GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha
Class: B.A. I (Sem-1)
Subject: Mathematics
Paper: Functions and Algebra (Course Code: 24MATM401DS01)

Week	Description
1st (15.07.2025 to 19.07.2025)	Introduction to curriculum, Concept of Relations
2nd (21.07.2025 to 26.07.2025)	Functions along with domain and range, Composition of functions
3rd (28.07.2025 to 02.08.2025)	Invertibility and inverse of functions, One-to-one correspondence and the cardinality of a set, Revision
4th (04.08.2025 to 09.08.2025)	Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots.
5th (11.08.2025 to 16.08.2025)	Common roots and multiple roots. Transformation of Equations. Nature of the roots of an equation Descarte's rule of signs, Revision
6th (18.08.2025 to 23.08.2025)	Solutions of cubic equations (Cardon's method), Biquadratic equations and their solutions, Assessment Test
7th (25.08.2025 to 30.08.2025)	Matrix and its types: Symmetric, Skew-symmetric, Hermitian and Skew Hermitian matrices
8th (01.09.2025 to 06.09.2025)	Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices
9th (08.09.2025 to 13.09.2025)	Rank of a matrices, Row rank and column rank of a matrix, Elementary Operations on matrices, Inverse of a matrix
10th (15.09.2025 to 20.09.2025)	Normal Form, PAQ Form, Linear dependence and independence of rows and columns of matrices, Revision
11th (22.09.2025 to 27.09.2025)	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations
12th (29.09.2025 to 04.10.2025)	Theorems on consistency of a system of linear equations, Assessment Test
13th (06.10.2025 to 11.10.2025)	Cayley Hamilton theorem. Eigenvalues, eigenvectors and the characteristic equation of a matrix.
14th (13.10.2025 to 25.10.2025)	Minimal polynomial of a matrix. Cayley Hamilton theorem and its use in finding the inverse of a matrix.
15th (27.10.2025 to 01.11.2025)	Diagonalization of matrix.
16th (03.11.2025 to 08.11.2025)	Revision
17th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha

Class: B.A. I (Sem-1)

Subject: Mathematics Practical Work (Using MATLAB Programming)

Paper: Functions and Algebra (Course Code: 24MATM401DS01)

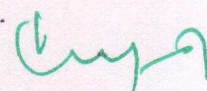| Week	Description
1st (15.07.2025 to 19.07.2025)	Introduction to curriculum, Introduction to MATLAB Software
2nd (21.07.2025 to 26.07.2025)	Practical based on Matrix operations (addition, multiplication, inverse, transpose, determinant)
3rd (28.07.2025 to 02.08.2025)	Practical based on Matrix operations (rank, eigenvectors, eigenvalues, Characteristic equation and verification of Cayley Hamilton equation, system of linear equations
4th (04.08.2025 to 09.08.2025)	Practical based on System of Homogenous Equation and application to solve balance chemical equation
5th (11.08.2025 to 16.08.2025)	Practical based on System of Non- Homogenous Equation and applications to solve network flow problems, Nutrition and Economic Input-Output Models.
6th (18.08.2025 to 23.08.2025)	Problems based Markov process a type of Mathematical Modeling, Applications and Uses of Matrix in Coding theory
7th (25.08.2025 to 30.08.2025)	Study of reflection, shear, dilation, contraction of figure using matrix transformation as application of computer graphics.
8th (01.09.2025 to 06.09.2025)	Application of System of Equations to Solve Electric Circuits, Applications of Eigen values to solve a Diffusion Process and Dynamical Systems.
9th (08.09.2025 to 13.09.2025)	Plotting of graphs of following functions (i) $y = x^n$, Rational function (ii) $f(x) = \dfrac{1}{x^n}$, Irrational function (iii) $f(x) = x^{\frac{1}{n}}$ where $n \in N$ (discuss both cases on n is even or odd
10th (15.09.2025 to 20.09.2025)	Plotting of graphs of following functions: Piecewise Function (Modulus function, Signum function, Greatest integer function, Fractional part function, Least integer function).
11th (22.09.2025 to 27.09.2025)	Plotting of graphs of transcendental and standard functions
12th (29.09.2025 to 04.10.2025)	Plotting of graphs of Standard Geometrical functions (i) Straight Line (ii) Circle (iii) Parabola (iv) Ellipse (v) Hyperbola.
13th (06.10.2025 to 11.10.2025)	Plotting of graphs of six inverse trigonometric functions and hyperbolic functions (ii) Solution of Transcendental equation using graph (iii) Plotting of graphs of functions $\sin^{-1}(\sin x), \sin(\sin^{-1} x)$
14th (13.10.2025 to 25.10.2025)	Study of various graphical transformations
15th (27.10.2025 to 01.11.2025)	Study of various graphical transformations
16th (03.11.2025 to 08.11.2025)	Revision
17th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha	
Class: B.A. II (Sem-3)	
Subject: Mathematics	
Paper: Ordinary Differential Equations (Course Code: 25MATM403DS01)	

