

D.R.M. SCIENCE COLLEGE, DAVANGERE
INTERNAL QUALITY ASSURANCE CELL

Program Outcomes:

B.Sc. (P.C.M), B.Sc. (P.M.CS) and B.Sc., (C.B.Z)

On completion of B.Sc. programme, students acquire the knowledge with facts and figures related to various subjects in pure sciences such as Physics, Chemistry, Mathematics, Computer Science, Botany, Zoology, Languages - Kannada /Hindi / Urdu / and English. The students also study about Environmental Science, Indian Constitution, Social Science Management, Computer Applications and Skill Development in different semesters.

PROGRAMME OUTCOMES	
The students will be able to:	
PO-1:	Understand the basic concepts, fundamental principles and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life.
PO-2:	Acquire the skills in handling scientific instruments, planning and performing laboratory experiments and drawing logical inferences from the scientific experiments.
PO-3:	Develop the knowledge, skills and attitudes that are necessary to pursue higher studies in the courses like M.Sc., M.B.A., M.S.W, M.C.A, B.Ed. etc.
PO-4:	Understand the diverse applications of various fields of basic science and carry the knowledge and applications of basic sciences to community.
PO-5:	Understand the fundamental theories, concepts and applications in basic areas of research and develop the ability to explore new areas of research in Physics, Chemistry, Mathematics, Computer science and allied field of Life sciences.
PO-6:	Create, select, and apply appropriate techniques, resources, modern computing and IT tools including prediction and modelling to complex scientific activities with an understanding of the limitations. (For B.Sc., P.M.CS)
PO-7:	Develop various communication skills such as reading, listening, speaking, etc., which helps in expressing ideas and views clearly and effectively.
PO-8:	Realize how developments take place in interdisciplinary approach which helps in providing better solutions and new ideas for the sustainable development.
PO-9:	Realize that multidisciplinary subjects other than the specific subjects

PO-10:	Imbibe ethical, moral and social values in personal and social life leading to highly cultured and civilized personality.
PO-11:	Realize that pursuit of knowledge is a lifelong activity that leads towards a successful life.
PO-12:	Develop talent by participating in various social and cultural activities voluntarily, in order to spread knowledge, create awareness about the social evils, blind faith and so on.
PO-13:	Ability to communicate with others in regional language and in English.
PO-14:	Understand the issues related to nature and environmental contexts and sustainable development.
PO-15:	A degree in B.Sc. (Computer Science) puts a good platform for fundamentals of Computer Science, and is a stepping stone in student's professional career.
PO-16:	Apply reasoning informed by the related knowledge to assess societal, health, safety and legal issues.
PO-17:	Apply ethical principles and commit to professional ethics and responsibilities and norms of the scientific practice.

Program Specific Outcomes: PHYSICS

SPECIFIC OUTCOMES	
At the end of the B.Sc. program in Physics the students will be able to:	
SO-1:	Gain a working knowledge of fundamental concepts in basic areas of physics such as classical mechanics, quantum mechanics, thermodynamics, nuclear physics, optics, atomic physics, astrophysics and electronics.
SO-2:	Read, understand and interpret physical information – verbal, mathematical and graphical.
SO-3:	Acquire need based education in physics to achieve high quality at the undergraduate level.
SO-4:	Analyse physical problems and develop correct solutions using accepted laws.
SO-5:	Solve versatile problem with physical intuition along with analytical skills, qualitative skills building models and understanding the world around us.

Course Outcomes of Physics:

Semester 1: Paper-I: Mechanics and Properties of Matter (Theory) and Practical-1

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand the role of vectors and coordinate systems in Physics; solve ordinary differential equations, laws of motion and their applications to various dynamic situations.
CO-2:	Learn the concept of inertial reference frames. The concept of conservation of energy, momentum, angular momentum and apply them to the basic problems.
CO-3:	Understand the basic concepts of Newton's laws, Centre of mass, Moment of Inertia.
CO-4:	Describe how fictitious forces arise in a non-inertial frame, e.g., Why a person sitting in a merry-go-round experiences an outward pull?
CO-5:	Describe Gravitational law and understand motion of rocket and development of multistage rocket.
CO-6:	Understand material properties such as elasticity, viscosity and surface tension.

Semester 2: Paper-II: Thermal Physics and Waves (Theory) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Learn the basic concepts of thermodynamics, the zeroth, first and the second laws of thermodynamics, the concept of entropy and the associated theorems, Carnot cycle and efficiency of heat engine.
CO-2:	Imparts conceptual knowledge of kinetic theory of gases, mean free path. Have a knowledge of the real gas equations, Van der Waal equation of state, the Joule-Thompson effect, Latent heat equations, etc.
CO-3:	Learn about the black body radiations, Stefan- Boltzmann's law, Rayleigh-Jean's law and Planck's law and their significances.
CO-4:	Gain knowledge about superposition of two harmonic oscillations and their result as a Lissajous figures at different frequencies and phases, phase velocity and group velocity etc.
CO-5:	Understand acoustics, noise and loudness to gain the knowledge about the designing of acoustic hall and auditorium.

Semester 3: Paper-III: Geometrical Optics and Electricity (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand the nature of light and its properties.
CO-2:	Learn about lens aberration and different methods to minimise lens aberration. Learn about construction and working of eye-pieces.
CO-3:	Describe mathematical formulation useful to understand physical properties such as vectors, scalars, gradient, divergence, curl, surface and volume integrals. Electrostatics, dipole and quadrupole moments, Gauss's law, capacitance, dielectric measurements and other related concepts.
CO-4:	Explain and differentiate the vector (electric fields, Coulomb's law) and scalar (electric potential, electric potential energy), formalisms of electrostatics, apply Gauss's law of electrostatics to solve a variety of problems.
CO-5:	Verify all network theorems using electric circuits.
CO-6:	Understand the concept of Inductance and Capacitance; solve many circuit problems using L-R, C-R and L-C-R circuits.
CO-7:	Gain knowledge of alternate current, production and measurement of power by different sources. Understand the resonance circuits and their applications. Understand R-C filters.

Semester 4: Paper-IV: Wave Optics and Electromagnetism (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand the light phenomena such as interference, diffraction and polarization.
CO-2:	Understand the interference in thin films, using examples of Newton's rings, air wedge and Michelson's interferometer and applications.
CO-3:	Gain knowledge of specific rotation, Kerr effect and Faraday effect.
CO-4:	Describe how magnetism is produced and list the examples where its effects are observed.
CO-5:	Understand the theory of Helmholtz Galvanometer, Ampere's circuital law and its applications.
CO-6:	Explain Faraday-Lenz and Maxwell laws to articulate the relationship between electric and magnetic fields.

Semester 5: Paper V- Atomic Physics and Lasers (Th) and Practical- 5

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Acquire knowledge about the electronic and nuclear structure of atoms.
CO-2:	Understand about charge of an electron and different methods to find specific charge of an electron.
CO-3:	Solve problems related to the structure of atoms and the effect of LS and JJ coupling.
CO-4:	Have an appreciation of Optical spectra helpful in the analysis of structure of atoms.
CO-5:	Learn about Zeeman effect, theory of Normal Zeeman effect and Anomalous Zeeman effect, Paschen Back effect and Stark effect.
CO-6:	Understand the role of LASER, X-ray and radioactive rays in the field of medical science.
CO-7:	Learn about principle and production of LASER.
CO-8:	Learn about principle of recording and production of Holography.

Semester 5: Paper-VI:

Molecular Physics, Nuclear Physics and Statistical Mechanics (Th) and Practical- 6

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand Molecular spectra, its origin and selection rules.
CO-2:	Learn about experimental study of Raman effect, quantum theory of Raman effect and applications of Raman effect.
CO-3:	Have an appreciation of statistical nature of macro systems, Thermo dynamical probability.
CO-4:	Theory of M-B distribution law, Fermi-Dirac distribution law and Bose- Einstein condensation.
CO-5:	Learn about the phenomenon of Radioactivity, theory of successive disintegration and radioactive equilibrium.
CO-6:	Understand Radioactive dating- determination of age of Earth, rocks and archeological dating.
CO-7:	Learn about α -decay, β - decay, and theory of Radioactive decays and characteristics of radioactive radiations.
CO-8:	Acquire the knowledge and understand the structure of nucleus with the help of Liquid drop model, Shell model and Fermi gas model.
CO-9:	Learn about Detectors and Accelerators (Cyclotron and Betatron).
CO-10:	Understand discovery of primary and secondary Cosmic rays and their characteristics.

Semester 5: Paper-VII: Electronics, Solid state physics and Nano materials (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand the working of transistors- to draw DC and AC load lines. Different methods of biasing transistors, expressions for voltage, current and power gains using hybrid parameters.
CO-2:	Learn about symbol, characteristics and applications of Op-amp.
CO-3:	Learn about oscillators- concept of feedback and Barkhausen criterion. Construction and working of oscillators and multi vibrators.
CO-4:	Have an appreciation of use of digital signals over Analog signals.
CO-5:	Learn about construction, symbol and truth tables of AND, OR and NOT logic gates, Brief explanation of Boolean expressions- Implementation by basic logic gates.
CO-6:	Understand the concept of lattice, unit cell, Bravais lattice, crystal systems and Miller indices. X-ray diffraction, Bragg's law and crystal structure of NaCl.

