DEPARTMENT OF MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES

1. IN CALCULUS, students are expected to be able to use Leibnitz's rule to evaluate derivatives of higher order, able to study the geometry of various types of functions, evaluate the area, volume using the techniques of integrations, able to identify the difference between scalar and vector, acquired knowledge on some the basic properties of vector functions by this programming language.
2. IN DISCRETE MATHEMATICS, the students acquired knowledge in simple mathematical modelling. They can study advance courses in mathematical modelling, computer science, statistics, physics and engineering etc.
3. IN REAL ANALYSIS, students will be able to handle fundamental properties of the real numbers that lead to the formal development of real analysis and understand limits and their use in sequences, series, differentiation and integration. Students will appreciate how abstract ideas and rigorous methods in mathematical analysis can be applied to important practical problems. Student will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable. They will work out problems involving derivatives of function and their applications. They can use derivatives to analyse and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions. This knowledge is basic and students can take all other analysis courses after learning this course.
4. IN DIFFERENTIAL EQUATIONS, PARTIAL DIFFERENTIAL EQUATIONS & SYSTEM OF ORDINARY DIFFERENTIAL EQUATIONS, a student is able to solve differential equations and is able to model problems in nature using Ordinary Differential Equations. This is also prerequisite for studying the course in Partial Differential Equations and models dealing with Partial Differential Equations. Lastly a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non-linear evolution equations etc. All these courses are important in engineering and industrial applications for solving boundary value problem and solve the problems by MATLAB Programming.

5. IN GROUP THEORY – I,II AND RING THEORY, student can opt for courses in ring theory, field theory, commutative algebras, linear classical groups etc. and can be apply this knowledge to problems in physics, computer science, economics and engineering. The knowledge of automorphism helps to study more on field theory. Students learn on direct products, group actions, class equations and their applications with proof of all results. This course helps to opt for more advanced courses in algebra and linear classical groups also this course will help for students to continue more courses in advanced Ring theory modules, Galois groups.
6. IN NUMERICAL METHODS & SCIENTIFIC COMPUTING, students can handle physical problems to find an approximated solution. After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics. 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 and solve the problems and plot the graphs by MATLAB Programming.
7. IN TOPOLOGY OF METRIC SPACES, students will learn to work with abstract topological spaces. This is a foundation course for all analysis courses in future.
8. IN MULTIVARIABLE CALCULUS, a student will be able to calculate partial derivatives, directional derivatives, extremum values and can calculate double, triple and line integrals. He will have idea of basic vector calculus including green's theorem, divergence theorem and stokes theorem. He can take courses in calculus on manifolds, Differential geometry and can help in numerical computations involving several variables.
9. IN LINEAR ALGEBRA, the student will use this knowledge wherever he/she goes after undergraduate program. It has applications in computer science, finance mathematics, industrial mathematics, bio mathematics.
10. IN COMPLEX ANALYSIS, students will be able to handle certain integrals not evaluated earlier and will know a technique for counting the zeros of polynomials. This course is prerequisite to many other advance analysis courses.
11. IN LINEAR PROGRAMMING, students have more knowledge on this topic in higher studies to deal industrial models. This is also prerequisite for studying advanced courses in Nonlinear Programming Problems, Inventory Control Problem and Queuing Theory etc.

12. IN PROBABILITY & STATISTICS, the students shall learn probability and statistics for various random variables, multivariate distributions, correlations and relations. He shall learn law of large numbers and shall be able to do basic numerical calculations.
13. IN DIFFERENTIAL GEOMETRY, a student will learn on Serret-Frenet formulae, relation between tangent, normal and binormals, first and second fundamental forms and ideas on various curvatures. He has scope to take more advanced courses in surface theory and geometry.
14. IN NUMBER THEORY, students will 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, to understand modular arithmetic number-theoretic functions and apply them to cryptography.
15. IN PROJECT, students will able to know how the research work can be done in higher studies.