DEPARMENT OF MATHEMATICS

Programme: B.Sc. First Year

SEMESTER-I

SEM-I P1: Algebra & Trigonometry

On successful completion of this course, students would be able to

- Identify various types of Matrices & to find inverse and normal form of matrices.
- Evaluate the characteristic equation, Eigen value and corresponding Eigen vector of a given matrix.
- Identify the natures of roots of equations, Evaluate relation between the roots and coefficients of equations.
- Study application of De Moivre's theorem.
- Compute summation of various trigonometric series.

SEM-I P2: Differential & Integral Calculus

On successful completion of this course, students would be able to

- Define and use of limit and study the basic properties.
- Classify continuity and discontinuity of the functions.
- Solve the differentiability and L'Hospital rule with their applications.
- Describe the geometrical applications of Rolls theorem, LMVT, CMVT theorems.
- Evaluate the reduction formulae for integration.

Programme: B.Sc. First Year

SEMESTER-II

SEM-II P3: Ordinary Differential Equation

On successful completion of this course, students would be able to

- Solve first order differential equations using different methods.
- Solve higher order differential equations and orthogonal trajectories.
- Calculate CF and PI of the second order differential Equation.
- Describe the different methods to solve second order differential equations.
- Illustrate applications of differential equations.

SEM-II P4: Vector Analysis & Solid Geometry

On successful completion of this course, students would be able to

- Interpret the vectors, their products, differentiation and integration.
- Determine curvature and torsion.
- Apply the concepts of divergence, curls which are useful in physics.
- Describe the different forms of sphere and properties.
- Discuss the equations of cone and cylinder.

Programme: B.Sc. Second Year

SEMESTER-III

SEM-III P5: Advanced Calculus

On successful completion of this course, students would be able to

- Get knowledge of basic principles of limit and continuity of two variables Taylor's theorem.
- Verify Lagrange's multipliers method and Jacobian.
- Evaluate improper integral and Beta - Gamma function.
- Learn the definition of sequence and series and Sandwich theorem.
- Learn various tests for convergence and divergence of series.

SEM-III P6: Partial Differential Equations

On successful completion of this course, students would be able to

- Study partial derivatives, differential equation, real valued & Homogeneous functions.
- Evaluate Partial Differential Equations, solution of some special type of equations.
- Learn various methods to solve PDE of second and higher order.
- Students will be familiar with techniques of calculus of variations.
- Recognize various method of separation of variables.

Programme: B.Sc. Second Year

SEMESTER-IV

SEM-IV P7: Elements of Algebra

On successful completion of this course, students would be able to

- Engulf the concept of Groups, Subgroups and Cosets.
- Explain the significance of Cosets, Normal Subgroups and Quotient groups.
- Learn the concept of Homomorphism & Isomorphism and its theorem.
- Identify & use the properties of Ring and Ideals and Integral Domain.
- Familiar with the fundamental concepts of Number Theory.

SEM-IV P8: Classical Mechanics

On successful completion of this course, students would be able to

- Learn radial and transverse component of velocities and acceleration.
- Explain Degree of Freedom, Generalized co-ordinates and constraints.
- Learn expressing the central force of motion and areal velocity
- Explain the significance of all types of forces.
- Learn to find work and energy, virtual work and uniform catenary.

Programme: B.Sc. Third Year

SEMESTER-V

SEM-V P9: Mathematical Analysis

On successful completion of this course, students would be able to

- Find the area of irregular shapes and Riemann integral of the function
- Use various operators like beta, gamma function
- Apply the concept of continuity & differentiability of complex function
- Identify the analyticity of the function
- Understand the set theory in sense of metric spaces

SEM-V P10: Mathematical Methods

On successful completion of this course, students would be able to

- Find Legendre's equation, generating function and remember recurrence formulae
- Solve Bessel's equation and boundary value problem
- Remember Fourier series for odd and even functions
- Use Laplacian operator
- Study Fourier Transform, Periodic, Odd, Even functions of & Their period with ease

Programme: B.Sc. Third Year

SEMESTER-VI

SEM-VI P11: Linear Algebra

On successful completion of this course, students would be able to

- Verify linear dependence and independence and find bases of the vector spaces
- Use linear transformations and find rank & nullity of the matrices
- Find the eigen values and eigen vectors of the linear transformation
- Use Inner Product Space
- Effectively communicate about Modules and their types.

SEM-VI P12: Graph Theory

On successful completion of this course, students would be able to

- Learn the application of various models by using graph theory
- Communicate about properties of trees, rooted, binary trees and spanning trees
- Recall Kurutowski's two graphs and to represent planar graphs
- Association of vector space with a graph, circuit and cutset subspaces
- Obtain various type of matrices from given graph, Orthogonal vectors and spaces.