

Core Paper-1 (Calculus)

After completing the course, students are expected to be

CO1-able to use Leibnitz's rule to evaluate derivatives of higher order

CO2-able to study the geometry of various types of functions, evaluate the area, volume using the techniques of integrations

CO3-able to identify the difference between scalar and vector, acquired knowledge on some the basic properties of vector functions

Core Paper-II (DISCRETE MATHEMATICS)

CO1-able to acquired knowledge will help students in simple mathematical modeling

CO2- able to study advance courses in mathematical modeling, computer science, statistics, physics, chemistry etc.

Core Paper-III (REAL ANALYSIS)

CO1- able to handle fundamental properties of the real numbers that lead to the formal development of real analysis

CO2-able to understand limits and their use in sequences, series, differentiation and integration

CO3-able to know how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems

Core Paper-IV(DIFFERENTIAL EQUATIONS)

CO1- able to solve differential equations

CO2- able to model problems in nature using Ordinary Differential Equations

CO3- This is also prerequisite for studying the course in Partial Differential Equations and models dealing with Partial Differential Equations.

Core Paper-V (THEORY OF REAL FUNCTIONS)

CO1- students will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable

CO2- They will work out problems involving derivatives of function and their applications

CO3- They can use derivatives to analyze and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions

Core Paper-VI (GROUP THEORY-I)

CO1- A student learning this course gets idea on concept and examples of groups and their properties

CO2- He understands cyclic groups, permutation groups, normal subgroups and related results.

CO3- He can opt for courses in ring theory, field theory, commutative algebras, linear classical groups etc.

CO4-He can be apply this knowledge to problems in physics, computer science, economics and engineering.

Core Paper-VII (PARTIAL DIFFERENTIAL EQUATIONS AND SYSTEM OF ODEs)

CO1- student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc.

CO2- student will be able to study the importance of the course in engineering and industrial applications for solving boundary value problem.

Core Paper-VIII (NUMERICAL METHODS AND SCIENTIFIC COMPUTING)

CO1- Students can handle physical problems to find an approximate solution.

CO2- After getting trained a student can opt for advance courses in numerical analysis in higher mathematics

CO3- Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance.

Core Paper-IX (TOPOLOGY OF METRIC SPACES)

CO1- On successful completion of the course students will learn to work with abstract topological spaces. This is a foundation course for all analysis courses in future.

Core paper-X (RING THEORY)

CO1- After completing this course, this will help students to continue more courses in advanced Ring theory modules, Galois groups

Core Paper-XI (MULTIVARIATE CALCULUS)

CO1- able to calculate partial derivatives, directional derivatives, extreme values and can calculate double, triple and line integrals

CO2- He will have idea of basic vector calculus including green's theorem, divergence theorem and stokes theorem

CO3- He can take courses in calculus on manifolds, Differential geometry and can help in numerical computations involving several variables

Core Paper-XII (LINEAR ALGEBRA)

CO1- The student will use this knowledge wherever he/She goes after undergraduate program.

CO2- m. It has applications in computer science, finance mathematics, industrial mathematics, bio mathematics and what not.

Core paper-XIII (COMPLEX ANALYSIS)

CO1- Students will be able to handle certain integrals not evaluated earlier and will know a technique for counting the zeros of polynomials

CO2- This course is prerequisite to many other advance analysis courses.

Core Paper-XIV (GROUP-THEORY-II)

CO1- The knowledge of automorphism helps to study more on field theory

CO2- Students learn on direct products, group actions, class equations and their applications with proof of all results

CO3- This course helps to opt for more advanced courses in algebra and linear classical groups.

DSE Paper-1(LINEAR PROGRAMMING)

CO1- More knowledge on this topic in higher studies will help students to deal industrial models.

CO2- This is also prerequisite for studying advanced courses in Nonlinear Programming Problems, Inventory Control Problem and Queuing Theory etc.

DSE Paper-II (Probability and Statistics)

CO1- The students shall learn probability and statistics for various random variables, multivariate distributions, correlations and relations.

CO2- He shall learn law of large numbers and shall be able to do basic numerical calculations.

DSE Paper-III (DIFFERENTIAL GEOMETRY)

CO1- After completing this course a student will learn on serret-Frenet formulae, relation between tangent, normal and binormals, first and second fundamental forms and ideas on various curvatures

CO2- He has scope to take more advanced courses in surface theory and geometry.

DSE Paper-IV (NUMBER THEORY)

CO1- Upon successful completion of this course students will be able to know the basic definitions and theorems in number theory, to identify order of an integer, primitive roots, Euler's criterion, the Legendre symbol, Jacobi symbol and their properties

CO2- to understand modular arithmetic number-theoretic functions and apply them to cryptography

GE-I (CALCULUS AND DIFFERENTIAL EQUATIONS)

CO1- After completing the course, students are expected to be able to apply knowledge of calculus and differential equations in the areas of their own interest.

GE-II (ALGEBRA)

CO1- The acquired knowledge will help students to study further courses in mathematics like, group theory, ring theory and field theory and linear algebra.

CO2- It has applications not only in higher mathematics but also in other science subjects like computer science, statistics, physics, chemistry etc.