Week	Description
1st (28.07.2025 to 02.08.2025)	Introduction to curriculum, Review of Differential Equation (12th Class)
2nd (04.08.2025 to 09.08.2025)	Geometrical meaning of a differential equation. Exact differential equations. Integrating factors.
3rd (11.08.2025 to 16.08.2025)	First order higher degree equations solvable for x,y,p. Lagrange's equations,
4th (18.08.2025 to 23.08.2025)	Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions, Revision
5th (25.08.2025 to 30.08.2025)	Orthogonal trajectories: Cartesian coordinates and polar coordinates. Self-orthogonal family of curves.
6th (01.09.2025 to 06.09.2025)	Linear ordinary differential equations with constant coefficients.
7th (08.09.2025 to 13.09.2025)	Homogeneous linear ordinary differential equations. Equations reducible to homogeneous.
8th (15.09.2025 to 20.09.2025)	Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/the independent variable.
9th (22.09.2025 to 27.09.2025)	Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation.
10th (29.09.2025 to 04.10.2025)	Linear differential equations of second order: Method of variations of parameters.
11th (06.10.2025 to 11.10.2025)	Linear differential equations of second order: Method of undetermined coefficients.
12th (13.10.2025 to 25.10.2025)	Ordinary simultaneous differential equations.
13th (27.10.2025 to 01.11.2025)	Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact. General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary equations
14th (03.11.2025 to 08.11.2025)	Revision
15th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha	
Class: B.A. II (Sem-3)	
Subject: Mathematics	
Paper: Ordinary Differential Equations (Course Code: 25MATM403DS01)	

Week	Description
1st (28.07.2025 to 02.08.2025)	Introduction to curriculum, Review of Differential Equation (12th Class)
2nd (04.08.2025 to 09.08.2025)	Geometrical meaning of a differential equation. Exact differential equations. Integrating factors.
3rd (11.08.2025 to 16.08.2025)	First order higher degree equations solvable for x,y,p. Lagrange's equations,
4th (18.08.2025 to 23.08.2025)	Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions, Revision
5th (25.08.2025 to 30.08.2025)	Orthogonal trajectories: Cartesian coordinates and polar coordinates. Self-orthogonal family of curves.
6th (01.09.2025 to 06.09.2025)	Linear ordinary differential equations with constant coefficients.
7th (08.09.2025 to 13.09.2025)	Homogeneous linear ordinary differential equations. Equations reducible to homogeneous.
8th (15.09.2025 to 20.09.2025)	Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/the independent variable.
9th (22.09.2025 to 27.09.2025)	Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation.
10th (29.09.2025 to 04.10.2025)	Linear differential equations of second order: Method of variations of parameters.
11th (06.10.2025 to 11.10.2025)	Linear differential equations of second order: Method of undetermined coefficients.
12th (13.10.2025 to 25.10.2025)	Ordinary simultaneous differential equations.
13th (27.10.2025 to 01.11.2025)	Total differential equations. Condition for Pdx + Qdy +Rdz = 0 to be exact. General method of solving Pdx + Qdy + Rdz = 0 by taking one variable constant. Method of auxiliary equations
14th (03.11.2025 to 08.11.2025)	Revision
15th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha	
Class: B.A. II (Sem-3)	
Subject: Mathematics Practical Work (Using MATLAB Programming)	
Paper: O.D.E. (Course Code: 25MATM403DS01	

