) Copy Editor**, the students will be able to: -

PO1: Analysis Ability

Analyse literary texts and other forms of written expression, including poetry, prose, drama and essays.

PO2: Interpretation Skill

Interpret and evaluate literary texts from different theoretical perspectives with the application of literary criticism and theory.

PO3: Appreciating World Culture

Understand and appreciate various cultures and diverse literary traditions.

PO4: Research Skill

Develop the skill in conducting literary research and presenting its outcome in the accepted format.

PO5: Copy Editing Skill

Internalize the nuances of copy editing in English, printing techniques and publishing.

Domain Independent Outcomes (PO)

At the end of the UG Programme in **BA English (V) Copy Editor**, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Semester I - BA /BSc/ B Com Common Course

Name of the Course: EN1CCT01 Fine Tune Your English

Course Outcomes (CO)

At the end of the course on ***Fine Tune Your English***, the students will be able to: -

CO1: **Identify** the current trends in English Grammar.

CO2: **Use** English in both written and spoken form correctly.

CO3: **Appreciate** novel ideas and think critically.

CO4: **Discover** his/ her creative voice.

Semester I - BA /BSc Model 1 Common Course

Name of the Course: EN1CCT02 Pearls from the Deep

At the end of the course on ***Pearls from the Deep***, the students will be able to: -

CO1: **Distinguish** between different types of literary works.

CO2: **Appreciate** the aesthetic value of literature.

CO3: **Discover** the cultural and social aspects of literature.

CO4: **Employ** the use of language as a means of subjective expression.

Semester II - BA /BSc/ BCom Model 1 Common Course

Name of the Course: EN2CCT03 Issues that Matter

At the end of the course on ***Issues that Matter***, the students will be able to: -

CO1: **Develop** an overall empathetic attitude towards the contemporary issues of the modern world.

CO2: **Relate** rationally and positively the issues raised.

CO3: **Interpret** the literary values and the different streaks of human life.

CO4: **Analyse** the major issues in society and the world.

Semester II - BA /BSc Model 1 Common Course

Name of the Course: EN2CCT04 Savouring the Classics

At the end of the course on ***Savouring the Classics***, the students will be able to: -

CO1: **Appreciate** the literary value of the classics.

CO2: **Identify** the features of the classics.

CO3: **Develop** an interest in reading.

CO4: **Outline** persuasive literary or historical analysis of ancient texts in translation.

Semester III - BA /BSc/ B Com (Model 2) Common Course

Name of the Course: EN3CCT05 Literature and /as Identity

At the end of the course on ***Literature and /as Identity***, the students will be able to: -

CO1: **Evaluate** the problems regarding indigenous identities and culture.

CO2: **Compare** and **contrast** the hard realities happening in the society.

CO3: **Identify** how social issues can be portrayed through literature.

CO4: **Develop** critical thinking ability to formulate literary analysis.

Semester III - B Com Model I Common Course

Name of the Course: EN3CCT07 Gems of Imagination

At the end of the course on ***Gems of Imagination***, the students will be able to: -

CO1: **Discover** the different genres of literature.

CO2: **Recognize** different kinds of literature.

CO3: **Analyze** literary texts from different periods.

CO4: **Apply** different literary elements used in literature.

Semester IV - BA/BSc/B Com (Model II) Common Course

Name of the Course: EN4CCT06 Illuminations

At the end of the course on ***Illuminations***, the students will be able to: -

CO1: **Develop** positive attitude towards life.

CO2: **Derive** inspiration from the life of famous personalities.

CO3: **Generate** an enthusiasm to explore the philosophy of life and appreciate the value of human being.

CO4: **Appreciate** traditional literature and there by redefining it.

Semester IV - B Com Model 1 Common Course

Name of the Course: EN4CCT08 Revisiting the Classics

At the end of the course on ***Revisiting the Classics***, the students will be able to: -

CO1: **Explain** classical literary works.

CO2: **Develop** analytical ability to interpret and differentiate ancient and new literature.

CO3: **Differentiate** classical language from the modern English language.

CO4: **Discover** classical literature.

Semester I - BA English (V) Copy Editor

Name of the Course: EN1CRT01 Methodology of Literary Studies

At the end of the course on ***Methodology of Literary Studies***, the students will be able to: -

CO1: **Relate** literature as a specific discipline within the humanities.

CO2: **Apply** the theoretical framework of formalism to literary texts.

CO3: **Show** an awareness of the politics embedded in Literary Theory, Criticism, and Literature in general.