CO-7:	Learn about theory of specific heat of solids.
CO-8:	Learn about Free electron theory of metals and Fermi energy.
CO-9:	Learn about Band theory of solids and Hall effect.
CO-10:	Have an appreciation of concept of Superconductivity, BCS theory of Superconductivity, applications of superconductors -Maglev and SQUIDS.
CO-11:	Langevin's theory of Diamagnetism and Paramagnetism and Domain theory of Ferromagnetism.
CO-12:	Acquire knowledge and understand about Nanomaterials, properties of Nanomaterials, Nanotubes and Applications of Nanotechnology.

Semester 5: Paper-VIII: Relativity, Astrophysics, Quantum Mechanics and Space Physics (Th) and Practical- 8

COURSE OUTCOMES	
On successful completion of the course students will be able to,	
CO-1:	Understand the principles of Quantum mechanics and special theory of relativity. Theory of relativity provides intellectual food for students interested in theoretical studies.
CO-2:	Understand null result of Michelson-Morley experiment, postulates of Special theory of Relativity, Length contraction and Time dilation.
CO-3:	Get the knowledge of derivation of velocity addition theorem, relativistic variation of mass, Einstein's mass energy equivalence and Relativistic Doppler effect.
CO-4:	Know concept of matter waves, De Broglie hypothesis, uncertainty principle, wave function, Schrodinger's wave equation and its applications.
CO-5:	Understand the basics of astronomy and astrophysics, Stellar Evolution, properties of stars, life cycle of stars, solar atmosphere, photon diffusion time, formation of stars-properties, HR diagrams, neutron star and black hole.
CO-6:	Know solar atmosphere, electromagnetic radiations from the sun, solar wind and solar cycles.

Program Specific Outcomes: MATHEMATICS

SPECIFIC OUTCOMES	
At the end of the B.Sc. Program in Mathematics the students will able to,	
SO-1:	Use mathematical ideas to perfect real-world problems.
SO-2:	Utilize technology to address mathematical ideas.
SO-3:	Demonstrate the effective use of mathematical skills to solve quantitative problems from a wide array of mathematical concepts.
SO-4:	
SO-5:	Perform in Scilab and Maxima software which will be very useful for their research programs.
SO-6:	Pursue their career in academics, industry and other areas of mathematics.

Course Outcomes of Mathematics:

Semester 1: Paper I- Algebra and Calculus-I (Th) and Practical- 1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the advance topics on matrices, via rank, Eigen values and homogeneous and non-homogeneous systems in Algebra.
CO-2:	Define algebraic, geometric, integral and successive differentiation.
CO-3:	Understand basic properties of limit, continuity, differentiability of functions and reduction formulae.
CO-4:	n^{th} order derivatives of some special functions like exponential, algebraic, trigonometric functions with example.

Semester 2: Paper II-Algebra and Calculus-II (Th) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Find the order of the group, integral power of the group, cyclic group, abelian group, Lagrange's theorem and its applications and Cossets of groups.
CO-2:	Identify the left and right Cossets of a group, Quotient group, Normal subgroups and its applications. Homomorphism and Isomorphism of groups with examples.
CO-3:	Understand the derivative of an arc of a curve in different types.
CO-4:	Understand the curvature of different curves. Centre of curvature for Cartesian curve, Involute and Evolute.
CO-5:	Understand the envelope of Cartesian and polar curves.
CO-6:	Know the asymptotes for an algebraic curve for both x and y axes. Oblique asymptote.

CO-7:	Understand the nature of the double points of an algebraic curve to find node, cusp and isolated point.
CO-8:	Know the partial differentiation of 1 st and 2 nd order derivatives of Homogeneous function of two variables and three variables.
CO-9:	Understand the Euler's theorem and its extension formulae.

Semester 3: Paper III- Calculus-III and Geometry-I (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Represent mathematical information on numerically, symbolically, graphically, verbally and visually using appropriate technology.
CO-2:	Solve problems using Roll's theorem, Lagrange's mean value theorem, Taylor's theorem, Maclaurin's expansion of series. Cauchy's mean value theorem and indeterminate forms of various types.
CO-3:	Trace the curves, rectification, quadrature and volume of solids of revolution.
CO-4:	Find directional derivative, gradient, curl, Laplacian operator, Solenoidal vector and irrational vector.
CO-5:	Understand the equations of plane, equation of line, mutual position of a line and plane and angle between two planes.
CO-6:	Understand the equation to a sphere, circular cylinder, cone and angle between two spheres coplanarity.
CO-7:	Prove a statement using one of the basic methods of proof or disprove it using a counter example.

Semester 4: Paper IV- Differential equation-I and Analysis-I (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Compare first and second order differential equations. Solve the equations using appropriate techniques including constructing solutions using series and matrices.
CO-2:	Know the geometrical meaning of a differential equation of first order and first degree using a counter example.
CO-3:	Know the differential equations of first order and higher degree. Equations solvable for x, y and p, where $p=dy/dx$. Equations reducible Clairaut's form. To find general and singular solution.
CO-4:	Understand the second order second degree differential equations with constant coefficients to find complementary function and particular integral for various types.

CO-5:	Know the simultaneous differential equations solve for x and y to find C.F and P.I.
CO-6:	Understand the sequences- to find lower bound, infimum, supremum, convergent, divergent, monotonic decreasing and increasing sequences and also in series.

Semester 5: Paper V- Differential equations-II and Algebra-III (Th) and Practical-5-

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Find various definitions of rings, subrings and theorems, ideals and its properties, intersection, sum and product of any two Ideals is again an Ideal prove by theorems.
CO-2:	Know the differential equations of second order with variable coefficients in different methods.
CO-3:	Understand the total and simultaneous differential equations using counter examples.
CO-4:	Know the Lagrange's linear equations. Nonlinear equations for different types and Charpit's method to find the partial differential equations.

Semester 5: Paper VI - Numerical methods-I and Calculus-IV (Th) and Practical- 6

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Know the forward, backward, shift operator and differential operators. The above operators using suitable example. Relation between the operators with equal intervals.
CO-2:	Understand the Newton Gregory forward and backward differences of equal intervals.
CO-3:	Know the interpolation formula for unequal intervals and inverse interpolation formulae.
CO-4:	Know the numerical integration:- Different formulas like Simpson 1/3 rd rule and 3/8 th rule, Weddle's rule and Trapezoidal rule.
CO-5:	Know the numerical solution of algebraic equation by the method of successive bisection and Newton-Rapson iterative method.
CO-6:	Know the Euler's, Euler's modified method and Runge-Kutta 4 th ordered method.
CO-7:	Know the line and multiple integrals, change of order of integration and by change variable, surface area of double integral and volume of triple integrals.

Semester 6: Paper VII - Analysis-II and Algebra-IV (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Know the complex analysis: Geometrical representation of complex plane.
CO-2:	Understand the functions of complex variable: Limit, continuity and differentiability.
CO-3:	Understand the analytic functions, Cauchy's-Riemann equations in Cartesian and polar forms, harmonic functions and construction of analytic function.
CO-4:	Understand the complex integration: Cauchy's integral theorem, Cauchy's inequality, Liouville's theorem with proof.
CO-5:	Understand the vector algebra: Definition of vector space and subspaces with examples.
CO-6:	Understand the linear independent and dependent vectors, Linear span of a vector space, Basis and Dimension-Standard properties.
CO-7:	Understand the Linear transformation, matrix of a linear transformation with standard basis.
CO-8:	Understand the Rank-nullity theorem: problems on Rank-nullity theorem.

Semester 6: Paper VIII - Calculus-V and Mathematical methods-II (Th) and Practical- 8

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Know the Integral theorems: Green's theorem, Gauss divergence theorem and Stoke's theorem with suitable examples.
CO-2:	Understand the Improper Integrals: Gamma and Beta functions- definitions, examples and their properties. Relation between Gamma and Beta functions. Duplication formula.
CO-3:	Know the Laplace and Inverse Laplace transforms. Solution of ordinary differential equations using Laplace transforms method.
CO-4:	Know the Laplace transform of periodic function using integral.
CO-5:	Know the Convolution theorem and prove by Laplace transform method.
CO-6:	Know the Fourier series: Fourier series having period 2π , $2L$, even and odd function. Fourier Sine series and Fourier Cosine series.

Program Specific Outcomes: COMPUTER SCIENCE

SPECIFIC OUTCOME	
At the end of B.Sc. program in Computer Science the students will be able to:	
SO-1:	Learn good fundamentals of Computer Science.
SO-2:	Acquire A degree in B.Sc. (Computer Science) that becomes a stepping stone for student's professional career.
SO-3:	Learn lively subject, demand frequent updating of syllabi and sync the student with need of industry.
SO-4:	Create, select, and apply appropriate techniques, resources, and modern computing
SO-5:	Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional practice.
SO-6:	Apply ethical principles and commit to professional ethics and responsibilities and norms of the scientific practice.
SO-7:	All theoretical concepts are implemented in practical which make a student industry ready and entrepreneur.
SO-8:	The course is designed to support automation and digitization in all walks of life
SO-9:	Develop technical project reports and present them orally among the users
SO-10:	Use IT tools including prediction and modelling to complex scientific activities with an understanding of the limitations.