Week	Description
1st (28.07.2025 to 02.08.2025)	Introduction to curriculum, Introduction to MATLAB Software
2nd (04.08.2025 to 09.08.2025)	Plotting of solutions of first order differential equation.
3rd (11.08.2025 to 16.08.2025)	Plotting of solutions of family of second order differential equation.
4th (18.08.2025 to 23.08.2025)	Plotting of solutions of family of third order differential equation.
5th (25.08.2025 to 30.08.2025)	Solution of differential equation by variation of parameter method..
6th (01.09.2025 to 06.09.2025)	Solution of system of ordinary differential equations.
7th (08.09.2025 to 13.09.2025)	Solving exact and non-exact ODEs.
8th (15.09.2025 to 20.09.2025)	Solution of linear equations.
9th (22.09.2025 to 27.09.2025)	Problems on equations reducible to linear equations.
10th (29.09.2025 to 04.10.2025)	Plotting of orthogonal trajectories.
11th (06.10.2025 to 11.10.2025)	Population growth and finding the current at a given time.
12th (13.10.2025 to 25.10.2025)	Applications of ODEs.
13th (27.10.2025 to 01.11.2025)	Revision
14th (03.11.2025 to 08.11.2025)	Revision
15th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha

Class: B.A. I / B.Com. I (Sem-1)

Subject: Mathematics (Multidisciplinary Course)

Paper: Introductory Mathematics (Course Code: 23MATX01MD01)

Week	Description
1st (15.07.2025 to 19.07.2025)	Introduction to curriculum, Concept of Numbers
2nd (21.07.2025 to 26.07.2025)	H.C.F. and L.C.M. of Numbers: Concept, Examples and Exercises, Decimal and Fractions: Concept, Examples and Exercises
3rd (28.07.2025 to 02.08.2025)	Simplification: Concept, Examples and Exercises and Revision
4th (04.08.2025 to 09.08.2025)	Square roots: Concept, Examples and Exercises, Cube roots: Concept, Examples and Exercises
5th (11.08.2025 to 16.08.2025)	Surds and indices: Concept, Examples and Exercises, Problems on numbers.
6th (18.08.2025 to 23.08.2025)	Average: Concept, Examples and Exercises, Assessment Test
7th (25.08.2025 to 30.08.2025)	Percentage: Concept, Examples and Exercises
8th (01.09.2025 to 06.09.2025)	Profit and Loss: Concept, Examples and Exercises
9th (08.09.2025 to 13.09.2025)	Ratio and proportion: Concept, Examples and Exercises
10th (15.09.2025 to 20.09.2025)	Problem on ages: Concept, Examples and Exercises, Partnership: Concept, Examples and Exercises.
11th (22.09.2025 to 27.09.2025)	Time and work: Concept, Examples and Exercises
12th (29.09.2025 to 04.10.2025)	Time and distance: Concept, Examples and Exercises, Assessment Test
13th (06.10.2025 to 11.10.2025)	Problems on trains: Concept, Examples and Exercises,
14th (13.10.2025 to 25.10.2025)	Mixture problem: Concept, Examples and Exercises, Revision
15th (27.10.2025 to 01.11.2025)	Problems based on Calendar and clock: Concept, Examples and Exercises.
16th (03.11.2025 to 08.11.2025)	Revision
17th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha	
Class: B.A. II / B.Com. II (Sem-3)	
Subject: Mathematics (Multidisciplinary Course)	
Paper: Introductory Mathematics (Course Code: 25MATX03MD01)	