CO4: **Recognize** important topics like feminism and cultural studies.

Semester I - BA English (V) Copy Editor

Name of the Course - ENCR1: English for Copy Editing I

At the end of the course on ***English for Copy Editing I***, the students will be able to: -

CO1: **Synthesize** essays into their own knowledge and familiarize with the different aspects of Essay Writing.

CO2: **Develop** skills needed to assess literary essays and create one's own unique topics to practice the skills needed.

CO3: **Employ** narrative styles and develop good writing skills based on these styles.

CO4: **Recall the** historical evolution of literary genres including essays and learn to differentiate the essay form from other literary genres by way of style and function.

Semester II –BA English (V) Copy Editor

Name of the Course: EN2CRT02 Introducing Language and Literature

At the end of the course on ***Introducing Language and Literature***, the students will be able to: -

CO1: **Outline** the evolution and the differential traits of the English language at the present time.

CO2: **Analyze** literature from the early ages to the present and develop a framework synchronically.

CO3: **Document** the various modes of narration and representation in Literature and Film.

CO4: **Understand** scriptwriting and its onscreen representation.

Semester II - ENCR1: BA English (V) Copy Editor

Name of the Course: ENCR2- English for Copy Editing II

At the end of the course on ***English for Copy Editing II***, the students will be able to: -

CO1: **Develop** the basic language skills related with Grammar and Vocabulary.

CO2: **Demonstrate** Tense Agreement, Parts of Speech, and other aspects of English Grammar.

CO3: **Modify** the language skills-L, S, R, W in classroom situations by role play.

CO4: **Use** Tense and Vocabulary to create sentence structures with ease and precision.

Semester III - EN3CRT03: Harmony of Prose

At the end of the course on ***Harmony of Prose***, the students will be able to: -

CO1: **Detect** varied prose styles of expression.

CO2: **Reproduce** expressions, brevity and aptness of voicing ideas in stylish language.

CO3: **Compare** styles of narration, both fictional and non-fictional.

CO4: **Analyze** prose in general.

Semester III - EN3CRT04: Symphony of Verse

At the end of the course on ***Symphony of Verse***, the students will be able to: -

CO1: **Evaluate** the representation of poetry in various periods of the English tradition.

CO2: **Distinguish** the emerging cultural and aesthetic expressions that poetry makes possible.

CO3: **Explain** the formal aspects of a poem.

CO4: **Interpret** poems to find the suggestive meanings.

Semester III - EN3CMT03 Evolution of Literary Movements: The Shapers of Destiny

At the end of the course on ***Evolution of Literary Movements: The Shapers of Destiny***, the students will be able to: -

CO1: **Summarize** the history of Britain and its impact upon the rest of the world.

CO2: **Describe** the growth of English literature in the light of historical events.

CO3: **Deduce** the manner in which a person is moulded by the historical events of his personal and communal life.

CO4: **Compare** and contrast the different aspects of colonization on culture and life.

Semester III – ENCY1:Copy Editing: An Overview

At the end of the course on ***Copy Editing: An Overview***, the students will be able to: -

CO1: **Plan** the roles of the copy editors.

CO2: **Organize** the diverse forms of copy editing.

CO3: **Specify** the ethical issues confronting the copy editors.

CO4: **Develop** the ability to critically evaluate and improve a copy.

Semester IV - EN4CRT05 Modes of Fiction

At the end of the course on ***Modes of Fiction***, the students will be able to: -

CO1: **Appraise** the cultural, social, and historical contexts in which fiction was written and how they reflect the society of that time.

CO2: **Analyze** and **interpret** various literary elements, themes, and techniques employed in fiction texts.

CO3: **Compare** and **contrast** various fiction texts, authors, and literary movements to identify commonalities and differences.

CO4: **Evaluate** the deeper meanings, messages, and implications of fictional works.

Semester IV - EN4CRT06 Language and Linguistics

At the end of the course on ***Language and Linguistics***, the students will be able to: -

CO1: **Demonstrate** the basic concepts of linguistics and linguistic analysis.

CO2: **Evaluate** components of language, including phonetics, phonology, morphology, syntax, semantics, and pragmatics.

CO3: **Explain** various forms of language variation, such as dialects, sociolects, and historical changes in Languages.

CO4: **Analyze** the historical development of languages.

Semester IV - EN4CMT04 Evolution of Literary Movements: The Cross Currents of Change

At the end of the course on ***Evolution of Literary Movements: The Cross Currents of Change***, the students will be able to: -

CO1: **Place** literature against the backdrop of history.

