

Shri Shivaji Science and Arts College, Chikhli.
Department of Mathematics
Program Outcome, Program Specific Outcome and Course Outcome

Program Outcomes (POs):

On completion of B.Sc. Mathematics program, graduates will be able to:

- Demonstrate, solve and an understanding of major concepts in all discipline of mathematics.
- Solve the problem and also think methodically, independently and draw a logical conclusion.
- Employ critical thinking and scientific knowledge to design, carryout, record and analyze the result of mathematical analysis.
- Create an awareness of the impact of mathematics on the environment, society and development outside the scientific community.
- To inculcate the scientific temperament in the students and outside the scientific community.

Program Specific Outcome (PSOs):

On completion of B.Sc. Mathematics program, graduates will be able to:

- Demonstrate basic ideas, skills in algebra, geometry, trigonometry, calculus number theory and classical mechanics.
- Apply the underlying unifying structures of mathematics (i.e. sets, relations and functions, logical structure, sequence and series) and the relationships among them
- Applying mathematical methods to solve science problem in research and technical problems in industry.
- Analyze and apply mathematical problems and solutions in a variety of contexts related to science, technology, business and industry, astronomy and astrophysics and illustrate these solutions using symbolic, numeric, or graphical methods.

Course Outcomes (COs):

Class	Paper	Course Outcome (Student will able to
B.Sc. I, 1Sem	(i) Algebra and Trigonometry (ii) Calculus	<ul style="list-style-type: none"> ➤ Study of Complex number and trigonometric series. ➤ To gain the knowledge of Elements of quaternion and Theory of equations ➤ Study the system of equations by using matrix methods. ➤ Knowledge of limit of a function and differentiability. ➤ To Understand Rolle's theorem ➤ Knowledge of Partial derivatives and reduction formulae
B.Sc. I, 2Sem	(iii) Differential Equations (Ordinary and Partial), (iv) Vector Analysis and Solid Geometry	<ul style="list-style-type: none"> ➤ Study of ordinary differential equation & Second order linear differential equations. ➤ Knowledge of Reduction of order, Formation of partial differential equations. ➤ To gain the knowledge of Compatible differential equations. ➤ Study of Scalar and vectors, Frenet - Serret formulae. ➤ To gain the knowledge of Greens theorem, divergence and Curl. ➤ To acquire the Knowledge of Sphere and Cone.
B.Sc. II, 3Sem	(v) Advanced Calculus (vi) Elementary Number Theory	<ul style="list-style-type: none"> ➤ Knowledge of Sequence and Series ➤ Study of Limit & continuity & Maxima & minima of functions of two variables. ➤ Understand Double integral, Gauss and Stoke's theorem. ➤ Knowledge of Divisibility, Prime numbers and Fermat numbers. ➤ Study of Congruence and Arithmetic functions. ➤ Knowledge of Primitive roots, quadratic residues.
B.Sc. II,	(vii) Modern Algebra	<ul style="list-style-type: none"> ➤ Study of Group, Cosets and normal subgroups. ➤ To acquire the knowledge of Homomorphism and isomorphism. ➤ Knowledge of Ring, integral domain and

4Sem	:groups & rings (viii) Classical Mechanics	field, and Ideal. ➤ To analyze D'Alembert's principle, Central forcemotion. ➤ Study of Calculus of variation. ➤ Knowledge of Hamilton's principle and Rigid body.
B.Sc. III, 5Sem	(ix) Mathematical Analysis (x) Mathematical Methods	➤ Knowledge of Riemann Integral, Improper integrals and their Convergence. ➤ Study of Continuity and differentiability of complex function. ➤ Study of Elementary function and Metric spaces. ➤ Knowledge Legendre's equation and Bessel's equation. ➤ To gain the knowledge of Fourier series. ➤ To acquire the Knowledge of Laplace transform and Fourier Transform
B.Sc. III, 6Sem	(xi) Linear Algebra (xii) Special Theory of Relativity	➤ Study of Vector Space and Linear transformations. ➤ Knowledge of Dual Spaces and Inner Product Spaces. ➤ Acquire the knowledge of Modules. ➤ Understand Review of Newtonian Mechanics and Relativistic Kinematics. ➤ Study of Geometrical representation of space-time and Relativistic Mechanics. ➤ Knowledge of Electromagnetism and Maxwell's equation in tensor form