Week	Description
1st (28.07.2025 to 02.08.2025)	Introduction to curriculum, Theory of Sets: Meaning, elements, types, presentation and equality of Sets,
2nd (04.08.2025 to 09.08.2025)	Theory of Sets: Union, Intersection, Complement and Difference of Sets, Venn Diagram
3rd (11.08.2025 to 16.08.2025)	Theory of Sets: Cartesian Product of two Sets,
4th (18.08.2025 to 23.08.2025)	Applications of Set Theory, Revision, Test
5th (25.08.2025 to 30.08.2025)	Matrices and Determinants: Definition of a Matrix; Types of Matrices.
6th (01.09.2025 to 06.09.2025)	Algebra of Matrices; Properties of determinants; Calculation of values of Determinants upto third order;
7th (08.09.2025 to 13.09.2025)	Adjoint of a Matrix, elementary row and column operations; Finding inverse matrix through adjoint;
8th (15.09.2025 to 20.09.2025)	Solution of a system of Linear equations having unique Solution and involving not more than three variables.
9th (22.09.2025 to 27.09.2025)	Revision, Written Test, Book review / Essay / Seminar
10th (29.09.2025 to 04.10.2025)	Compound Interest: Certain different types of interest rate;
11th (06.10.2025 to 11.10.2025)	Compound Interest: Concept of present value and amount of a sum.
12th (13.10.2025 to 25.10.2025)	Annuities: Concept and examples, Types of annuities.
13th (27.10.2025 to 01.11.2025)	Annuities: Present value and amount of an annuity, including the case of continuous compounding. Written Test
14th (03.11.2025 to 08.11.2025)	Revision, Quiz / Group discussion / Debate
15th (10.11.2025 to 15.11.2025)	Revision

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GOVT. COLLEGE, SAMPLA
LESSON PLAN
JULY 2025 to NOVEMBER 2025

Name of the Assistant Professor: Dr. Asha

Class : B.A. III (Sem-5)

Subject: Mathematics

Paper: Real Analysis

Week	Description
1st (28.07.2025 to 02.08.2025)	Introduction to Curriculum, Introduction of Riemann integral and related theorems and examples, Darboux's theorem.
2nd (04.08.2025 to 09.08.2025)	Integrability of continuous functions, Monotonic functions, Integrabililty of continuous and monotone functions and related theorems.
3rd (11.08.2025 to 16.08.2025)	The Fundamental theorem of integral calculus and basic examples, Mean value theorems of integral calculus. Assignment and test of Unit-II.
4th (18.08.2025 to 23.08.2025)	Improper integral and their convergence, Comparison tests.
5th (25.08.2025 to 30.08.2025)	Cauchy's Test, Abel's Test and Dirichlet's Test for convergence, Frullani's Integral.
6th (01.09.2025 to 06.09.2025)	Integral as a function of a parameter, revision and test of Unit-II.
7th (08.09.2025 to 13.09.2025)	Definition and examples of metric spaces.
8th (15.09.2025 to 20.09.2025)	Neighbourhood of a point, Interior Point, Open Set and related theorems and examples.
9th (22.09.2025 to 27.09.2025)	Limit Point, Closure of a set, Closed set and related theorems, Equivalent Metrices.
10th (29.09.2025 to 04.10.2025)	Cauchy Sequences, Complete Metric Space, Subsequence and related theorems, Cantor's Intersection Theorem.
11th (06.10.2025 to 11.10.2025)	Baire's category theorem, contraction Principle, revision and test of Unit-III.
12th (13.10.2025 to 25.10.2025)	Continuity and uniform continuity in metric space and related theorems.
13th (27.10.2025 to 01.11.2025)	Compactness in metric spaces, Sequential compactness, Bolzano-Weierstrass property, Finte Intersection Property.
14th (03.11.2025 to 08.11.2025)	Continuity in relation with compactness and related theorems. Compactness in metric space, revision and test of Unit-IV.
15th (10.11.2025 to 15.11.2025)	Revision

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