CO2: **Identify** some of the major literary movements that form the essential frame of reference for a critical engagement with the vast corpus of literature.

CO3: **Assess** the historical and conceptual significance of various literary movements.

CO4: **Categorize** literary texts against the historical background.

Semester IV – ENCY2: The Techniques of Copy Editing

At the end of the course on ***The Techniques of Copy Editing***, the students will be able to: -

CO1: **Detect** responsibilities and importance of a copy editor in the publishing and media industries.

CO2: **Identify** industry-standard tools and software used by copy editors.

CO3: **Validate** ethical issues related to copy editing, including issues of bias, sensitivity, and fairness in the treatment of subjects or topics.

CO4: **Plan** effectively with writers, editors, and other publishing professionals.

Semester V - EN5CRENT0: Environmental Science and Human Rights

At the end of the course on ***Environmental Science and Human Rights***, the students will be able to: -

CO1: **Demonstrate** a comprehensive understanding of environmental science concepts and their interconnectedness with human rights issues.

CO2: **Analyze** and critically **evaluate** complex environmental and human rights challenges from interdisciplinary perspectives.

CO3: **Apply** ethical frameworks to assess the impact of human activities on the environment and human rights.

CO4: **Demonstrate** awareness of global environmental and human rights issues and their implications for diverse communities.

Semester V - EN5CRT09: Indian Writing in English

At the end of the course on ***Indian Writing in English***, the students will be able to: -

CO1: **Analyze** the socio-political and colonial influences on Indian literature in the English language.

CO2: **Explore** the themes, styles, and literary techniques used by Indian writers in English.

CO3: **Develop** skills in literary analysis and critical thinking to interpret and evaluate Indian English literary texts.

CO4: **Appreciate** the aesthetic aspects of Indian English literature, including prose, poetry, and drama.

Semester V - EN5CRT08 : Literary Criticism and Theory

At the end of the course on ***Literary Criticism and Theory***, the students will be able to: -

CO1: **Apply** different literary theories to analyze and **interpret** literary texts from various genres, including poetry, prose, drama, and other forms of literature.

CO2: **Critique** complex and challenging literary works that encourage critical thinking and **explore** multiple perspectives.

CO3: **Deduce** how literary criticism and theory evolved over time, influenced by historical and cultural contexts.

CO4: **Analyze** chief strains of Indian literary criticism.

Semester V - EN5CRT07: Acts on the Stage

At the end of the course on ***Acts on the Stage***, the students will be able to: -

CO1: **Outline** the historical development of drama and theatre, exploring key movements, playwrights, and theatrical practices.

CO2: **Evaluate** how dramatic works reflect the social, cultural, and political contexts in which they were written and performed.

CO3: **Analyze** the major playwrights and their seminal works, gaining insight into their artistic styles, contributions, and impact on the world of drama.

CO4: **Interpret** comparative studies of plays from different eras, cultures, and genres, examining common themes and variations in dramatic techniques.

Semester V - EN5CROP01: Appreciating Films

At the end of the course on ***Appreciating Films***, the students will be able to: -

CO1: **Demonstrate** a sound understanding of the language of cinema, including film techniques such as shot composition, editing, cinematography, and sound.

CO2: **Extrapolate** the historical development of cinema and have a clear understanding of the evolution of films, genres, and technological advancements in filmmaking.

CO3: **Recognize** and **analyze** various film genres and identify the unique characteristics and conventions of each genre.

CO4: **Analyze** and **interpret** films, identify themes, motifs, symbols, and the director's artistic choices in storytelling.

Semester VI - EN6CRT10: Postcolonial Literatures

At the end of the course on ***Postcolonial Literatures***, the students will be able to: -

CO1: **Analyze** the social, political, cultural aspects of postcolonial societies.

CO2: **Relate** the impact of colonialism and imperialism on native cultural identities.

CO3: **Explain** the links between language, history and culture.

CO4: **Analyze** Postcolonial Literature in the light of Postcolonial theory.

Semester VI - EN6CRT11 : Women Writing

At the end of the course on ***Women Writing***, the students will be able to: -

CO1: **Evaluate** literature from a feminist perspective.

CO2: **Summarize** the patriarchal notions pervade in the social and cultural scenario and how feminism exposes these notions.

CO3: **Identify** how stereotypical representations of women were constructed and how these are subverted by feminist writing.

CO4: **Analyze** how class, race and gender influence literature.

Semester VI - EN6CRT12: American Literature

At the end of the course on ***American Literature***, the students will be able to: -

CO1: **Illustrate** the evolution of various literary movements in American literature

CO2: **Explain** the contribution of major authors in American Literary History.