COURSE OUTCOMES OF COMPUTER SCIENCE

Semester 1: Paper I- Computer Fundamentals and C-Programming (Th) and Practical- 1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the role of computer its characteristics, its type, about input/output devices, about hard disk, types of languages, merits and demerits of all the language.
CO-2:	Explain about the basic concepts of program development statements and its syntax
CO-3:	Create and initialize variables, constant, arrays, pointers, structures and unions.
CO-4:	Manipulate values of variables, arrays, pointers, structures, unions and files.
CO-5:	Create the function that can receive variables, arrays, pointers and structures.
CO-6:	Define functions that can receive variables, arrays, pointers and structures.
CO-7:	Learning MSWord,MSExcel,Powerpoint and basic programs on c programming which is learnt in theory.

Semester 2: Paper II- Data Structures and Algorithms (Th) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Students understand about structures and union, dynamic memory allocation and creation of files and its functions like Create open, read, manipulate, write and close files.
CO-2:	Learn the basic definition of data structure and its types, learning about stack data structure its definition, types like push, pop, display.
CO-3:	Definition of ordinary queue, and types of queue like circular, double ended queue, priority queue its creation deletion and display.
CO-4:	Definition of Recursion in C, Writing Recursive programs – Binomial coefficient, Fibonacci, GCD, towers of Hanoi.
CO-5:	Definition of components of linked list, Representation of linked list, Advantages and disadvantages of linked list, Types of linked list, operations like Creation, insertion, deletion, search and display.
CO-6:	Definition of Tree, Binary tree, complete binary tree, Binary search tree, Tree terminology: root, Node, Degree of a node, ancestors of a node, Binary tree, Array representation of tree, Creation of Binary tree, and Traversal of Binary tree: Pre order, In order and post order.
CO-7:	Explain programs on structures, pointers, file handling, stack, queues, trees, and recursion.

Semester 3: Paper III: Database Management System (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understands the fundamentals of File processing and database processing system.
CO-2:	Study the various data model and its application.
CO-3:	Study the various normal forms and its role in DBMS.
CO-4:	Study the fundamental concepts of SQL programs
CO-5:	Study the transaction Management concepts and properties, states, concurrent execution, scheduling.
CO-6:	Study the creation of database insertion of data into the database, working with Table and data using another table. Modifying table structure and updating data. Queries adding deleting and verifying Keys.

Semester 4: Paper IV: OOP Concepts with Java Programming (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understands about basic Java language syntax and semantics to write Java programs.
CO-2:	Describe the concepts of variables, conditional and iterative execution methods etc. Discuss the the fundamentals of object-oriented programming in Java, including defining classes, objects, invoking methods
CO-3:	Explain the various methodologies to handle the exception mechanisms and the principles of inheritance, packages and interfaces
CO-4:	Demonstrate the programming concepts for applet and graphics.
CO-5:	Explain the programs on core java which is studied in theory

Semester 5: Paper V: Operating Systems and Computer Networks (Th) and Practical- 5

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Describe the basic components of an operating system and their role in implementations for general purpose, real-time and embedded applications.
CO-2:	Define the concepts of processes, threads, asynchronous signals and competitive system resource allocation.
CO-3:	Explain what multi-tasking is and outline standard scheduling algorithms for Multi-tasking.
CO-4:	Discuss mutual exclusion principles and their use in concurrent programming including semaphore construction and resource allocation.
CO-5:	Expose the details of major operating system concepts, overview of system memory management and the implementation of file systems.
CO-6:	Write program to implement FCFS, SJF, Priority, RR CPU scheduling Algorithm, Program to illustrate Deadlock. Programs demonstrating Multi threads.

SEMESTER 5: Paper- 6.1: PHP and MySQL (Elective) (Th) and Practical- 6.1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Study the concept of HTML like Elements, Tags, Attributes, Paragraph, Headings, Line Breaks, Horizontal Rule, Lists, Formatting, Color Codes, Font, Text Links, Email, Images, Image Link, Forms, Table, and Frames.
CO-2:	Introduction to Evaluation of Php, Basic Syntax, Defining variable and constant, Php Data type, Variables Data types, Operators and Expressions, Constants switching, Flow Loops, Code Blocks and Browser Output.
CO-3:	Working with Functions, Arrays and Objects: Function, Calling Function, Defining a Function, Returning Values from User Defined Functions, Variable Scope, Objects: Creating, Inheritance.
CO-4:	Functions with Forms Cookies and User Sessions: Creating simple input form, Combining HTML and PHP Code on a Single Page, Cookies: Setting up and Deleting a cookie with PHP. Session function overview, destroying sessions.
CO-5:	Working with files, directories & Images: Including Files, Using include once, Validating Files, Creating and Deleting Files, Working with directories, Drawing a New Image, Modifying existing Images.
CO-6:	Database Design Process & Basic SQL Commands: The Importance of good database design, Types of table relationships, understanding Normalization. Learning the MySQL Data Types, Table Creation Syntax, Insert Command, Select Command, Where, Selecting from Multiple Tables, Using UPDATE command to modify Records, Using REPLACE, DELETE Commands. Frequently used string Functions, Date and Time Functions in MySQL.
CO-7:	Explain the Program on ternary operator, while loop, for loop.
CO-8:	Programs on array, functions and concepts studied in theory.

SEMESTER: 5: Paper- 6.2: NET Framework Using C# Programming (Elective) (Th) and Practical- 6.2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Study the Philosophy of .NET, Introducing the Building Blocks of the .NET Platform (CLR, CTS, and CLS), An Overview of .NET Assemblies, .NET Array Types, Understanding C# Null able Types, Defining Custom Namespaces.
CO-2:	Object- Oriented Programming, Understanding the C# Class Type, Reviewing the Pillars of OOP, Understanding Object Lifetime Classes.

CO-3:	Exception Handling- Ode to Errors, Bugs, and Exceptions, The Role of .NET Exception Handling, The Simplest possible example, throwing generic exceptions, catching exceptions.
CO-4:	Interfaces, Collections, Delegates & Events-Defining Interfaces in C#, Implementing an Interface in C#, Contrasting Interfaces to Abstract Base Classes.
CO-5:	Understanding .NET Assemblies & Libraries- The Role of .NET Assemblies, Understanding the format of .NET Assemblies, Building and Consuming a Single- File Assembly, Multi-File Assembly, Shared Assemblies, Working with DirectoryInfo, Directory Type, FileInfo, File Type Classes, Abstract Stream Class, StreamWriters and StreamReaders.
CO-6:	C# Programs on strings, demonstrate a basic calculator using command line arguments. This is studied in theory. With Web Programming

SEMESTER: 5: Paper- 6.3: Programming with Visual Basic Net (Elective) (Th) and Practical- 6.3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Introduction to .net framework -Features, Common Language Runtime (CLR) , Framework Class Library(FCL), Visual Studio.Net.
CO-2:	Elements of Visual Basic .net-Properties, Events and Methods of Form, Label, TextBox, ListBox, Combo Box, Radio Button, Button, Check Box, Progress Barect, etc.,.
CO-3:	Programming in Visual basic .net Data Types, Keywords, Declaring Variables and Constants, Operators, Conditional Statements, Looping Statement, Arrays- Static and Dynamic.
CO-4:	Functions, Built-In Dialog Boxes, Menus and Toolbar Menus and toolbars- Menu Strip, Tool Strip, Status Strip, Built-In Dialog Boxes.
CO-5:	Functions and Procedures- Built-In Functions- Mathematical and String Functions, User Defined Functions and Procedures.
CO-6:	Advanced Concepts in VB.Net Object Oriented Programming- Creating Classes , Objects, Fields, Properties, Methods, Events, Constructors and destructors, Exception Handling- Models, Statements, File Handling.
CO-7:	Data Access with ADO.Net – Databases. Data Access with ServerExplorer, Data Adapter and DataSets, ADO.NET Objects and Basic SQL.
CO-8:	Learn to design simple programs using conditional statements, looping statements and functions.
CO-9:	Design an application to create a login form and validate it using msg box and concept included in theory.

