

DEPARTMENT OF MATHEMATICS

Programme: M.Sc., Mathematics

PO No.	Programme Outcomes Upon completion of the M.Sc. Degree Programme, the graduate will be able to
PO-1	innovate and design complex Mathematical problems and solutions using Pure and Applied Mathematics
PO-2	equip the students to think in critical and logical manner
PO-3	Analyze the contemporary issues in the field of Mathematics and applied sciences
PO-4	opportunity of employment in schools and colleges as Mathematical Teachers and Professors, Analysts in Software Industries, Research and Development Organizations
PO-5	crack lectureship and fellowship exams approved by CSIR – NET and SET

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would
PSO-1	magnify the logical skills and furnish the students for research with professional and ethical responsibility
PSO-2	enhance the abstract intelligence in solving problems in analysis and algebra
PSO-3	curriculum profound the base for scientific and technological computations
PSO-4	reinforce the mathematical ability and imparting practical knowledge through mathematical software
PSO-5	substantiate the students attitude to evolve new concepts in emerging fields

Course Title	LINEAR ALGEBRA	
CODE	18MSPC101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of linear transformations and its representation by matrices	K2
CO-2	Discuss the concepts of polynomials and prime factorization of a polynomial	K2
CO-3	Demonstrate the properties of determinants and characteristics values	K3
CO-4	Analyze the concept of triangulation, diagonalization and decomposition	K4
CO-5	Evaluate the concepts of various bilinear forms	K5

Course Title	REAL ANALYSIS	
CODE	18MSPC102	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire the knowledge of countable sets, uncountable sets and compact sets in metric spaces	K2
CO-2	Apply the concept of continuity and compactness in metric spaces	K3
CO-3	Demonstrate Riemann Stieltjesintegral and examine the properties of integration and differentiation	K4
CO-4	Analyze the convergence in sequences and series	K4
CO-5	Evaluate the concepts of linear transformation in vector spaces	K5

Course Title	ORDINARY DIFFERENTIAL EQUATIONS	
CODE	18MSPC103	
CO No.	Course Outcomes	Knowledge Level
CO-1	Obtain series solutions for second order ordinary differential equations both at ordinary and regular singular points	K2
CO-2	Construct systems of linear differential equations and identify the uniqueness	K3
CO-3	Demonstrate the solution of non-homogeneous linear systems and the properties linear system with constant and periodic coefficients	K3
CO-4	Analyze the existence and uniqueness solution of initial value problems	K4
CO-5	Determine the oscillations of second order equations	K5

Course Title	NUMBER THEORY	
CODE	18MSPC104	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of divisibility and primes	K2
CO-2	Solve the congruences of different degrees	K2
CO-3	Demonstrate about power residue, multiplicative groups, rings and fields	K3
CO-4	Discuss the ideas about quadratic residues and Jacobi symbol	K4
CO-5	Analyze the concepts of greatest integer function and recurrence functions	K5

Course Title	MATHEMATICAL PROGRAMMING	
CODE	18MSPC105	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of Graphical, Simplex and Dual methods.	K2
CO-2	Obtain solutions for Integer Programming and Gomory cutting plane Algorithm.	K2
CO-3	Solve integer linear programming and dynamic programming problems.	K3
CO-4	Analyze the concepts of constrained and unconstrained problems.	K4
CO-5	Compare the algorithms of constrained and unconstrained in non-linear programming problems.	K5

Course Title	ALGEBRA	
CODE	18MSPC206	
CO No.	Course Outcomes	Knowledge Level
CO-1	Identify the basic ideas of algebra including the concepts of groups and direct products.	K2
CO-2	Understand the concept of a particular Euclidean ring and other forms of polynomial rings.	K2
CO-3	Demonstrate knowledge of the structures of fields and extension fields	K3
CO-4	Appreciate the concept of Galois theory and finite fields	K4
CO-5	Compose clear and accurate proofs using the concepts of linear transformations	K5

Course Title	COMPLEX ANALYSIS	
CODE	18MSPC207	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand analytic functions, rational functions and elementary Riemann surfaces.	K2
CO-2	Apply Cauchy's theorem for a rectangle and disk.	K2
CO-3	Derive the calculus of residues and harmonic functions.	K3
CO-4	Determine series and product development, partial fractions and factorization.	K4
CO-5	Evaluate Riemann mapping, conformal mapping of polygons and rectangle.	K5

Course Title	PARTIAL DIFFERENTIAL EQUATIONS	
CODE	18MSPC208	
CO No.	Course Outcomes	Knowledge Level
CO-1	Obtain solutions for non-linear partial differential equations using Cauchy's, Charpit's and Jacobi's Method.	K2
CO-2	Understand the concept of differential equations with constant and variable coefficients and solve them.	K2
CO-3	Demonstrate the knowledge of linear hyperbolic equations and the method of integral transforms.	K3
CO-4	Analyze the boundary value problems and solve them by using separation of variables.	K4
CO-5	Compose clear and accurate proofs using the concepts of Partial Differential Equations	K5

Course Title	MATHEMATICAL STATISTICS	
CODE	18MSPC209	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of marginal and conditional distributions	K2
CO-2	Apply the ideas of mathematical expectation and chebyshev's inequality to solve problems	K3
CO-3	Determine the Poisson, Binomial, Normal and Gamma distributions	K4
CO-4	Analyze chi-square, t distributions and their applications	K4
CO-5	Evaluate significance test and theory of estimation	K5

Course Title	PROGRAMMING IN PYTHON	
CODE	20MSPCP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Solve the given system of equations	K2
CO-2	Find solution of given algebraic equation	K3
CO-3	Reflect given equation with graphs	K4

Course Title	ADVANCED MULTI – SKILL DEVELOPMENT PAPER	
CODE	18MSPS201	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the concepts of General Awareness and Scientific Aptitude.	K2
CO-2	Apply Logical Reasoning	K3
CO-3	Analyze Numerical Reasoning and Quantitative Aptitude	K4
CO-4	Identify and improve the skills in PPT, interview, abstract writing and counseling	K3
CO-5	Discuss the movement and gestures to be avoided in Group Discussion and study about online services.	K4