CO3: **Analyze** and **appreciate** the unique features of American Literature

CO4: **Interpret** works written by representative American writers.

Semester VI - EN6CRT13: Modern World Literature

At the end of the course on ***Modern World Literature***, the students will be able to: -

CO1: **Show** how literatures across the world engage in deep terms with the vicissitudes of life.

CO2: **Analyze** how world literatures often defy genres / regionalities and canonical assumptions to emerge as a platform where poetics and politics fuse.

CO3: **Evaluate** how the notion of major and minor, central and peripheral literatures is a myth.

CO4: **Analyze** literary texts in broader perspective of World Literature.

Semester VI - EN6PR01: Project

At the end of the course on ***Project***, the students will be able to: -

CO1: **Use** MLA format and the basics of research methodology

CO2: **Identify** a research problem and formulate a hypothesis

CO3: **Analyze** the texts of the chosen area of specialization through literature review

CO4: **Apply** theoretical knowledge to practice through writing.

Department of English

Name of the course offered by Department: **MA English Language and Literature**

Programme Outcomes – Domain Specific (PSO)

At the end of the PG Programme in **MA English Language and Literature**, the students will be able to: -

PO1: Knowledge and Vision of Life

Acquire in-depth knowledge in literature and humanities which make them sensitive and sensible enough to solve the issues related with mankind.

PO2: Analytical Abilities

Understand various novelistic discourses as well as dramatic actions for the culture and context of the said literary work.

PO3: Practical Wisdom

Deploy learnt lessons into their practical lives drawn from stories and poems which sensitize them towards humans, animals and nature.

PO4: Research Methodology

Acquire skill in research and research methodology.

PO5: Language Skills

Use English language in real life situations and develop a career in Language Training.

Domain Independent Outcomes (PO)

At the end of the PG Programme in **MA English Language and Literature**, the students will be able to: -

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes

Semester I - EN010101: Up until Chaucer: Early Literatures in English

Course Outcomes (CO)

At the end of the course ***Up until Chaucer: Early Literatures in English***, the students will be able to: -

CO1: **Generate** awareness the history of the evolution of the English Language from Old English to Middle English.

CO2: **Recognize** the major themes and characteristics of medieval English Language and Literature as an expression of Anglo-Saxon culture and society as it emerges into a 'Britain-consciousness'.

CO3: **Analyze** the major literary works of Middle English authors with a special focus on Chaucer and his contributions.

CO4: **Recall** the social, cultural and intellectual background of the period preceding Chaucer and of the late medieval period in English Literature.

Semester I - EN010102: Literature of the English Renaissance

Course Outcomes (CO)

At the end of the course ***Literature of the English Renaissance***, the students will be able to: -

CO1: **List** the literary and socio-political aspects of the period.

CO2: **Chart** the history and culture of Renaissance England.

CO3: **Interpret** the philosophy of the Enlightenment

CO4: **Appreciate** the drama written during this span of time and the acclaimed Fiction and the groundbreaking non- fictional works of the period.

Semester I - EN010103: Literatures of the English Revolution/ Enlightenment

At the end of the course ***Literatures of the English Revolution/ Enlightenment***, the students will be able to: -

CO1: **Document** the late seventeenth and the 18th century literary scenario, drawing upon the significant social and political developments of the times.

CO2: **Compile** the philosophy of the Enlightenment and the circumstances that led to the development of new genres.

CO3: **Explain** the emergence of new genres and survey the poetry, drama, fiction and non-fictional works written during the period.

CO4: **Appraise** the period and foreground its relevance in the realm of English Literature.

Semester I - EN010104: 19th Century English Literatures

At the end of the course ***19th Century English Literatures***, the students will be able to: -

CO1: **Explain** the fundamental premises of the Romantic Movement and Victorian Literature

CO2: **Identify** the salient features of the Romantic sensibility and trace the differences between the Romantic and neo-Classical ideals.

CO3: **Interpret** the effects of the major developments of the latter 18th and early 19th century (Industrial Revolution, French Revolution, the American War of Independence) on the political, economic and social scenario of England.

CO4: **Evaluate** the influence of the changed political, social, and cultural landscape on the literary and critical outlook of the authors of the period.

Semester I - EN010105: Literary Criticism

At the end of the course ***Literary Criticism***, the students will be able to: -

CO1: **Identify** major contemporary critical practices.

CO2: **Discover** the relationship between literary production and socio-political environment.

