Vidyasagar University

Midnapore-721102, West Bengal

POs & PSOs for the Post-Graduate Programme in

APPLIED MATHEMATICS

National Educational Policy – 2020

[w.e.f. 2025-26]

Department of Applied Mathematics 2025-26

Program Outcomes (POs)

On successful completion of the M.Sc in Applied Mathematics program, the students will be able to	
PO1	**Advanced Mathematical Knowledge:** Acquire advanced knowledge of pure and applied mathematics, including analysis, algebra, topology, mechanics, optimisation, statistics, and computational mathematics.
PO2	**Problem Solving and Modelling:** Apply mathematical reasoning, abstract thinking, and problem-solving techniques to analyse and model complex real-world problems.
PO3	**Computational Proficiency:** Develop proficiency in modern computational tools and programming languages (Python, C++, MATLAB, LINGO, etc.) for solving mathematical and interdisciplinary problems.
PO4	**Research Skills:** Demonstrate research skills through independent inquiry, data collection, analysis, interpretation, and dissemination of findings.
PO5	**Interdisciplinary Integration:** Integrate mathematical knowledge with other scientific and engineering domains, promoting interdisciplinary problem-solving.
PO6	**Communication Skills:** Communicate mathematical ideas, proofs, algorithms, and research findings effectively through written, oral, and digital formats.
PO7	**Teamwork and Collaboration:** Work effectively both independently and collaboratively in academic, professional, and research environments.
PO8	**Ethics and Knowledge Systems:** Recognise ethical principles, professional responsibilities, and the significance of Indian Knowledge Systems (IKS) and cultural heritage in the development of mathematics.
PO9	**Lifelong Learning:** Engage in lifelong learning to stay updated with emerging areas in mathematics, data science, machine learning, and scientific research.
PO10	**Employability and Entrepreneurship:** Demonstrate employability and entrepreneurship skills by applying mathematical knowledge in teaching, research, industry, and innovation.

Programme Specific Outcomes (PSOs)

After the successful completion of M. Sc. in Applied Mathematics program, the students are expected to:	
PSO1	Apply advanced mathematical concepts from analysis, algebra, mechanics, optimisation, differential equations, functional analysis, stochastic processes, and topology to theoretical and practical problems.
PSO2	Use computational and algorithmic methods, including programming in Python and C++, data science techniques, graph theory, and numerical methods, to solve complex mathematical models.
PSO3	Conduct independent research and projects in areas like fuzzy mathematics, operations research, dynamical systems, fluid mechanics, cryptography, and mathematical modelling in applied sciences.
PSO4	Appreciate the historical and cultural development of mathematics, including Indian Knowledge Systems, and apply mathematical knowledge in socially relevant, ethical, and interdisciplinary contexts.