Semester 5: Paper- 6.4: Object oriented programming with C++ (Th) and Practical- 6.4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Explain the top-down and bottom-up programming approach and apply bottom up approach to solve real world problems.
CO-2:	Explain the difference between static and dynamic binding. Apply both techniques to solve problems.
CO-3:	Describe the concept of inheritance and apply real world problems.
CO-4:	Discuss the generic data type for the data type independent programming which relates it to reusability.
CO-5:	Overview of functions, return types, function prototyping, call by reference, call by value, return by Reference, inline functions.
CO-6:	Introduction, Constructors, Parameterized Constructors, Multiple Constructors in a Class, Constructors with Default Arguments, and Dynamic Initialization of Objects.
CO-7:	Operator overloading and Type Conversion: Introduction, Definition, rules, unary operators overloading, and Binary operator overloading.
CO-8:	Introduction, definition, types of inheritance, virtual base class, abstract class.
CO-9:	Introduction, class templates, class templates with multiple parameters, function templates, function templates with parameters.
CO-10:	Explain the programs on basic concepts of C++ which is studied in theory

Semester: 6: Paper- 7: Software engineering (Th) and Project Work (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Learn the Software Problems, Software Engineering Problems, Project Management and Metrics.
CO-2:	Learn the phases of software development
CO-3:	Develop process models and process system models
CO-4:	Gather, understand, analyse and specify requirements
CO-5:	Software Design- Design concepts and techniques
CO-6:	Develop architectural diagram, and implement by following coding principles
CO-7:	Apply testing strategies and handle software product maintenance issues.
CO-8:	Identify and define the problem statement
CO-9:	Develop technical report writing and oral presentation skills

Semester 6: Paper-8.1: Network Programming with TCP/ IP (Elective) (Th) and Practical- 8.1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Origin of TCP/IP and Internet, Communication, Problems in Computer Communication, World Wide Web: HTTP, Networking Example.
CO-2:	Overview of Internet Protocol, IP Header, IP Address, Routing Protocol, Routing Algorithms.
CO-3:	Study of TRANSPORT LAYER PROTOCOLS. Study of APPLICATION LAYER PROTOCOLS. Study of TCP/IP PROGRAMMING CONCEPTS
CO-4:	Elementary Socket System Calls, Socket System Call, Bind System Call, Connect System Call. SOCKET PROGRAMMING- Advance System call, Data Transfer, Byte Operations and Addressing, Socket Options, etc.
CO-5:	Working with system calls.
CO-6:	Programs on Shell Programming using UNIX, Client/Server Model, Socket Programming, IPC.

Semester 6: Paper- 8.2: Linux Operating System (Elective) (Th) and Practical- 8.2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Features of Linux, Drawbacks of Linux, Components of Linux, Memory Management Subsystems, Linux Process and Thread Management, File Management System, Device Drivers.
CO-2:	Study of Linux Commands and Utilities, The File System, Current Directory, Looking at the Directory Contents, Absolute and Relative Pathnames, Some Linux Directories and Files.
CO-3:	Linux Utilities and Editor- Some Useful Commands, Permission Modes and Standard Files, Pipes, Filters and Redirection, Shell Scripts, Graphical User Interface, Editor.
CO-4:	User-to-User Communication- On-Line Communication, Off-Line Communication
CO-5:	UNIX System Administration- System Administration, Installing Linux
CO-6:	Working with LINUX Commands, Pipes and Filters, Editors, Shell Programming, memory, file and disk related commands

Semester- 6: Paper- 8.3: Computer Graphics (Elective) (Th) and Practical- 8.3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Study of Graphics Output Primitives and Attributes functions.
CO-2:	Basic two dimensional and Three - Dimensional Geometric Transformations.
CO-3:	Rotation, Scaling, Other three dimensional transformations, Affine transformations, Open GL geometric transformation functions.
CO-4:	The two dimensional viewing, Clipping window, Normalization and viewport transformations, Clipping algorithms.
CO-5:	The three dimensional viewing concepts, pipeline, coordinate parameters.
CO-6:	Programs and algorithms studied in theory

Semester- 6: Paper- 8.4: Android Programming (Elective) (Th) and Practical- 8.4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	History of Android, Introduction to Android Operating Systems, Android Development Tools, Android Architecture. OOPs Concepts: Inheritance, Polymorphism, Interfaces, Abstract class, Threads, Overloading and Overriding, Java Virtual Machine.
CO-2:	Installing and using Eclipse with ADT plug-in, Installing Virtual machine for Android sandwich/Jelly bean.
CO-3:	Application context, intents, Activity life cycle, multiple screen sizes.
CO-4:	Form widgets, Text Fields, Layouts, Button control, toggle buttons, Spinners (Combo boxes), Images, Menu, and Dialog.
CO-5:	Understanding of SQLite database, connecting with the database.
CO-6:	Create "Hello World" application. That will display "Hello World" in the middle of the screen in the emulator. Also display "Hello World" in the middle of the screen in the Android Phone. Create an application with login module. (Check username and password).

Program Specific Outcomes: CHEMISTRY

SPECIFIC OUTCOMES	
At the end of the B.Sc. program in Chemistry the students will able to:	
SO-1:	Get a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistry.
SO-2:	Design and carry out scientific experiments accurately to analyse the results of such experiments.
SO-3:	Demonstrate problem solving skills, critical thinking and analytical reasoning as applied to scientific problems.
SO-4:	Clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
SO-5:	Explore new areas of research in both chemistry and allied fields of science and technology.
SO-6:	Recognize the central role of chemistry in society and use this as a basis for ethical behaviour
SO-7:	Explain why chemistry is an integral activity for addressing social, economic and environmental problems.
SO-8:	Function as a member of an interdisciplinary problem solving team.

Course Outcomes of Chemistry:

Semester 1: Paper I- Fundamentals of Chemistry (Th) and Practical- 1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the dual nature of matter by Davison-Germer experiment.
CO-2:	Schrodinger wave equation, Eigen value and Eigen functions.
CO-3:	Assign quantum numbers to the elements.
CO-4:	Understand the concept of Ionisation, Enthalpy, Electro-negativity, Electron affinity along a period and group trend.
CO-5:	Understand the concept of radial and angular wave functions.
CO-6:	Study of ortho-para hydrogen.
CO-7:	Competitive study of properties of alkali earth metals, diagonal relationship of elements.
CO-8:	Recapulation of vital force theory, sources of everyday life use of Organic chemistry. IUPAC nomenclature of poly functional compounds.
CO-9:	Significance of oxidizing and reducing agents.
CO-10:	Understand the concept of reactive intermediates like carbanion, carbocation, carbene, nitrene involved in reaction mechanism.

CO-11:	Know the reaction mechanism-substitution, addition and elimination reactions.
CO-12:	Know the purification skills and characterization of organic compounds.
CO-13:	Know the different ways of expressing concentrations of solutions, determination of molecular weight by colligative property.
CO-14:	Study Maxwell distribution of molecular speeds, Boltzmann factor and types of molecular velocities.
CO-15:	Boyle point and Boyle temperature, PV isotherms, experimental determination of critical points.

Semester 2: Paper II- Basic Concepts in Chemistry (Th) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the concept of Ionic bond, Born-Landé equation, Madelung constant, Lattice enthalpy, ionic size and charge.
CO-2:	Concept of potential energy, hybridization and VSEPR theory, resonance, molecular orbital theory.
CO-3:	Acquire the knowledge of care and use of apparatus in laboratory and uses of Robotics.
CO-4:	Determination of COD and estimation of herbal compounds.
CO-5:	Nomenclature, classification, preparation and reactions of alkanes, alkenes, alkynes.
CO-6:	Nomenclature, classification, stability, comparison of basicity, synthesis of Homo-cyclic and heterocyclic compounds.
CO-7:	Study of order of reaction, half-life period. Determination of rate constant, surface reactions.
CO-8:	Transition state theory, Lindeman's theory of Unimolecular and bimolecular reactions.
CO-9:	Study of binary mixture, vapour pressure-boiling point composition curves for different types.
CO-10:	Partially miscible liquids, critical solution temperature.
CO-11:	Factors affecting absorption, positive and negative absorptions. Gibb's adsorption equation, adsorption isobars and indicators.

Semester 3: Paper III - Selected topics in Chemistry (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	The structural aspects of p- block elements and their compounds.
CO-2:	Halogens- pseudo halogens and pseudo halides , comparison
CO-3:	Types and examples of inter halogen compounds.
CO-4:	Study of types, mechanism of corrosion and its control.
CO-5:	Essential, non-essential, trace elements in biological processes. Role of Fe, Zn, Mg and Mo in biological system.
CO-6:	Study of data analysis.
CO-7:	Uses of Organic reagents in Inorganic qualitative analysis.
CO-8:	Classification, SN^1 SN^2 , E_1 and E_2 reaction of alkyl halides.
CO-9:	Nucleophilic substitution of aryl halides and aralkyl halides.
CO-10:	Preparation, chemical reactions of alcohols and dihydric alcohols.
CO-11:	Classification, acidity and resonance stabilization of phenol. Named reactions of phenols.
CO-12:	Study of preparation, reactions of Diazomethane and Diazonium chloride.
CO-13:	Study of meaning of terms, problems, phase equilibrium of H_2O , S system and KI water system.
CO-14:	Freezing mixtures.
CO-15:	Debye- Huckel theory of strong electrolytes and Debye Huckelone gas equation.
CO-16:	Transport number and its determination. Complexometric titrations.
CO-17:	Liquid crystals.

Semester 4: Paper IV- Chemistry-IV (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Study of extraction of Ni, Mn, Ti and U.
CO-2:	Purpose of making alloy, influence of elements on steel and manufacture of ferrochrome alloy.
CO-3:	Manufacture, Composition and uses of glass, settling of cement, requisites and constituents of paints.
CO-4:	Classification, characteristics of propellants and explosives.
CO-5:	Coordination model of solvent and comparative study of chemical reactions.
CO-6:	Study of introduction, principle, separation using paper, column, thin layer chromatography and HPLC.