CO3: **Analyse** the evolution of theoretical categories such as self, subject, structure, class, gender as well as aesthetic notions of beauty, form etc. in literature.

CO4: **Apply** critical inputs in reading literary texts.

Semester II - EN010201: Modernity and Modernisms

At the end of the course ***Modernity and Modernisms***, the students will be able to: -

CO1: **Explain** 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: **Distinguish** the key issues raised by imperial expansion and World War I.

CO3: **Evaluate** the various experimental techniques used by modernist writers.

CO4: **Assess** movements like the avant garde, the Pink decade and so forth.

Semester II - EN010202: Postmodernism and Beyond

At the end of the course ***Postmodernism and Beyond***, the students will be able to: -

CO1: **Describe** the development in English literature since 1960s by analysing representative works from experimental and metropolitan literature.

CO2: **Appreciate** Postmodernism/post modernism debate and the problematic of definition.

CO3: **Analyse** poetry which is anti-sceptical and sensitive to the realities of religion and metaphysics.

CO4: **Identify** and **analyse** typical postmodern features and devices like self-reflexivity and multiculturalism.

Semester II - EN010203 : American Literature

At the end of the course ***American Literature***, the students will be able to: -

CO1: **Analyze** major literary movements, authors, and works in American literature from its colonial beginnings to contemporary times.

CO2: **Explain** diverse voices and perspectives within American literature, including works by women, minority writers, and voices from different regions.

CO3: **Analyze** and interpret American literary texts, including novels, poetry, drama, essays, and other literary forms.

CO4: **Explain** how American literature reflects and addresses contemporary societal and cultural issues.

Semester II - EN010204: English Language and Contemporary Linguistics

At the end of the course ***English Language and Contemporary Linguistics***, the students will be able to: -

CO1: **Describe** the historical stages of the English language, including Old English, Middle English, Early Modern English, and Modern English.

CO2: **Analyze** the speech sounds of English and their production, as well as the patterns and rules governing sound changes.

CO3: **Develop** practical skills in applying linguistic analysis to various real-world language phenomena, such as discourse analysis, language variation, and language acquisition.

CO4: **Analyze** the structure of words and sentences in English, understanding how morphemes combine and how sentences are formed.

Semester II - EN010205 : Thinking Theory

At the end of the course ***Thinking Theory***, the students will be able to: -

CO1: **Deduce** the historical development of literary theory and its transition from criticism to theory, as evidenced by engagement with readings by Culler, Levi-Strauss, and Derrida.

CO2: **Critique** the traditional assumptions of authorship and discourse in literary criticism, demonstrated through discussions on Barthes, Foucault, and Young.

CO3: **Estimate** the role of psychoanalysis in understanding the unconscious and cognition in literature, through exploration of texts by Felman, Abraham, Rand, and Kristeva.

CO4: **Evaluate** and discuss the queer perspectives on gender and identity, challenging normative male-female dynamics.

Semester III - EN010301: Reading India

At the end of the course ***Reading India***, the students will be able to: -

CO1: **Interpret** the historical, cultural, and literary heritage of India through Indian literature in English.

CO2: **Analyze** major movements and figures of Indian literature in English, focusing on language, nation, and aesthetics.

CO3: **Summarize** the evolution of Indian writing in English in both colonial and post-colonial contexts.

CO4: **Recall** the thematic, stylistic, and modernization aspects in Indian writing in English and explore the quest for identity in the Diaspora.

Semester III - EN010302: Postcolonial Fiction

At the end of the course ***Postcolonial Fiction***, the students will be able to: -

CO1: **Detect** the discursive nature of colonialism and the counter-discursive impulses of postcolonial theory, narratives, and texts.

CO2: **Analyze** representative postcolonial texts from different regions, including India, West Asia, Africa, and the Americas/Caribbean.

CO3: **Explain** themes such as hybridity, subalternity, spectrality, and 'internal colonizations' through the selected postcolonial writings.

CO4: **Appraise** the contributions of prominent postcolonial theorists and writers like Edward Said, Homi K. Bhabha, Frantz Fanon, and others.

Semester III - EN010303 : Body, Text and Performance

At the end of the course ***Body, Text and Performance***, the students will be able to: -

CO1: **Identify** the theoretical frameworks of body, performance, gender, and power, and their relevance in the realm of drama, theatre, and cinematic adaptations.

CO2: **Analyze** the representation and dramatization of desire in different expressive modes, exploring themes of violence and its impact on the body and mind.

