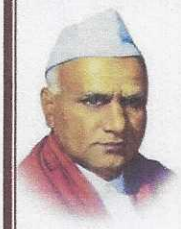

"Education for Knowledge, Science, and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous)

KOLHAPUR (AUTONOMOUS)

Department Of Mathematics

Course Outcomes (COs)

M.Sc. Part I Mathematics (Introduced in the year 2021)	
Semester I	
Algebra (CP-1170A)	
CO No.	**On completion of the course, student will be able to:**
CO1	Check solvability of groups via Sylow's theorems.
CO2	Check irreducibility of polynomial over any field.
CO3	familiar with theory of modules.
CO4	apply the basic concepts of field theory, including field extensions and finite fields.
Advanced Calculus (CP-1171A)	
CO No.	**On completion of the course, student will be able to:**
CO1	Make use of Greens Theorem, Stokes Theorems for an arc rectification of curve.
CO2	Analyse convergence of sequences and series of functions.
CO3	Find the directional derivative of function of several variables.
CO4	Optimize function of several variables.
Complex Analysis (CP-1172A)	
CO No.	**On completion of the course, student will be able to:**
CO1	Know how to check given complex valued function is analytic or not.
CO2	Find power series expansion of an analytic function with radius of convergence.
CO3	Find zeros and singularities of complex valued functions.
CO4	Evaluate integral of complex valued functions along given curve.
Ordinary Differential Equations (CP-1173A)	
CO No.	**On completion of the course, student will be able to:**
CO1	Find the linearly independent and hence general solutions of given differential

	equations.
CO2	Find series solutions of Bessel's and Legendre's differential equations.
CO3	Apply Picard's successive approximation method to find approximate solution of initial value problem.
CO4	Apply the Lipschitz condition of successive approximation.

Classical Mechanics (CP-1174A)

CO No.	On completion of the course, student will be able to:
CO1	Analyse motion of system of particles through Lagrangian & Hamiltonian principles.
CO2	Apply principle of variation of calculus for extremization of problem.
CO3	Study motion of rigid body.
CO4	Lagrangian and Hamiltonian formulation of Classical Mechanics.

Semester II

Linear Algebra (CP-1175B)

CO No.	On completion of the course, student will be able to:
CO1	Understand basic notions in linear algebra and use the results in developing advanced mathematics.
CO2	Study the properties of vector spaces, linear transformations, algebra of linear transformations and inner product spaces in detail.
CO3	Construct canonical forms and bilinear forms.
CO4	Apply knowledge of vector space, linear transformations, canonical forms and bilinear transformations

Integral Equations (CP-1176B)

CO No.	On completion of the course, student will be able to:
CO1	Solve linear Volterra and Fredholm integral equations using appropriate methods.
CO2	Understand the relationship between integral and differential equations and transform one type into another.
CO3	Find out the iterate kernel and Resolvent kernel of Volterra, Fredholm integral equation.
CO4	Formulate and solve initial and boundary value problems for the heat and wave equations in spherical and cylindrical coordinates.

General Topology (CP-1177B)

CO No.	On completion of the course, student will be able to:
CO1	Find different topologies on a given set and study their properties.
CO2	Check continuity of functions through different topological approaches

CO3	The student is able to apply his or her knowledge of general topology to formulate and solve problems of a topological nature in mathematics and other fields where topological issues arise.
CO4	To acquaint students with homeomorphism and some topological properties like connectedness, compactness

Partial Differential Equations (CP-1178B)

CO No.	On completion of the course, student will be able to:
CO1	Classify given second order partial differential equations.
CO2	Use different method to solve boundary value problem specially use wave equations, Heat equations.
CO3	Understand what are well-posed initial (and/or boundary) value problems for classical PDEs such as the wave equation, the Laplace equation and the heat (diffusion) equation
CO4	Technique of separation of variables to solve PDEs and analyze the behavior of solutions in terms of eigen function expansions

Numerical Analysis (CP-1179B)

CO No.	On completion of the course, student will be able to:
CO1	Solve linear and non-linear equations by various numerical methods
CO2	Find numerical integrations along with error computations.
CO3	Solve initial value problems by different numerical methods.
CO4	Find rate of convergence of various numerical methods

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(S. P. PATANKAR)
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