CO-7:	Structure and reactivity of carbonyl group and named reactions of carbonyl group.
CO-8:	Effects of substituents on acidity: nature of substituent, position of substituent and number of substituent.
CO-9:	Preparation and reactions of acid amide and acid anhydrides.
CO-10:	Study of classification, synthesis, comparison of basic property of amines and amino acids. Structures of proteins, denaturation of proteins.
CO-11:	Definition, construction, working of galvanic cell, standard cell, Weston cadmium cell. Glass electrode and Calomel electrode.
CO-12:	Study of potentiometric titration, construction, working and electrode reactions of dry cells and hydrogen oxygen fuel cell.
CO-13:	Concept of crystal lattice, unit cell, laws of crystallography. Study of elements of symmetry.

Semester 5: Paper V – Modern Concepts of Chemistry – I (Th) and Practical- 5

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand about the oxidation states of d-block elements, acidic, basic and neutral nature of metal and formation of alloys.
CO-2:	Understand the properties and CFT of d-block elements,
CO-3:	Know the purpose, principle, nature of electroplating and study of electroless plating.
CO-4:	Know the concept of refractories and abrasives, characteristics of fuels and its manufacture and advantages of fuels. Problems on HCV and LCV.
CO-5:	Understand the concept of isomerism, elements of symmetry and concept of molecular chirality.
CO-6:	Understand the geometric isomerism and conformational isomers and preparation and synthetic applications of active methylene compounds.
CO-7:	Understand the concept of Keto-enoltavtomerism.
CO-8:	Understand the recapitulation of basic concept of thermodynamics, C_p and C_v - definition and derivation of relationship between them.
CO-9:	Derivation and problems on Kirchoff's equation. Concept of Carnot's cycle, Significance of Helmholtz free energy and Gibb's energy. Maxwell's thermodynamic relations.

Semester 5: Paper VI: Applied Chemistry – I (Th) and Practical- 6

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Study of electronic configuration, size, separation, colour, uses of lanthanides and lanthanide contraction.
CO-2:	Study of electronic configuration, colour, spectra, extraction and uses of actinides.
CO-3:	Study of complex containing NO^+ ion and NO^- ion.
CO-4:	IUPAC names, preparation, properties, uses and structures of nitroso ferrous sulphate and sodium nitroprusside.
CO-5:	Gravimetric analysis and its industrial application.
CO-6:	Basic concept of pseudo metallurgy.
CO-7:	Principle of UV spectroscopy, types of transitions, definition, examples of auxochromes, chromophores, Hypo and Bathochromic shifts.
CO-8:	Woodward Fieser rules for calculating absorption maxima, applications of UV spectroscopy, principle of IR spectroscopy, intensity and position of IR bands.
CO-9:	Study of finger print and functional group region. IR spectroscopy, NMR spectroscopy and mass spectrograph.
CO-10:	Study of photochemical and thermochemical reactions and laws of photochemistry.
CO-11:	Concept of classical mechanics, its limitations, derivation of Schrodinger wave equation, concept of Hamiltonian, Linear and Laplacian operators.

Semester 6: Paper VII- Modern Concepts of Chemistry – II (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Recapitulation of nomenclature, $18e^-$ rule, detection of coordination compounds.
CO-2:	Concept of CFT, colour, magnetic properties, stability and applications of coordination compounds.
CO-3:	Know the definition, preparation and applications of Nano materials.
CO-4:	Understand the classification, nomenclature, preparation, interconversion of carbohydrates.
CO-5:	Know the determination of configuration of D(+) Glucose.
CO-6:	Know the structures of disaccharides and polysaccharides.
CO-7:	Know the occurrence, extraction, preparation of oils and fats
CO-8:	Now the determination and significance of saponification value, iodine value and acid value.
CO-9:	Know the concept of soaps and detergents.

CO-10:	Know the classification, synthesis, configuration properties and separation of amino acids. Synthesis and uses of peptides.
CO-11:	Know the energy level diagram, selection rule and applications of molecular spectroscopy. Basic concepts of Infrared spectroscopy and vibration-rotation spectra.
CO-12:	Know the concept of e^- value and ion pair yield, 1° and 2° process in radiation chemistry.
CO-13:	Know the concept of Radiolysis of water, biological effects of radiation.

Semester 6: Paper VIII- Applied Chemistry – II (Th) and Practical- 8

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the inorganic polymers like silicon's and fluorocarbons.
CO-2:	Understand the instrumentation, TG curve, factors affecting and applications of Thermo-gravimetric analysis.
CO-3:	Understand the principle, instrumentation and application of AAS.
CO-4:	Understand the definition, source, treatment of waste water, recycling of waste water and utilization.
CO-5:	Understand the different concepts of acid and base.
CO-6:	Understand the occurrence, extraction, elucidation, structures of some important alkaloids.
CO-7:	Understand the definition, classification, elucidation, synthesis of Terpenes.
CO-8:	Understand the classification, biological importance of vitamins, hormones and nucleic acids.
CO-9:	Understand the Nernst theorem, chemical potential, Gibb's Duhem equation, Duhem Morgules equation.
CO-10:	Understand the quantum mechanics, distinguish between classical and quantum mechanics. Postulates of statistical mechanics.
CO-11:	Understand the concept of molecular structure- additive and constitutive property, concept of polarization and dipole moment.

Program Specific Outcomes: BOTANY

SPECIFIC OUTCOMES	
At the end of the B.Sc. program in Botany the students will able to	
SO-1:	Perform critical evaluation of ideas and arguments by collection of relevant information about plants.
SO-2:	Accurate interpretation of collected information and use taxonomical information to evaluate and formulate a position of plant in taxonomy.
SO-3:	Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.
SO-4:	Access the primary literature, identify relevant works for a particular topic, and evaluate the scientific content of these works.
SO-5:	Explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. They will be able to relate the physical features of the environment to the structure of populations, communities, and ecosystems.
SO-6:	Demonstrate proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization within biology.

Course Outcomes of Botany:

I Semester: Virus, Bacteria, Cyanobacteria and Thallophytic(Th) and Practical- 1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Gain knowledge about microbial diversity.
CO-2:	Understand the phylogeny of plants.
CO-3:	Know about various plant diseases and their control measures.
CO-4:	Understand life cycles of different algal species.
CO-5:	Explore economic importance of algae, fungi and Lichens
CO-6:	Understand the diversity among Bacteria, Viruses and Algae.
CO-7:	Know the systematic morphology and structure of Bacteria, Viruses and Algae.
CO-8:	Understand the life cycle pattern of Bacteria, Viruses and Algae.
CO-9:	Understand the useful and harmful activities of Bacteria, Viruses and Algae.
CO-10:	Understand the Biodiversity of Fungi.
CO-11:	Understand the features of Lichens.

II Semester: Bryophyta, Pteridophyta, Gymnosperms and Paleobotany (Th) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the phylogeny from Bryophytes to Gymnosperms.
CO-2:	Know the evolution of sporophytes in bryophytes.
CO-3:	Understand the Stellar evolution and seed formation habit in pteridophytes.
CO-4:	Gain knowledge about life cycles of gymnosperm plants.
CO-5:	Explain about fossils and fossilization.
CO-6:	Understand about geological time scale.
CO-7:	Understand the morphological diversity of Bryophytes and Pteridophytes.
CO-8:	Understand the economic importance of Bryophytes and Pteridophytes.
CO-9:	Understand the phylogeny from Bryophytes to Gymnosperms.

III Semester: Histology, Anatomy, Embryology and Palynology (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	To gain knowledge of plant cells, tissues and their functions.
CO-2:	To make connections between plant anatomy and the other major disciplines of biology.
CO-3:	Identify and compare structural differences among different taxa of vascular plants.
CO-4:	Know the structure and development of monocot and dicot embryos.
CO-5:	Compare the function and morphology of pollen grains.
CO-6:	Know historical development of embryology.
CO-7:	Understand structure and development of microsporangium, megasporangium, embryo and endosperm.
CO-8:	Know the methods of pollination and fertilization and learn the structure and development of pollen grains.
CO-9:	Understand the applications of embryology in plant tissue culture.
CO-10:	Realize the applications of palynology in human welfare.

IV Semester: Ecology and Environmental biology (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand ecological relationships between organisms and their environment.
CO-2:	Identify diversity of life forms in an ecosystem.
CO-3:	Understand the role that biodiversity plays in conservation science.
CO-4:	Understand the environmental biology.
CO-5:	Know the nature and its co-relation with human society.
CO-6:	Realize the impact of human activities on environment.
CO-7:	Understand global issues concerned with environment.
CO-8:	Know the sustainable development and care of environment.
CO-9:	Understand the connection between material wealth & resources exploitation.
CO-10:	Worth the relationship between economic growth and environmental degradation.

V Semester: 5.1: Morphology and taxonomy of Angiosperms (Th) and Practical- 5

COURSE OUTCOMES	
CO-1:	Recognize the major groups of vascular plants and their phylogenetic relationships.
CO-2:	Gain proficiency in the use of keys and identification manuals for identifying any unknown plants to species level.
CO-3:	Explore the uses of plants as medicine by traditional indigenous approaches.
CO-4:	Understand different systems of medicine and their uses .
CO-5:	Explain how current medicinal practices are often based on indigenous plant knowledge.
CO-6:	Know the different perspectives on treating ailments.
CO-7:	Know the conceptual development of taxonomy & systematics.
CO-8:	Understand the general range of variations in the group of angiosperms.
CO-9:	Trace the history of development of systems of classification emphasizing Angiospermic taxa.
CO-10:	Learn about the characters of biologically important families of angiosperms.
CO-11:	Know the floral variations in angiospermic families, their phylogeny and evolution.
CO-12:	Understand various rules, principles and recommendations of plant nomenclature.
CO-13:	Know modern trends in taxonomy.
CO-14:	know the herbarium techniques
CO-15:	Understand major evolutionary trends in various parts of angiospermic plants.