CO3: **Discover** the theatrical dimensions of gender and transgender, considering how classical and contemporary plays address issues of gender norms and sexuality.

CO4: **Document** performances in the context of autobiographies, biopics, and queer theatre, exploring their impact on societal perceptions and stereotypes.

Semester III -EN010304: Literature and Gender

At the end of the course ***Literature and Gender***, the students will be able to: -

CO1: **Consider** the historical, cultural, and thematic aspects of literature in relation to gender issues and understand gender as a fluid concept beyond fixed heteronormative binaries.

CO2: **Analyze** and appreciate literary works that explore the concept of femininity and ecriture feminine, showcasing the voices of women writers from different cultural backgrounds.

CO3: **Predict** the portrayal of gender and community identity in literature, while discussing the challenges and issues faced by women in society.

CO4: **Relate** the representation of lesbian and black identities in literary works and analyze the depiction of patriarchal oppression in Indian language literature across different periods.

Semester III - EN010305 : Ethics in/as Literature

At the end of the course ***Ethics in/as Literature***, the students will be able to: -

CO1: **Analyze** and understand the ethical and formal choices employed in narrative fiction across different periods, cultures, and languages.

CO2: **Estimate** and appreciate works of fabulist fiction that challenge traditional notions of realism and explore alternative narrative styles.

CO3: **Interpret** literary works that address issues related to disabilities, considering their portrayal and social implications.

CO4: **Specify** the intersectionality between the human and natural environment in literature and analyze how narratives depict ethical concerns.

Semester IV -EN010401: Cultural Studies

At the end of the course ***Cultural Studies***, the students will be able to: -

CO1: **Explain** the theoretical premises of Cultural Studies on the basis of the readings of the pioneers- Raymond Williams, Stuart Hall and John Storey.

CO2: **Generalize** the pervading cultural semiosis/ representations, one can discern in our societal context on the basis of the readings of Guy Debord, R Nandakumar, David Forgacs.

CO3: **Synthesize** the decoding of social signs/ various negotiations of socio- cultural identities.

CO4: **Assess** and understand the poetics and politics of sports- myth.

Semester IV -EN010402: Postcolonial Poetry

At the end of the course ***Postcolonial Poetry***, the students will be able to: -

CO1: **Identify** the key concepts of postcolonialism.

CO2: **Explain** the use of postcolonial elements in poetry.

CO3: **Interpret** the different literary devices used in postcolonial poetry.

CO4: **Analyse** postcolonial issues depicted in poetry by the authors from colonies across the world.

Semester IV - EN820401 : Modern European Fiction

At the end of the course ***Modern European Fiction***, the students will be able to: -

CO1: **Categorize** the great authors and classics of Modern European Fiction.

CO2: **Justify** the expression of literary movements such as realism and naturalism in various works of fiction.

CO3: **Judge** the socio-political movements of the 19th and 20th centuries.

CO4: **Evaluate** the European fiction of the 19th and 20th centuries.

Semester IV - EN820402: Modern European Drama

At the end of the course ***Modern European Drama***, the students will be able to: -

CO1: **Find** the concepts and conventions of plays.

CO2: **Analyze** representative plays of the Realistic, Naturalistic, Modernist, epic theatre, Theatre of the Absurd, and postmodernist theatre.

CO3: **Consider** the key terms of both the modernist and postmodernist theatre.

CO4: **Critique** representative plays of the various modernist dramatic modes.

Semester IV - EN820403: Indian Poetics: Theories and Texts

At the end of the course ***Indian Poetics: Theories and Texts***, the students will be able to: -

CO1: **Discover** eight major schools of Indian Aesthetics.

CO2: **Formulate** the dominant aesthetic sentiment and the suggestive potential of the language of the text.

CO3: **Show** the strong geopolitics behind Tamil poetics.

CO4: **Determine** the contextual diversity of Translations.

BACHELOR OF BUSINESS ADMINISTRATION

Programme Outcomes – Domain Specific (PSO)

At the end of the UG programme in BBA, the students will be able to:

PO1: **Solving Ability**

Apply knowledge of commerce and related finance fundamentals to the solution of complex problems arising in various fields and create the ability to engage in competitive examslike CA, CS, ICWA, and other courses.

PO2: **Analysis Ability**

Analyze practical exposures which would equip the students to face modern day challenges in commerce and business,the advanced accounting courses beyond the introductory level, affective development will also progress to the valuing and organizational level..

PO3: Creating Awareness

Creating awareness about basic concepts of income tax regime in India, its recent updates and make students able to calculate income tax in their life and career related aspects.

