Course Outcome
First Year

Differential Calculus

CO 1	Find the solution of non-homogenous first order differential equations. • Find the solution of partial differential equations
CO 2	Students will be familiar with the techniques of integration and differentiation of function with real variables
CO 3	Identify and apply the intermediate value theorem , Mean value theorem and L-Hospitals rule.
CO 4	Identify types of differential equations and solve differential equations such as Exact, homogeneous, non-homogeneous, and linear and Bernoulli differential equations etc.
CO 5	Find the solution of partial differential equations

Differential Equations

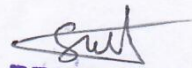|	
CO 1	Identify types of differential equations and solve differential equations such as Exact, homogeneous, non-homogeneous, and linear and Bernoulli differential equations etc.
CO 2	Understand the Linear equations with variable Coefficients
CO 3	Find the solution of partial differential equations and find the derivation of a partial differential equation of constant
CO 4	Understand homogenous linear equation with constant coefficient and variable coefficient
CO 5	Obtain an approximate set of solution function values to a second order boundary value problem using a finite difference equation.

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Integral Calculus

CO 1	Compute an anti-derivative requiring one substitution with a trigonometric identity.
CO 2	Transform an integral containing one of the forms a^2+x^2, a^2-x^2, x^2-a^2 or the square root of any of those into trigonometric form, given the right triangle trigonometric definitions of the trig functions.
CO 3	Set up an integral representing the length of a curve, given the formula.
CO 4	Use a definite integral to find the area between two curves.
CO 5	Acquire the knowledge of integration of Algebraic Rational Functions such as case of non-repeated linear factors, repeated linear factors etc.

Geometry

CO 1	The students will able to identify and study equations of plane such as equations of the first degree in x, y, z etc.
CO 2	Develop an idea of the generating lines
CO 3	Understand the geometrical terminology and have a detailed clear-cut idea of the Planes, Straight lines in terms of its direction cosines etc.
CO 4	Understand the basic applications of the Right line and condition that that two given are coplanar, number of arbitrary constants in the equations of a straight line.
CO 5	Acquire the knowledge about sphere, cones and cylinders.

Vidya Vikas Madal Pathrud's

SHANKARRAO PATIL MAHAVIDYLAYA, BHOOM.

Department of Mathematics

Course Outcome

Second Year

Number Theory	
CO 1	Evaluate the greatest common divisor and solve Diophantine equations.
CO 2	Understanding of divisibility concepts, prime numbers and usefulness of congruence's.
CO 3	Use the results to solve problems.
CO 4	Acquire the knowledge the about greatest integer function, arithmetic functions the Mobius inversion formula.
CO 5	Understand the concept of Chinese remainder theorem.

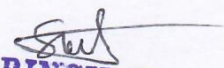| Integral Transform	
CO 1	Solve initial value problem and boundary value problem using Laplace Transform.
CO 2	Have deep understanding of Laplace Transformation and its real life application.
CO 3	Have understanding regarding different kind of integral transforms.
CO 4	Understand the primes and their distribution.
CO 5	Possess the knowledge and skills for employability and to succeed in national and international level competitive examinations

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Paper I & II Mechanism

CO 1	Find the solution of forces acting on a rigid body.
CO 2	Understand the center of gravity such as centroid of weighted points, center of gravity of some uniform bodies.
CO 3	Evaluate the equilibrium of forces acting on a particle.
CO 4	To find the magnitude and direction of the resultant of any number of coplanar forces acting a point, resultant of parallel forces.
CO 5	Have understanding regarding forces acting on a particle.

Partial Differential Equations

CO 1	Solve partial differential equations of second order
CO 2	Apply partial derivative equation techniques to predict the behavior of certain phenomena.
CO 3	Extract information from partial derivative models in order to interpret reality.
CO 4	Understand the derivation of a partial differential equation by the elimination of arbitrary constants.
CO 5	Solve partial differential equations of order one.

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Course Outcome

Third Year

Paper I & II Real ANALYSIS

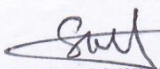|	
CO 1	learn some of the basic but fundamental concepts of real analysis
CO 2	Define the real numbers, least upper bounds, and functions, real value functions, subsequences, count ability.
CO 3	Determine the sequence and subsequences, limit of a sequence, convergent sequence. Divergent sequences etc.
CO 4	Understand the convergence and divergence, series with non- negative terms, alternating series, conditional convergence and convergence, test for absolute convergence.
CO 5	Learn about Jacobians implicit functions, necessary and sufficient condition for a Jacobian to Vanish.

Paper I & II Abstract Algebra

CO 1	Identify the various algebraic structures with their corresponding binary operations.
CO 2	Generalize the groups on the basis of their orders, elements, order of elements and group Relations.
CO 3	Compare two groups of same orders on the basis of isomorphism Criteria.
CO 4	Compute the possible subgroups of given group of specific orders and will recognize them.
CO 5	Understand the ring theory like examples of rings some special classes of ring, ideals and quotient rings more ideals and quotient rings, polynomial ring.

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Paper I & II   Ordinary Differential Equations

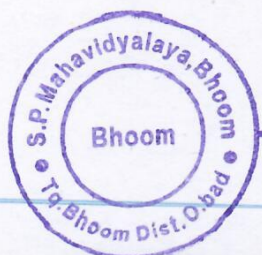| CO 1	Evaluate second order differential equations including homogeneous, and linear.
CO 2	Students understand the initial value problem and its solutions.
CO 3	Students know the concept Wronskian of solution.
CO 4	Students can find singular point and regular singular point of the differential equation
CO 5	Understand the linear equations with constant coefficients such as initial value problems for second order equations.

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Programme Outcomes

Programme Outcomes

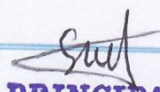|		
PO 1	**Applications**	Apply mathematical concepts and principles to perform computations.
PO 2	**Basic Concept**	learn some of the basic but fundamental concepts of real analysis
PO 3	**Analytical thinking**	develop the analytical thinking by solving problems
PO 4	**Process of generalization**	familiarize the process of generalization (real line to any metric space
PO 5	**Develop solution oriented approach**	Students will be aware of and able to develop solution oriented approach towards various Social and Environmental issues.
PO 6	**Scientific temper**	Scientific temper will be developed in Students.
PO 7	**Technical knowledge**	Students will acquire basic Practical skills & Technical knowledge along with domain knowledge of different subjects in the science stream.
PO 8	**career opportunities**	Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.
PO 9	**Basic subject knowledge required**	Students will possess basic subject knowledge required for higher studies, professional and applied courses like Management Studies, Law etc.
PO 10	**Positive attitude**	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study
PO 11	**Display knowledge of conventions**	A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology.
PO 12	**Problem solving skills**	Problem solving skills of students are enhanced.

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Programme Specific Outcomes	
PSO 1	A student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences.
PSO 2	Student is equipped with mathematical modeling ability, problem solving skills, creative talent and power of communication necessary for various kinds of employment.
PSO 3	Student should be able to apply their skills and knowledge that is translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.

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