CO-16:	Understand the diversity of angiosperms.
CO-17:	Understand the comparative account among them, families of angiosperms.
CO-18:	Know the economic importance of the angiosperm plants.
CO-19:	Understand the distinguishing features of angiosperm families

5.2: Plant breeding and Biotechnology (Th) and Practical- 6

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Explain the main techniques of in vitro culture of plant cells and tissues.
CO-2:	Know the methods used for the bio-production of plant secondary metabolites.
CO-3:	Know the main techniques of genetic manipulation of plant organisms.
CO-4:	Understand the science of plant breeding.
CO-5:	Know the plant breeding for the survival of human being from starvation.
CO-6:	Understand the techniques of production of new superior crop varieties.
CO-7:	Know the evolution in living organisms.
CO-8:	Know the process of cultivation of cash crops.
CO-9:	Understand some plants which are used as herbal cosmetics.
CO-10:	Understand technique of plant tissue culture and its application.
CO-11:	Understand the habit of the angiosperm plant body.
CO-12:	Know the vegetative characteristics of the plant.
CO-13:	Learn about the reproductive characteristics of the plant.
CO-14:	Know about the role of tissue culture in Agriculture and Horticulture in crop improvement.
CO-15:	Get knowledge on Bio-fertilizers.

VI Semester6.1: Plant tissue culture, Medicinal plants, Economic botany and Evolution (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Explain the structure of Cell components and their functions.
CO-2:	Describe cell division in plants.
CO-3:	Know the nature and function of genes, processes of inheritance.
CO-4:	Describe linkage, crossing over and mutations.
CO-5:	Know about Cell Science.

CO-6:	Understand Cell wall Plasma membrane, Cell organelles and cell division.
CO-7:	Learn the scope and importance of molecular biology.
CO-8:	Understand the biochemical nature of nucleic acids, their role in living systems, experimental evidences to prove DNA as a genetic material.
CO-9:	Understand the process of synthesis of proteins and role of genetic code in polypeptide formation.
CO-10:	Understand structural organization and variation in chromosomes.
CO-11:	Learn about the extra-chromosomal inheritance in plant system.
CO-12:	Know the molecular biology in relation to genetic material, its inheritance, modification, replication and repair.
CO-13:	Understand transcription, translation post translation modification of protein.
CO-14:	Know gene regulation in prokaryotes and eukaryotes.

6.2: Cytology, Genetics and Plant physiology (Th) and Practical- 8

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand plant physiological processes and metabolism.
CO-2:	Explain the role of micro and macro nutrients in plant growth and development.
CO-3:	Relate photosynthesis with the formation of primary and secondary metabolites.
CO-4:	Clarify the mechanism and breaking of dormancy.
CO-5:	Understand plant structures in the context of physiological functions of plants.
CO-6:	They will learn about the growth and development of plants and its regulations
CO-7:	Understand the physiological details of photosynthesis and respiration
CO-8:	Understand lipid metabolism in plants
CO-9:	Understand the stress of plants and its adaptations.
CO-10:	Learn about the metabolites synthesized by plants.
CO-11:	Understand the red-ox systems of plants.
CO-12:	Know importance and scope of plant physiology.
CO-13:	Understand the plants and plant cells in relation to water.
CO-14:	Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways.
CO-15:	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration.
CO-16:	Learn about the movement of sap and absorption of water in plant body.

Program Specific Outcomes: ZOOLOGY

SPECIFIC OUTCOMES	
At the end of B.Sc program in Zoology the student will be able to	
SO-1:	Develop deeper understanding of key concepts of zoology at molecular, cellular level, physiology and reproduction at organism level.
SO-2:	Describe the role of taxonomy and systematics in animal studies and gain in-depth knowledge of animals including invertebrates and vertebrates.
SO-3:	Place zoological knowledge in context and show an understanding of the way zoologists think and understand the needs of zoology in shaping our planet.
SO-4:	Comprehend, interpret, general evolutionary relationships among and between different animal groups.
SO-5:	Explore various applied fields with the knowledge of sericulture, apiculture, fisheries, poultry, vermi culture, dairy farms etc.
SO-6:	Communicate the importance of ecological factors, biodiversity, environmental conservation processes, pollution control and protection of threatened species to the society
SO-7:	Enhance their scientific temper and scientific thinking and exhibit creativity in designing, planning, problem solving, model making for various scientific concepts

Course Outcomes of Zoology:

I Semester: Non-chordata, Biodiversity and Parasitology(Th) and Practical- 1

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the animal kingdom.
CO-2:	Understand the taxonomic position.
CO-3:	Understand the general characteristics of animals belonging to different phylums.
CO-4:	Understand the body organisation.
CO-5:	Recognise the functions of animals.
CO-6:	Understand the diversity of animals in their respective realms.
CO-7:	Understand the effects of parasites and pathogens.
CO-8:	Understand the methods to protect him from parasites and pathogens.

II Semester: Chordata, Comparative anatomy and Zoogeography (Th) and Practical- 2

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand what the chordates are.
CO-2:	Understand the different categories of chordates.
CO-3:	Understand the general characteristics of chordates.
CO-4:	Understand the levels of organisation in chordate subphylum.
CO-5:	Understand the origin and evolution relationship in different subphylum of chordates.
CO-6:	Understand the anatomical structures of heart, aortic arches and kidneys in chordates.
CO-7:	Understand and classify the geographical conditions and the animals distributed in them.

III Semester: Biochemistry, Physiology and Biostatistics (Th) and Practical- 3

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the metabolic activities in mammalian body.
CO-2:	Understand the various biomolecules in the body.
CO-3:	Understand the structural chemistry of proteins, carbohydrates, fats, etc.
CO-4:	Understand the functions of biomolecules in body secretion.
CO-5:	Understand the process of digestion.
CO-6:	Understand the physiology at cellular and system levels.
CO-7:	Describe the role and functions of different biomolecules.
CO-8:	Understand how mammalian body get nutrition from different biomolecules.
CO-9:	Apply the statistical methods to a wide range of topics in biology.

IV Semester: Environmental biology, Ethology, Histology and Endocrinology (Th) and Practical- 4

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Describe the interaction between organisms and environment.
CO-2:	Describe the theory of natural selection.
CO-3:	Understand the exchange of nutrients within the ecosystem.
CO-4:	Describe the relation between abiotic and biotic factors.
CO-5:	Understand how changes in population affect the ecosystem.
CO-6:	Understand and recognise the behavioural changes in animals.

CO-7:	Appreciate the nesting behaviour in birds.
CO-8:	Understand and appreciate the migration behaviours in animals and birds.
CO-9:	Understand the functions and importance of various tissues of human body.
CO-10:	Understand the functions of different types of gland of our body.

V Semester 5.1: Molecular biology, Immunology, Biotechnology and wildlife biology (Th) and Practical- 5

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the life process at the subcellular and molecular level.
CO-2:	Understand the meaning of gene cloning.
CO-3:	Understand the importance of immune system in the body.
CO-4:	Realise the importance and needy of wildlife.
CO-5:	Appreciate the measures engaged by the government in conservation of wildlife.
CO-6:	Understand the application of technology in the field of life science.
CO-7:	Appreciate the role of PCR, ELISA, and Fermentation in our life.
CO-8:	Appreciate the production of therapeutic proteins and other drugs through genetic engineering.

5.2: Economic zoology (Th) and Practical- 6

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the importance of animals in human life.
CO-2:	Understand the meaning and importance of integrated farming.
CO-3:	Provide technical and general knowledge in the field of animal farming and husbandry.
CO-4:	Understand and recognise various species which are economically beneficial.
CO-5:	Apply the Zoological knowledge for the benefit of mankind.

VI Semester 6.1: Cell biology, Cancer biology and Developmental biology (Th) and Practical- 7

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes and organelles.
CO-2:	Understand how the cellular components are used to generate and utilize energy in cells.
CO-3:	Understand the cellular components underlying mitotic cell division.
CO-4:	Understand responses to environmental or physiological changes or alterations of cell function brought about by mutation.
CO-5:	Understand the process of cell division in both somatic and germ cell.
CO-6:	Understand the various stages in the development of an organism.
CO-7:	Understand the types of cleavage patterns in the formation of a zygote.
CO-8:	Understand fertilization process.
CO-9:	Understand the fundamental embryonic development.

6.2: Genetics, Evolution and Paleontology (Th) and Practical- 8

COURSE OUTCOMES	
On successful completion of the course students will be able to	
CO-1:	Understand the theory of natural selection.
CO-2:	Understand how species evolve.
CO-3:	Understand the stages in evolutionary traits in animals.
CO-4:	Describe the evolutionary history of man and horse.
CO-5:	Describe origin of species on earth.
CO-6:	Understand and appreciate the importance of fossils in the study of evolution.
CO-7:	Understand how the behaviour of chromosomes during meiosis can explain Mendel law.
CO-8:	Understand how inheritance patterns are affected by position on chromosomes.
CO-9:	Understand gene interaction.
CO-10:	Understand the chemical nature of heredity.

