

Course Outcomes

B.Sc. NM First Semester

Paper I: Plane Geometry

CO1: Students will study the concept of transformation of axes in two dimensions.

CO2: Students will study about the pair of straight lines, their joint equation, angle between them and some properties related to it.

CO3: Students will study about circle and its properties.

CO4: Students will study about conics as parabola, ellipse and hyperbola and its properties.

CO5: Students will be able to identify the conics from general second degree equation.

Paper II: Calculus-I

CO1: Students will understand the concept of real numbers and how to solve different inequalities.

CO2: Students will learn the boundedness of sets and how to compute bounds of a set if exists.

CO3: Students will study the concept of Limit and Continuity and its application.

CO4: Students will learn how to use Taylor's Theorem for expansion of one variable function.

CO5: Students will be able to know how indeterminate limits can be evaluated by L' Hospital Rule.

Paper III: Trigonometry and matrices

CO1: Students will study about the concept of complex number, Demoivre's theorem and its applications.

CO2: Students will study about some elementary function of a complex variable

CO3: Students will be able to sum the different trigonometry series.

CO4: Students will study about some special matrices such as Hermitian and skew Hermitian Matrices. They will be able to find rank of square matrix and Eigen values and vectors of a square matrix.

CO5: Students will study the various methods to solve Linear Equation.

B.Sc. NM Second Semester

Paper I: Solid Geometry

CO1: Students will study about the concept of transformation of axes in three dimensions.

CO2: Students will study about sphere and its properties.

CO3: Students will learn to know about the cylinder and cone and their applications.

CO4: Students will learn how to find surfaces of revolution of different curves.

Paper II: Calculus-II

CO1: Students will learn about concavity, convexity of curves, asymptotes and multiple points of the curve

CO2: Students will know how to trace the graph of curves.

CO3: Students will be able to learn how to evaluate the integral of functions by reduction formula.

Paper III: Theory of Equations

CO1: Students will be able to illustrate the Division and Euclid's algorithm

CO2: Students will be able to describe the Relation between roots and coefficient.

CO3: Students will be able to compute integral roots of an equation by Newton's method.

CO4: Students will be able to learn how to evaluate trigonometric solutions of a real cubic with real roots.

B.Sc. NM Third Semester

Paper I: Advanced Calculus-I

CO1: Students will learn the concept of Limits, Continuity of Function of two and three variable.

CO2: Students will learn about partial derivation and differentiability of real valued function.

CO3: Students will learn to expand function of variables by Taylor's Theorem.

CO4: Students will learn to find Jacobians, maxima and minima, saddle points of function.

Paper II: Differential Equations-I

CO1: Differential equations help students to understand study of change of different functions

CO1:: Students will be able to solve differential equations with constant and variable coefficients.

CO3: Students will be able to solve problems in ordinary differential equations, dynamical systems, stability theory, and a number of applications to scientific and engineering problems.

Paper III: Statics

CO1: Students will learn about the different kinds of balanced forces acting on a particle.

CO2: Students will study the concept of coplanar forces, parallel forces, their resultant and how to find their resultant.

CO3: Students will learn the concept of Moments and Couples, Varignon's Theorem of moments and equilibrium of forces.

CO4: Students will study the concept of friction, coefficient of friction and angle of friction.

B.Sc. NM Fourth Semester

Paper I: Advanced Calculus –II

CO1: Students will Study the concept of sequential continuity and uniform continuity.

CO2: Students will learn about the sequence and series of real numbers and their convergence.

CO3: Students will be able to check the convergence of series by suitable methods.

CO4: Students will study the concept of rearrangement of terms.

Paper II: Differential Equations-II

CO1: Students will study non-linear partial differential equations of first order and various methods to solve them such as Charpit's Method and Jacobi's Method.

CO 2: Students will learn about second-order partial differential equation and its various types. They also study various methods to solve them.

Paper III: Dynamics

CO1: Students will learn about the concept of displacement, speed, velocity, acceleration and its application.

CO2: Students will study Newton's Law of motion and how to apply these to find the equation of motion of different objects such as simple Pendulum, Compound Pendulum etc.

CO3: Students will learn about the simple harmonic motion.

CO4: Students will be able to understand the concept of projectile and its applications.

CO5: Students will learn the concept of work, power and energy, relative motion and momentum and Impulses.

B.Sc. NM Fifth Semester

Paper I: Analysis-I

CO1: Analysis will introduce concept of Riemann integral.

CO2: Students will be able to check whether the given function is Riemann integrable or not.

CO3: Students will learn about the countability and uncountability of sets.

CO4: Students will study the concept of Beta and Gamma functions.

CO5: Students will be able to differentiate under an integral sign by using Leibnitz rule.

Paper II: Modern Algebra

CO1: Students will study the algebraic structures Groups and Rings.

CO2: It will introduce the concept of Groups, Subgroups, Cyclic groups, Cosets, Normal subgroups, Permutation groups and their properties.

CO3: Students will understand the concept of Homomorphism and isomorphism and their applications.

CO4: It will introduce Rings, Division ring, Integral domain and Polynomial rings.

CO5: Students will be able to solve problems related to groups and rings.

Paper III: Probability theory

CO1: Students will study the concept of random experiments, Sample spaces, Events of an experiment and how to compute probability of an event.

CO2: Students will study the concept of Random variables and its properties.

CO3: Students will be able to connect the sample space with Real numbers.

CO4: Students will learn some Discrete Random variables such as Binomial random variables, Poisson Random variable.

CO5: Students will learn some Continuous Random variables and its properties.

CO6: Students will study the concept of Bivariate Random variables.

B.Sc. NM Sixth Semester

Paper I: Analysis-II

CO1: Students will study the concept of Double and Triple integral.

CO2: Students will be able to change of variables in Double and Triple integrals.

CO3: Students will study some important Theorems such as Green's theorem, Gauss divergence theorem and Stokes' theorem.

CO4: Students will learn about the convergence of sequence and series of functions and some theorems related to it.

CO5: Students will study the concept of Fourier series expansion.

Paper II: Linear Algebra

CO1: Students will study Vector spaces, Linear transformation and their properties in this course.

CO2: Students will learn about different vector spaces, linear span, linear dependence and independence of vectors, Linear combination of vectors and Basis of a vector space.

CO3: Students will be able to solve problems of linear transformation and Algebra of linear transformation.

CO4: Students will be able to find Eigen values and Eigen vectors of a matrix as well as linear transformation.

CO5: Students will learn Matrix of a linear transformation and Rank- Nullity theorem and will be able to find minimal polynomial.

Paper III: Numerical Analysis

CO1: Students will learn the various methods to obtain the approximate solution of different mathematical equations.

CO2: Students will learn about the concept of polynomial interpolation by different kinds of method of interpolation such as Newton Forward Difference method, Newton backward difference method, Lagrange method.

CO3: Students will be able to learn the concept of numerical differentiation and integration and will be able to solve some problems related to numerical differentiation and integration.

CO4: Students will be able to learn the various numerical methods for finding the Eigen value of a square matrix.