

## DEPARTMENT OF MATHEMATICS

### Program-Specific Outcomes for the Department of Mathematics

#### PO1: **Mathematical Proficiency**

Students will demonstrate advanced mathematical proficiency, mastering core mathematical concepts, theorems, and techniques across various mathematical areas.

#### PO2: **Problem-Solving Skills**

Students will excel in problem-solving, applying mathematical methods and critical thinking to address complex real-world problems.

#### PO3: **Mathematical Abstraction and Formalism**

Students will understand the abstraction and formalism inherent in mathematical concepts, enhancing their ability to work with abstract structures.

#### PO4: **Advanced Calculus and Analysis**

Students will gain expertise in advanced calculus and mathematical analysis, demonstrating a deep understanding of limits, continuity, and convergence.

#### PO5: **Algebra and Number Theory**

Students will possess a strong foundation in algebra and number theory, including an understanding of abstract algebra, group theory, and number theory principles.

#### PO6: **Geometry and Topology**

Students will exhibit proficiency in geometry and topology, including an understanding of Euclidean geometry, differential geometry, and topological concepts.

#### PO7: **Probability and Statistics**

Students will be skilled in probability theory and statistical analysis, using mathematical methods to model and interpret data.

#### PO8: **Mathematical Modeling**

Students will apply mathematical modeling techniques to solve real-world problems, translating practical situations into mathematical formulations.

#### PO9: **Computational Mathematics**

Students will be proficient in computational mathematics, using software tools and programming languages to solve mathematical problems and simulations.

**PO10: Research and Mathematical Inquiry**

Students will engage in mathematical research projects, fostering innovative thinking and contributing to advancements in the field of mathematics.

**PO11: Ethical and Professional Conduct**

Students will adhere to the highest ethical standards in their academic and professional activities, respecting academic integrity and ethical principles within the field of mathematics.