Course Outcomes of Kannada

ಕನ್ನಡ ವಿಭಾಗ

ಪದವಿಯಲ್ಲಿ ಕನ್ನಡ ಭಾಷಾ ಪತ್ರಿಕೆಯನ್ನು ಓದುವುದರಿಂದ ಕನ್ನಡ ಭಾಷೆ ಮತ್ತು ಸಾಹಿತ್ಯದ ಪರಂಪರೆಯನ್ನು ಪ್ರಚಲಿತ ಸಮಾಜದ ಅಗತ್ಯಗಳಿಗೆ, ನಿರೀಕ್ಷೆಗಳಿಗೆ ತಕ್ಕಂತೆ ಪ್ರಸ್ತುತ ಗೊಳಿಸುವುದರ ಜೊತೆಗೆ ಆರೋಗ್ಯಕರವಾದ ವೈಚಾರಿಕ ಚಿಂತನಾಶೀಲ ಪರಾಮರ್ಶೆಯೊಂದಿಗೆ ಕನ್ನಡ ಭಾಷಾ ಭೋದನೆ ಮತ್ತು ಕಲಿಕೆಯ ನ್ನು ಜೀವಂತಗೊಳಿಸಬೇಕೆಂಬುದು ಈ ಎಲ್ಲಾ ಪಠ್ಯ ಗಳ ಹಿಂದಿನ ಆಶಯ.

ಭಾಷೆ ಭಾವಗಳ ಅಭಿವ್ಯಕ್ತಿ, ಮೌಲ್ಯ, ಪ್ರಜ್ಞೆ, ಸಾಮಾಜಿಕ ಸಂವೇದನೆ, ಮಾನವತೆಯ ಆಶಯ, ಸಾಂಸ್ಕೃತಿಕ ಪರಂಪರೆ ಮತ್ತು ಸಮಕಾಲೀನ ಬದುಕಿನ ವಾಸ್ತವತೆ ಅರಿವು ಇತ್ಯಾದಿಗಳನ್ನು ಕನ್ನಡ ಭಾಷಾ ಪಠ್ಯವು ಪ್ರತಿಬಿಂಬಿಸುತ್ತದೆ.

ಪಠ್ಯ ಆಶಯಗಳು

ಕನ್ನಡ ಭಾಷಾಭೋಧನೆಯ ಪಠ್ಯಕ್ರಮದ ಮಾದರಿಯು ಹೊಸಕಾಲದ ಅವಶ್ಯಕತೆಗಳಿಗೆ ಅನುಗುಣವಾಗಿ ರೂಪುಗೊಳ್ಳುವ ಅನಿವಾರ್ಯತೆಯನ್ನು ಮನಗಂಡುರೂಪುಗೊಂಡಿವೆ.

<p>1. ಕನ್ನಡ ಸಂಸ್ಕೃತಿ :- ಪ್ರಥಮ ಬಿ.ಎಸ್ಸಿ. (1 ಸೆಮ್) ಸಂಸ್ಕೃತಿ-ಸಂಪ್ರದಾಯ-ಆಧುನಿಕತೆ ಎಂಬ ಮೂರು ಧೀಮಗಳನ್ನು ಒಳಗೊಂಡಿದೆ. ಇವು ಮಾನವ ಬದುಕಿನ ಬೆಳವಣಿಗೆಯ ಸ್ಥಿತ್ಯಂತರಗಳು. ಮಾನವೀಯತೆ ಮತ್ತು ವೈಚಾರಿಕತೆಯ ಸೆಲೆ ಮಾಡುವಂತೆ ಮಾಡುವ ಕಿರುಆಶಯವನ್ನಿಟ್ಟುಕೊಂಡು ಈ ಪಠ್ಯ ರೂಪುಗೊಂಡಿದೆ.</p>
<p>2. ಕನ್ನಡ ಲೋಕ :-ಪ್ರಥಮ ಬಿ.ಎಸ್ಸಿ. (2 ಸೆಮ್) ಪದವಿ ವಿದ್ಯಾರ್ಥಿಗಳು ನಿರ್ದಿಷ್ಟ ಧೀಮವೊಂದರ (ಭೂಮಿ-ಜೀವ-ಆಕಾಶ) ಕುರಿತು ವಿಭಿನ್ನ ದೃಷ್ಟಿಕೋನಗಳಿಂದ ಸ್ವತಂತ್ರವಾಗಿ ಆಲೋಚಿಸುವುದು ಸಾಧ್ಯವಾಗಬೇಕು ಎಂಬುದು ಈ ಪಠ್ಯದ 'ಆಶಯವಾಗಿದೆ.</p>
<p>3. ಕನ್ನಡಡಿಂಡಿಮ :- ದ್ವಿತೀಯ ಬಿ.ಎಸ್ಸಿ. (3 ಸೆಮ್) ಕನ್ನಡ ಕೇವಲ ಭಾಷೆಯಷ್ಟೇ ಅಲ್ಲ, ಅದು ಬದುಕನ್ನು ಕಟ್ಟುವ ವ್ಯಕ್ತಿತ್ವವನ್ನು ಬೆಳೆಸುವ ಸಾಂಸ್ಕೃತಿಕ ಸಂಪತ್ತುಎಂಬುದನ್ನು ತಿಳಿಸುವುದರ ಜೊತೆಗೆಆಧುನಿಕರಣ, ಔದ್ಯೋಗಿಕರಣ, ನಗರೀಕರಣಗಳಂಥ ಆಧುನಿಕ ಪ್ರಕ್ರಿಯೆಗಳಿಗೆ ಕನ್ನಡ ಭಾಷೆ ವಿದ್ಯಾರ್ಥಿಗಳನ್ನು ಮುಖಾಮುಖಿಯಾಗಿಸುವ ಅಸ್ಮಿತೆಯನ್ನು ಒಳಗೊಂಡಿದೆ.</p>
<p>4. ಕನ್ನಡ ಸುರಭಿ :- ದ್ವಿತೀಯ ಬಿ.ಎಸ್ಸಿ. (4 ಸೆಮ್) ಬದುಕಿನ ಮೌಲ್ಯಗಳನ್ನು, ಅನುಭವಗಳನ್ನು ಜನಪದ ಪರಂಪರೆಯ ತಿಳಿವನ್ನು ವೈಚಾರಿಕತೆಯ ಅಗತ್ಯತೆಯನ್ನು ವರ್ತಮಾನದ ಸಂಕಟ-ಬಿಕ್ಕಟ್ಟುಗಳನ್ನು ಎದುರಿಸುವ ಹಾಗೆ ಬದುಕು ಮತ್ತು ಬೌದ್ಧಿಕ ಬೆಳವಣಿಗೆಗೆ ಪೂರಕವಾಗಿ ರೂಪುಗೊಂಡಿದೆ.</p>

DEPARTMENT OF ENGLISH-SPO

SPECIFIC OUTCOMES	
At the end of B.Sc program in English the student will be able to	
SO-1:	To explore and experience the wide range of human perception in regarding of Poetry, Prose, Novel, Drama and Language Component.
SO-2:	Acquire the linguistic bases that enable them to participate in the scientific field and technological advances.
SO-3:	To create the awareness on the cultural, economic and social issues of the society in order to contribute in giving solution. To imbibe the human values through textual references.
SO-4:	The ability to speak and pronounce English intelligibly. Develop their awareness of the importance of English as a means of International communication.
SO-5:	Inculcate the reading habits and Develop their intellectual, personal and Professional abilities.

Course outcomes of English

I Semester: Paper 1:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Enhance their language skills which are acquired through constant practice of grammar exercises prescribed in the Work Book.
CO-2:	Literary adventures which are a collection of five essays and five poems enable the students with deep insights into past and present social, political, religious and Cultural contexts.
CO-3:	Short stories and poems strengthen the student's appreciation and critical skills through wonderful themes of the past and present multiple contexts.
CO-4:	The text also sharpens and refines the sense and sensibilities of the students.

II Semester: Paper 2:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	The prescribed Work Book continues to sharpen the language skills of the students with constant practice of grammar exercises and comprehension exercises.
CO-2:	Literary Realms which is a collection of five essays and five poems introduce the students to world of various achievements, failures, pains and sensibilities, values and principles giving life orientation.

III Semester: Paper 3:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	The prescribed Work Book enables the students to strengthen their writing skills with paragraph writing, official letters, note making, Formal speeches, words and phrases in Contemporary usage.
CO-2:	Literary Inspirations for 3 rd semester students blends a beautiful collection of short stories, essays and poems which enable the students to sharpen their insights into tragedies, partition problems, historical and political views
CO-3:	The prescribed poems sharpen the appreciative skills and Critical skills of the students.