PO4: Evaluation

Able to recognize and evaluate features and roles of businessmen, entrepreneurs, managers, consultants, which will help learners to possess the knowledge and other soft skills and to react aptly when confronted with critical decision making.

PO5: Practical skills

Create and acquire practical skills to work as tax consultants, audit assistants and other financial supporting services. Create relevant managerial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business

Domain Independent Outcomes (PO)

PO6: Critical Thinking

Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions (intellectual, organizational, and personal) from different perspectives.

PO7: Effective Communication

Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and Communicate effectively on various activities with the community and with society at large, such as being able to comprehend and write effective reports and design documentation make effective presentations, and give and receive clear instructions.

PO8: Social Interaction

Elicit views of others, mediate disagreements and help reach conclusions in group settings. and demonstrate understanding of the societal, health, safety, legal and cultural issues and the consequent responsibilities.

PO9: Ethics

Understand and commit to professional ethics and responsibilities and norms of relevant to one's field of study, work and practice.

PO10: Environment and Sustainability

Understand the issues of environmental contexts and demonstrate knowledge of and need for sustainable development through mandatory environmental studies.

PO11: Effective Citizenship

Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering and awareness of human rights.

PO12: Self-directed and Life-long Learning

Acquire the ability to engage in independent and life-long learning in the broadest context socio-technological changes.

COURSE OUTCOMES

Semester I - BA1CRT01: Principles and Methodology of Management

At the end of the course ***Principles and Methodology of Management***, the students will be able to: -

CO1: Determine Methodological Perspective of Management as a discipline.

CO2: **Identify** Principles and functions of Management.

CO3: **Explain** Process of decision making.

CO4: **Interpret** Modern trends in management process.

Semester I - BA1CRT02: Business Accounting

At the end of the course ***Business Accounting***, the students will be able to: -

CO1: **Identify** the basics of accounting.

CO2: **Arrange** the basics principles of accounting.

CO3: **Determine** the systems /process for recording transactions.

CO4: **Find** Modern trends in management process.

CO5: **Analyse** a general awareness about depreciation accounting.

CO6: **Acquire** the concept of bill of exchange in business.

Semester II - BA2CRT06: Cost and Management Accounting

At the end of the course ***Cost and Management Accounting***, the students will be able to: -

CO1: **Identify** the basic concepts and processes used to determine product cost.

CO2: **Interpret** cost accounting statement

CO3: **Evaluate** and **analyse** and information for cost ascertainment, planning, control and decision making.

Semester II - BA2CRT07: Business Communication

At the end of the course ***Business Communication***, the students will be able to: -

CO1: Explain the nuances of business communication.

CO2: Equip students to group discussion and seminars.

Semester III - BA3CRT11: Human Resource Management

At the end of the course ***Human Resource Management***, the students will be able to: -

CO1: **Contribute** to the development, implementation and evaluation of employee's recruitment, selection, and retention plans and processes.

CO2: **Develop** implement and **evaluate** organizational development strategies aimed at promoting organizational effectiveness.

Semester III - BA3CRT12: Marketing Management

At the end of the course ***Marketing Management***, the students will be able to: -

CO1: **Awareness** on market, market segments and consumer behaviour

CO2: **Know** the meaning and importance of product mix.

CO3: **Explain the** pricing policies and the applicability of different pricing strategies.

CO4: **Outline** the scope of advertising and sales promotion.

CO5: **Identify** and develop salesmanship in them.

Semester III - BA3CRT13: Research Methodology

At the end of the course ***Research Methodology***, the students will be able to: -

CO1: **Appraise** some basic concepts of research and its methodologies.

CO2: **Identify** appropriate research topic.

CO3: **Prepare** project proposal.

CO4: **Write** a research report and thesis.

Semester III - BA3CMT14: Business Laws

At the end of the course ***Business Laws***, the students will be able to: -

CO1: **Explain** the principles behind law of contract.

CO2: **Identify** the validity of contracts.

CO3: **Create** awareness about various special contracts.

Semester III - BA3PRP15: Personality Development and Management Skills (Minor Project)

At the end of the course ***Personality Development and Management Skills***, the students will be able to: -

CO1: **Create** opportunity to explore current management literature so as to develop an individual style and sharpen his skills in the area of leadership, communication, decision making, motivation and conflict management.

Semester IV - BA4CRT16: Financial Management

At the end of the course ***Financial Management***, the students will be able to: -

CO1: **Demonstrate** an understanding of the overall role and importance of the finance function.

