

**Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Arts, Science &
Commerce College, Beed.
Department of Mathematics
M.Sc. Course Outcomes (Cos)**

Sr. No.	Class	Paper Name	COs
1	M.Sc. F.Y. First Semester	Abstract Algebra -I	1. Analyse the algebraic structure. 2. Apply Cayley's theorem and find the external direct products. 3. Analyse the irreducible polynomial and ideals and fields.
2	M.Sc. F.Y. First Semester	Real analysis-I	1. Find Riemann-Stieltjes integral test pointwise and uniform convergence. 2. Analyse theorems on uniform convergence power series Abel's and Taylor theorem and linear transformation. 3. Determine the partial derivative and Hessian of functions of several variables.
3	M.Sc. F.Y. First Semester	Complex Analysis -I	1. Find the branch of logarithm and roots of unity. 2. Analyse analytic function harmonic function power series Taylor series and Laurent series. 3. Determine convergence of sequence by linear transformation ratio test and perform trigonometric transformation.
4	M.Sc. F.Y. First Semester	Latex Typesetting-I	1. Type set mathematical formulas use nested list tabular and array environment s. 2. Create or import graphics.
5	M.Sc. F.Y. First Semester	Differential equations-I	1. Solve first order nonlinear ordinary differential equations. 2. Find the solution of Picard's existence theorem and Picard-Lindelöf theorem. 3. Apply the differential and integral inequalities. 4. Solve the linear systems.
6	M.Sc. F.Y. First Semester	Research methodology:	1. Understand and explain research process. 2. Do systematic literature survey formulation of a research topic study design analysis and interpretation of data. 3. To design a research approach for a specific research issue of their choice. 4. Select a suitable analytical method for a specific research approach. 5. Demonstrate a good understanding of how to write research report. 6. Critically assess published quantitative research with regard to the statistical methods and approaches adopted. 7. Create research document for implementation research project.
7	M.Sc. F.Y. Second Semester	Abstract Algebra - II	1. Explain the properties of vector spaces and linear transformations. 2. Determine eigen values and eigenvectors. 3. Analyse and apply the Gram-Schmidt orthogonalisation process.

8	M.Sc. F.Y. Second Semester	Real analysis-II	1. Understand measurable spaces and its properties. 2. Determine Lebegue integrations. 3. Analyse and apply some iniequalities.
9	M.Sc. F.Y. Second Semester	Complex Analysis -II	1. Find and apply the complex integration, Jordan curve, Cauchy's theorem , Cauchy's integral formula Morera's theorem, Lioville's theorem. 2. Explain the maximum modulus principal, open mapping theorem. 3. Determine the singularities and residue. 4. Define and identify meromorphic functions in finite products and Gama function.
10	M.Sc. F.Y. Second Semester	Latex Typesetting- II	1. Prepare document class and type setting and environment. 2. Make a presentation and article.
11	M.Sc. F.Y. Second Semester	Differential equations -II	1. Explain the second hand higher order ordinary differential equations. 2. Familiar with Sturms comparison theorems. 3. Find the solution of Sturms- Lioville's boundary value problems. 4. Find the oscillatory solution of the differential equation.
12	M.Sc. F.Y. Second Semester	Field Project -I	1. Applied skill knowledge to real world applications. 2. Find and design the related mathematics models.
13	M.Sc. F.Y. Third Semester	Functional analysis	1. To study various fix point theorems. 2. To study spectrum of normal and self adjoint operators. 3. To study open nothing theyram and closed graph theorem. 4. To prove the existence of solutions of various equations.
14	M.Sc. F.Y. Third Semester	Partial Differential equations:	1. To find the solutions of PDE. 2. To analyse and clashfy the second order PDE. 3. To find the general solution of pde by using Jacobis method and Charpits method. 4.To find the canonical forms.
15	M.Sc. F.Y. Third Semester	Numerical methods	1. To find solutions of a given equation as well as given system of equations. 2. To find interpolating polynomials using the various interpolating methods. 3. To apply methods of differentiation and integration.
16	M.Sc. F.Y. Third Semester	PYTHON PROGRAMMING	1.TO WRITE STRING LIST TUPLE 2.To write input output functions 3.To use looking statements and conditional statements. 4.To apply mattresses in Python programming language.
17	M.Sc. F.Y. Third Semester	Fluid Mechanics-I	1. To identify real and ideal fluids and fluid motion. 2. To find acceleration of a fluid. 3. To solve euler's equation of motion and solve problems of two dimensional flow
18	M.Sc. F.Y. Third Semester	Research Project -I	1. To apply the method to solve the considered real world problems. 2. To write a report on the project to various agencies.

19	M.Sc. F.Y. Forth Semester	Linear integral equations	1. To identify the types of linear integral equations. 2. To apply and solve the various types of linear integral equations.
20	M.Sc. F.Y. Forth Semester	Mechanics:	1. To classify the equation of motions Hamilton's equations and principle of least action. 2. To find theorems on external of the functional by using Euler's equation.
21	M.Sc. F.Y. Forth Semester	Fractional Calculus	1. To find fractional derivative and integrals of some elementary functions. 2. To find the solution of fractional differential equations. 3. To prove the existence and uniqueness results.
22	M.Sc. F.Y. Forth Semester	Fluid Mechanics-II	1. To understand and apply the knowledge of viscous flow stress and strain. 2. To solve Navier stocks equations and energy equation.
23	M.Sc. F.Y. Forth Semester	Research Project - II	1. To apply the method to solve the considered real world problems. 2. To write a report on the project to various agencies.