IV Semester: Paper 4:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	The prescribed Work Book concentrates on sharpening the writing skills of the students such as preparing Job application with C.V. reports, letters to newspapers and government authorities, summary writing and essay writing.
CO-2:	The students are able to enter into the job market and challenging life with much more confidence with their communication skills and soft skills.
CO-3:	'Literary Inspirations' offers three One-Act plays which enable the students to improve their perceptions of life, its challenges and opportunities.
CO-4:	The plays prone their deep insights into the problems of past and present society which improves their preparation to enter into the challenging work.

Program specific outcomes: HINDI

Hindi is the most popular and national language in India. The ability to speak and pronounce Hindi intelligibly. Develop their awareness of the importance of Hindi as a means of national communication.

Course outcome of Hindi

Sl. No.	Programmes	Course out comes
1	I B.Sc I sem QP code: 11103	Upon the completion of the course the students will be able to learn in poetry, grammar and translation <ul style="list-style-type: none">• They learn poems of ancient and modern literature.• Practice of grammar exercises.• Practice of translation of paragraph in Hindi and Kannada.• 12 poems enable the students with deep insights into past and present religious and cultural contexts.• Basic learns of grammar relates to make perfect in Hindi.
2	I B.Sc II sem QP code: 10203	<ul style="list-style-type: none">• Upon the students continues to sharpen the language skills with constant practice of grammar exercises.• Able to learn prose, grammar and translation.• Literary realms which is a collection of Gadya kusum by author Indira. M.A and collection of 10 lessons to know the achievements, failures, pains and sensibilities, values and principles in giving life orientation.• Translation of Vanijya Hindi words to Kannada/ English by A.V. Narti.
3	II B.Sc III sem QP code: 11303	<ul style="list-style-type: none">• Enable the students to strengthen their writing skills Kanda Kavya of Draupadi by Narendra Sharma is facilitated.• Literary inspirations for this semester students blends 2 beautiful collections of Sarkari patra and also Tippan and Alekhan.
4	II B.Sc IV sem QP code:	<ul style="list-style-type: none">• The prescribed drama, functional Hindi and process writing.• To the practice and skill improvement we kept drama that is Ek Aur Dronacharya, how to respect teachers in their life.• Functional Hindi letters are given to improve their writing and skills.• Job orientation purpose we kept business letter to the students. Agency, Bima Samban di, Bank, Naukari, Shikayati patra, Puchtan Sambandi.

URDU

I Semester:

The text book entitled Armugan E-Adab: Part-I: It consists of prose, poetry and novel- Nirmala by Premchand Munshi.

On successful completion of the course the students will be able to

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Learn about origin and evolution of Urdu language and history of Dakkani language (Old Urdu).
CO-2:	From the study of prose and poetry, the students learn about the problems in life and the way to resolve them.
CO-3:	They learn about patriotism.
CO-4:	They learn about nature and its beauty.
CO-5:	Learn about the steps to write the Gazals.

II Semester:

Here the text book is Armugam E-Adab: Part-II:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Learn about the satisfaction in sacrificing and helping others.
CO-2:	Understand and how to live in present situation and focus for the future.
CO-3:	Learn about Founder of Aligarh Muslim University.
CO-4:	Learn about the translational techniques.
CO-5:	Learn about Ramayana through poem.
CO-6:	Learn about famous poets of Urdu language.

III Semester:

Text book titled Ganjeena-E-Adab: Part-I: It consists of prose, poetry, short stories and gazals.

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Learn about the interconnection between religion, science and philosophy.
CO-2:	Learn about the real situation in life.
CO-3:	New Urdu literature and gazals.
CO-4:	A short story from Premchand Munshi develops reading habit in students.

IV Semester:**Text book titled Ganjeena-E-Adab: Part-II**

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Learn about history of Islamic kingdom and its effect on Indian culture.
CO-2:	Benefits of reading books and gazals.
CO-3:	From the drama- Dharwaje Khol Do- students learn ethics in life.

COMPULSORY SUBJECTS FOR ALL THE COMBINATIONS

I Semester: CONSTITUTION OF INDIA

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Understand the emergence and evolution of Indian Constitution.
CO-2:	Understand the structure and composition of Indian Constitution.
CO-3:	Understand and analyse federalism in the Indian Context.
CO-4:	Analyse Panchayath Raj institutions as a medium of decentralization.
CO-5:	Understand and analyse the three organs of the state in the contemporary scenario.
CO-6:	Understand and evaluate the Indian political Scenario amidst the emerging Challenges.

II Semester: ENVIRONMENTAL STUDIES

Course outcome

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Able to understand and examine all sides of environmental issues and apply from all the disciplines such as engineering, commerce, science, arts and religion to create informed opinions about how to interact and how they are intertwined with the environment on both a personal and social level.
CO-2:	Know types of Natural resources and role of an individual in the conservation of natural resources.
CO-3:	Understand the concept of ecosystem, food chains, food webs and ecological pyramids.
CO-4:	Understand biodiversity and its conservation.
CO-5:	Get the knowledge of genetic, species and ecosystem diversity.
CO-6:	Know hot spots of biodiversity in India, threats to biodiversity, endangered and endemic species of India.
CO-7:	Understand causes, effects and control measures of environmental pollutions like air pollution, water pollution, soil pollution, marine pollution, noise pollution, thermal pollution and nuclear hazards.
CO-8:	Understand causes, effects and control measures of solid waste management.
CO-9:	Get the knowledge of disaster management, disasters like earthquake, cyclone and landslides.

CO-10:	Know the interrelationship between social issues and environment, environmental ethics; issues and possible solutions.
CO-11:	Know environment protection act, air act, water act, wildlife protection act, forest protection act, public awareness on various environmental issues.
CO-1:	Understand human population and its association with environment, Role of information technology in environment and human health.
CO-13:	Get the practical knowledge through field work by visiting river, forest, grassland and pond.

III Semester: SOCIAL SCIENCE MANAGEMENT

Course Outcomes of Social Science Management

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Promote nationalism in young minds with the discussions of first world war, Khilafath movement, Non-cooperation, Civil disobedience movement, Salt Satyagraha.
CO-2:	Understand movement of the peasants, workers and tribes.
CO-3:	Understand the power sharing in democracy.
CO-4:	Understand the decentralization of power, national unity, and accommodation of different social groups in the democracy.
CO-5:	Understand the knowledge of development, national income and per capita income.
CO-6:	Understand the knowledge of development indicators like PCI, IMR and other income and health indicators, human development indicators.
CO-7:	Understand how India becomes globalized. Impact of globalization on different sectors.
CO-8:	Understand family system, evils of caste system.

IV Semester: Course: COMPUTER APPLICATION (Compulsory)

Specific Programme Outcomes	
On successful completion of the B.Sc course the students will be able to	
PO-1:	The aim of computer application is to provide students with an opportunity to develop and understand the basic operation of computer system and computer application software.
PO-2:	Computers have become an important part of education, industries, entertainment, hospital, bank and data processing etc. They are being used to keep the records.
PO-3:	Learn the basics of computer hardware, software and networking.
PO-4:	Develop basic skills of windows and Microsoft office and for creating your own pages.
PO-5:	Learn computer safely and you will consider ethical issues related to computer usage.

Student Learning Outcomes– Computer Application		
Course Code	Course Name	Learning Outcome
	Computer Application	<p>After the completion of this course, students will be able to:</p> <ul style="list-style-type: none"> • Understand the role of computer, its characteristics, its type, about input/output devices, about hard disk, types of languages, merits and demerits of all the language. • Course objectives: A successful students will be able to understand the basic components of a computer operating system and the interaction among the various components. • The primary objective of MS Word is to enable you, the user, to create and edit documents. You can easily create and maintain mailing lists, create personalized documents and create news letters in word. It also helps you send documents to a groups of people for feedback. • The MS Excel to represent numeric data in multiple formats. Differentiate between formulas and functions in excel. Used at least four functions that are stored in excel. Access and manipulate data using the database functions of excel. • In Microsoft PowerPoint Creation of presentation slides to convey the meaningful information. • Microsoft access is an information management tool that helps you store information for references, reporting and analysis and it also helps u analyse large amounts of information and manage and related data more efficiently than Microsoft excel or other spreadsheet applications. • The internet is the giant public network that we connect to with mobile phone computers, tablets or other devices and find wed pages such as Facebook and Google. Creation of web pages using templates e-mail.

V and VI Semester: SKILL DEVELOPMENT

V SEMESTER:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Know meaning, development, components and determinants of personality.
CO-2:	Importance, types of soft skill and its training.
CO-3:	Importance of self-discovery, SWOT analysis, its benefits and its grid.
CO-4:	Meaning of value, value based education, civic responsibility, personal, cultural and social values.
CO-5:	Benefits of listening, listening tips, art of reading, writing and e-mail writing.
CO-6:	Forms and parts of body language, developing confidence with correct body language, practicing good manners in different places and functions.

VI SEMESTER:

COURSE OUTCOMES	
On successful completion of the course the students will be able to	
CO-1:	Learn effective communication tips, art of public speaking and its tips.
CO-2:	Learn career planning, guidelines and tips to successful career planning.
CO-3:	Know the meaning and difference among, bio data, curriculum vitae and resume. Tips to write these.
CO-4:	Know the types of interviews, tips and dress code during interviews. How to search the jobs effectively.
CO-5:	Learn time management: its importance, steps, secrets, tips of time management and stress management.