CO2: **Explain the** basics of finance management knowledge.

CO3: **Communicate** effectively using standard business terminology.

Semester IV - BA4CRT17: *Managerial Economics*

At the end of the course ***Managerial Economics***, the students will be able to: -

CO1: **Identify** the roles of managers in firms.

CO2: **Distinguish** between internal and external decisions to be made by managers.

CO3: **Analyze** real-world business problems with a systematic theoretical framework.

Semester IV - BA4CRT18: Entrepreneurship

At the end of the course ***Entrepreneurship***, the students will be able to: -

CO1: **Advance** in dealing with customer development, customer validation, competitive analysis and iteration while utilizing design thinking and process tools to evaluate in real-world problems and projects.

Semester IV - BA4CMT20: Corporate Laws

At the end of the course ***Corporate Laws***, the students will be able to: -

CO1: **Identify** the various steps in the formation of a company.

CO2: **Specify** the basic principles of corporate laws.

CO3: **Clarify** the basic principles of partnership law.

CO4: **Document** the basic features of limited liability partnership.

Semester V - BA5CRT21: Organisational Behaviour

At the end of the course ***Organisational Behaviour***, the students will be able to: -

CO1: **Identify** conflict amongst groups in business environment

CO2: **Compile** and **apply** motivational theories in the workplace

CO3: **Identify** changes within organisations and power and politics in organizations

Semester V - BA5CRT23: Environment Science and Human Rights

At the end of the course ***Environment Science and Human Rights***, the students will be able to: -

CO1: **Describe** and **specify** the rich biodiversity of India, which provides various resources for people.

CO2: **Research** and **investigate** how and why things happen in our environment make his/her own decisions about complex environmental issues.

CO3: **Foster** a new generation of informed consumers, workers, as well as policy or decision makers.

CO4: **Explain** how decisions and actions affect the environment, builds concepts and skills necessary to address complex environmental issues.

Semester V - BA5CMT24: Intellectual Property Rights and Industrial Laws

At the end of the course ***Intellectual Property Rights and Industrial Laws***, the students will be able to: -

CO1: **Acquaint** with basics of intellectual property rights with special reference to Indian laws and its practice.

CO2: **Encourage** and protect innovations in the form of intellectual property rights.

CO3: **Compare** different forms of intellectual property protection in terms of their key difference and similarities.

Semester V - BA5CRT25: Operation Management

At the end of the course ***Operation Management***, the students will be able to: -

CO1: **Describe** the global environment of business.

CO2: **Apply** knowledge of business concepts and functions in an integrated manner.

CO3: **Use** specialized knowledge in operations management to solve business processes.

Semester V - BA5CRT26: Industrial Relations

At the end of the course ***Industrial Relations***, the students will be able to: -

CO1: **Acquire** the basic idea regarding industrial relations.

CO2: **Explain** various prospect of workers and employer.

CO3: **Appraise** more about the employee's performance and their carrier planning.

CO4: **Describe** how the workers are participating in Laws making programmes.

CO5: **Reproduce** various welfare facilities of education programmes provided by employers to their employees.

Semester VI - BA6CRT29: Strategic Management

At the end of the course ***Strategic Management***, the students will be able to: -

CO1: **Explain** various perspectives and concepts in the field of strategic management.

CO2: **Apply** the concepts of strategic management to the solution of business problems.

CO3: **Create** the analytical tools of strategic management.

Semester VI - BA6CRT30: Communication Skills and Personality Development

At the end of the course ***Communication Skills and Personality Development***, the students will be able to: -

CO1: **Develop** effective communication skills.

CO2: **Acquire** effective presentation skills.

CO3: **Generate** mature outlook to function effectively in different circumstances.

Semester VI - BA60CT27: Investment & Insurance Management

At the end of the course ***Investment & Insurance Management***, the students will be able to: -

CO1: **Explain** key insurance terminology and contract features

CO2: **Identify** and explain features of private and public insurance available to meet each identified needs

CO3: **Evaluate** the structure of financial markets, the different types of securities, and performance of market participants.

Semester VI - BA60CT28: Advertising and Salesmanship

At the end of the course ***Advertising and Salesmanship***, the students will be able to: -

CO1: **Acquire** the concepts of different types of advertising.

CO2: **Indicate** the various activities in advertising agencies.

CO3: **Distinguish** between selling and salesmanship.

CO4: **Summarise** the rewards for salesman.

THOMAS GEORGE

Digitally signed by THOMAS GEORGE
Date: 2023.11.20 09:46:03 +05'30'