



**Govt. Digvijay Autonomous P.G. College,**  
**Rajnandgaon**  
**Department of Mathematics**  
**B.Sc. (Mathematics)**  
**Course Outcome**

**First Year:**

On completion of the course, students will be able to

- (1) Develop the knowledge of algebraic skill essential for the study of systems of matrix algebra, linear equations, eigen values and eigen vectors.
- (2) Apply mathematical methods involving arithmetic, algebra, geometry and graphs to solve problems.
- (3) Develop the knowledge for applying the concept and principles of Differential and integrals to solve problems.
- (4) Develop the skill of computation of integral using Gauss's, Divergence and Stoke's theorems.
- (5) Integrate functions of several variables over curves and surface.
- (6) Demonstrate the knowledge of the basic concepts of Geometry.
- (7) Solve algebraic equations of up to degree four.

**Second Year:**

On completion of the course, students will be able to

- (1) Develop the knowledge of the fundamental tools of calculus such as limit, sequence, continuity and differentiability of functions of two variables.
- (2) Identify a general method for constructing solutions of homogeneous linear differential equations with constant coefficients.
- (3) Distinguish between partial differential equation and ordinary differential equation.
- (4) Solve problems of motion of a particle in rough and smooth plane.
- (5) Develop the knowledge of Kepler's Law of motion.

**Third Year:**

On completion of the course, students will be able to

- (1) Understand the concept of vector space and inner product space.
- (2) Develop the knowledge of fundamental concepts of complex variables.
- (3) Understand improper integrals.
- (4) Understand the basic principle of Boolean algebra, set theory and logic.
- (5) Describe computer programs in formal Mathematical manner.
- (6) Develop the knowledge of numerical method for approximating the solution of problems of Mathematics.



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**Department of Mathematics**  
**M.Sc. (Mathematics)**  
**Course Outcome**

**First Semester:**

On completion of the course, students will be able to

- (1) Demonstrate knowledge and understanding of fundamental concepts of Algebra including groups, subgroups, normal subgroups, homomorphism and isomorphism.
- (2) Describe fundamental properties of the real numbers and real-valued functions.
- (3) Understand the concept of topological space.
- (4) Analyze sequence and series of analytic function and type of convergence.
- (5) Construct simple mathematical proof and possess the ability to verify them discrete mathematics.

**Second Semester:**

On completion of the course, students will be able to

- (1) Critically analyze and construct mathematical argument related to the study of abstract algebra.
- (2) Construct Mathematical proof of basic results in real analysis.
- (3) Understand the concept of product topological space.
- (4) Think critically by proving mathematical results and establishing theorems from complex analysis.
- (5) Model and solve real world problems using graphs.

**Third Semester:**

On completion of the course, students will be able to

- (1) Understand the fundamental of measure theory and be acquainted the proofs of the fundamental theorems of underlying the theory of integration.
- (2) Recognize the major classification of PDEs and the qualitative difference between the classes of equations.
- (3) Develop the knowledge of C Programming.
- (4) Create linear programming models for assignment and transportation problems.
- (5) Develop the knowledge of fuzzy sets, fuzzy operations and fuzzy graphs.

**Fourth Semester:**

On completion of the course, students will be able to

- (1) Explain fundamental concepts of functional analysis and their role in modern Mathematics.
- (2) Propose the best strategy using decision making models under uncertainty and game theory.
- (3) Implement file operations in C Programming for a given application.
- (4) Develop mathematical skills to analyze and solve integer programming and network models arising from the a range of applications.
- (5) Develop the knowledge of application of fuzzy sets.