Dayanand Science College, Latur.

Programme Specific Outcomes (PSOs)
of M.Sc. Mathematics

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Sr. No.	PSO No.	Programme Specific Outcomes (PSOs) of B.Sc. Mathematics
1	PSO1	Take care of fast paced development in the knowledge of mathematics.
2	PSO2	Meet the needs and requirements of the society and to enhance the quality and standards of Mathematics Education.
3	PSO3	Solve complex problems in CSIR-NET/SET/GATE
4	PSO4	Get tune with further studies of their area of interest of Mathematics
5	PSO5	Become good teacher in Mathematics
6	PSO6	Provide a broad common frame work, for exchange, mobility and free dialogue across the Inidan Mathematical and associated community.
7	PSO7	Provide multidisciplinary profile and to allow a flexible cafeteria like approach including initiating new papers to cater to frontier developments in the Subject like Mathematics.
8	PSO8	Get placed in scientific computing / Data Analyst related MNC's
9	PSO9	Provide intellectual leadership in Mathematical sciences, which is of direct benefit to the nations.
10	PSO10	Inculcate specific skills in independently comprehending, analyzing modeling and solving problems at a high level of abstraction.
11	PSO11	Create and aptitude for Mathematics in those students who show a promise for higher studies and creative work in Mathematics.
12	PSO12	Create confidence in others, for equipping themselves with that part of Mathematics which is needed for various branches of Sciences or Humanities in which they have aptitude for higher studies and original work.

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Course Outcomes (COs)
of M.Sc. Mathematics

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Sr. No.	Name of Paper	Course Outcomes
1	Abstract Algebra I (Group & Ring Theory)	• Basic concepts of group theory and its various types. • Introduction to some important theorems & its application. • Describe the concepts of ring theory in detail.
2	Real Analysis	• Describe the Riemann integral with its significance. • Study the basic concepts of sequence & series of functions and classifying the nature of convergence. • Identify continuously differentiable functions introduction to inverse function theorem and implicit functions theorem.
3	Ordinary Differential Equation	• Introduction to linear Equations with constant coefficients. • Describe the linear equations with variable coefficients, significance of Legendre equation, Euler equation the Bessel equation. • Applications of exact equations, Lipchitz condition, Green's functions & sturm-liouviue boundary value problem.
4	Complex Analysis I	• Study some basic mappings, different functions & its properties. • Describe the Cauchy Riemann equation with examples and operations on power series. • Introduction to curves, parameterizations line integrals, Cauchy's theorem.
5	Dynamics and Continuum Mechanics I	• Introduction to some basic concepts and describe various motions of rigid body. • Study Newton's laws of motion various forces and angular momentum. • Describe the theorem of parable and perpendicular axes, illustrating the laws of motion the law of conservation of energy.
6	Tutorial- I	
7	Linear Algebra	• Introduction to vector spaces, linear transformations and invertibility and isomorphism. • Stud the matrix operations, knowledge of finding Eigen value and Eigen vectors Cayley-Hamilton theorem & its application. • Describe the gram-Schmidt orthogonalization process with its applications, analyzing bilinear forms Jordan canonical

		form I & II quadratic forms and Rational canonical form.
8	Measure and Integration Theory	• Study measurable sets & function Riemann & Lebesgue integrals with its significance. • Overview of Abstract measure spaces. • Theorem of Raydon - Nikodym with its applications.
9	Partial Differential Equations	• Introduction to linear equation of first order with its various methods. • Describe wave equation, Laplace equation, boundary value and the Cauchy's problems with its applications. • Study Harnack's theorem kelvin's inversion's theorem & and Neumann problem for different regions.
10	Complex Analysis II	• Knowledge of Cauchy's inequality and applications. • Study conformal mapping, Riemann Mapping theorem. • Study infinite products, special functions and Weierstra's product theorem & its application.
11	Dynamics and Continuum Mechanics II	• Study some basic concepts of indices, tensor, scalor and vector fields • Description of motion of continumm, deformation, compatibility conditions of infinitesimal strain components. • Study of fluids, mathematical principles and its applications.
12	Tutorial-II	
13	Functional Analysis	• Introduction to banach spaces and applications of the Hahn-Banach theorem & the open mapping theorem. • Study Hilbert spaces with its properties and types of operators. • The spectral theorem with its examples.
14	Topology	• Study basic of topology & its various types. • Introduction to connected and compact spaces of real line. • Describe countability and separation axioms and some important theorems and its significance.
15	Analytical Number Theory	• Describe theory of congruence's, Chinese remainder theorem & Fermat's little theorem with its application. • Introduction to concepts of primitive roots and quadratic reciprocity. • Study arithmetical functions and dirichect multiplication.
16	Fluid Mechanics I	• Introduction to fluids and analyzing its motion in various medium. • Study Euler's equation of motion, Bernoulli's equation with Examples. • Describe the two-dimensional flow and line sources, sinks, doublets and vortices with examples.
17	Integral Transform	• Introduction to Laplace transform with its properties and

		applications. • Study Fourier integrals and Fourier transform & Fourier integral representations. • Application of Fourier transforms and Evaluation of mellin transform with applications.
18	Tutorial-III	
19	Numerical Analysis	• Introduction to different method for salving first and second degree equations. • The various methods for solving system of linear algebraic equations. • Study of interpolations and approximations.
20	Abstract Algebra II (Field Theory)	• Introduction to Irreducible polynomial and Eisenstein criterion with its applications. • Study Galois theory fundamental theorem of Galois theory & fundamental theorem of algebra with its applications. • Describe ruler and compass construction and polynomials solvable by radicals.
21	Classical Mechanics	• Study mechanics of system of particles Different forms of Lagrange's Equation and its application. • Introduction to functional isoperimetric problem variation of problem with subsidiary conditions. • Describe Hamilton's principle & its canonical equations and application of Hamilton's formulation.
22	Fluid Mechanics II	• Describe two-dimensional image systems the Milne-Thomson circle theorem & its applications. • Study compressibility effects in real fluids. The various flows in the medium of gas, shockwaves & its uses. • Introduction to the Navier stokes equations of mation of a viscous fluid with some solvable problems dimensional analysis.
23	Integral Equations	• Introduction and classification of integral equations special rinds of kernels. • Knowledge of solutions of fredbolm and volterra integral equation of successive approximations. • Study integral equations with symmetric kernels and integral transform methods with its applications.
24	Project Work	• Solve problems in CSIR-NET/SET/GATE • Inculcate specific D-kills in independently and solving problems at a high level of abstractions.