Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan (2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: B.Sc. Physical Science **Semester: 1**

Subject: Functions and Algebra

	AUGUST
Week -2	Relations, Functions along with domain and range,Composition of functions,Invertibility and inverse of functions, One-to-one correspondence and the cardinality of a set.
Week- 3	Relations between the roots and coefficients of general polynomial equation in one variable.
Week -4	Solutions of polynomial equations having conditions on roots. Common roots and multiple roots.
	SEPTEMBER
Week- 1	Transformation of equations. Nature of the roots of an equation, Descarte's rule of signs.
Week -2	Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions
Week -3	Revision of above topics and test.
Week -4	Matrix and its types. Symmetric, Skew-symmetric, Hermitian and Skew Hermitian matrices.
	OCTOBER
Week 1	Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices, Linear dependence and independence of rows and columns of matrices.
Week -2	Applications of matrices to a system of linear (both homogeneous and non–homogeneous) equations, Theorems on consistency of a system of linear equations.
Week -3	Rank of a Matrix & its applications. Rank of a matrices, Row rank and column rank of a matrix,

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Week -4	Elementary operations on matrices.
Week-5	Inverse of a matrix , Normal Form, PAQ Form
	NOVEMBER
Week- 2	Cayley Hamilton theorem. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.
Week -3	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
Week -4	Diagonalization of matrix.
Week-5	Assignment and Presentation
	DECEMBER
Week -1	Revision of some typical topics and doubts clearance.

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Lesson Plan(2026-27)

Name of Assistant Professor: Dr Ridam, Dr Rekha

Class and Section: BSC (Phy. Sci) **Semester: 3rd**

Subject: Ordinary Differential Equation

	AUGUST
Week -2	Definition of differential equation, order and degree of differential Equation,Formation of differential equation. Questions based on order and degree of differential equation, formation of differential equation.Geometric meaning of a differential equation.
Week- 3	Solution of an exact differential equation. Solution of an exact differential equation Definition of integrating factor, Finding integrating factor by inspection. Rule1,2,3,4 & 5 for finding integrating factor and question based on it. Introduction of equation of first order but not of first degree.
Week -4	Working rule and que for the equation solvable for p. Working rule and que for equation solvable for y.Working rule and que for equation solvable for x.
	SEPTEMBER
Week- 1	Solution of the equation of the type $y=x\Phi(p)+f(p)$. Solution of the equation reducible to Clairaut's form. Singular solution, p and c discriminant.
Week -2	Orthogonal trajectory in cartesian and polar coordinates Definition of linear differential equation with constant Coeff., D operator, definition of auxiliary equation, complete solution for differential equation with constant Coeff.
Week -3	Inverse operator, complementary function, particular integral, few theorems & question based on above topic .Evaluate $1/f(D)\ x^m$, $1/f(D)\ (xV)$ and que based on it. Method to solve homogeneous linear equation.
Week -4	Explanation of the method of solution of linear differential equation reducible to homogeneous linear form. Questions based on linear differential equation reducible to homogeneous linear form and class test.
	OCTOBER
Week- 1	Introduction to linear differential equation of second order. method to find P.I. of $d^2y/dx^2+Pdy/dx+Qy=0$. Questions based on P.I. of $d^2y/dx^2+Pdy/dx+Qy=0$.
Week -2	Solution of a linear differential equation of second order by removing the first derivative and changing the dependent variable.

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Week -3	Solution of a linear differential equation of second order by changing the independent variable, by method of variation parameters and by the method of undetermined coefficient.
Week -4	Solution of a linear differential equation of second order by the method of undetermined coefficients.
Week-5	Introduction to ordinary simultaneous differential equation. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Solution of Simultaneous equation of the form dx/P = dy/Q = dz/R.
	NOVEMBER
Week -2	Revision of some typical topics and doubts clearance and test.
Week- 3	Concept of Second integral found with the help of first. Introduction to total differential equation and condition for exactness.
Week -4	Method to solve total differential equation. Solution when one variable is constant out of three variables in Pdx+Qdy+Rdz=0
Week-5	Method of solving homogeneous equation. Method of auxiliary equation.
	DECEMBER
Week-1	Assignments and Presentations.

Lesson Plan

Academic Session 2026-27

Subject-Mathematics **Class-B.Sc. SEC Mathematics**

Paper:- Mathematical Programming in C & numerical method **Name: Dr Rekha, Dr Ridam**

Semester-I

	AUGUST
Week 2	Programmer's model of a computer, Algorithms, Flow charts,
Week 3	Data types
Week 4	Operators and Expressions, Input/Output Function
	SEPTEMBER
Week 1	Decisions control structure: Decision statements, Logical and conditional statements
Week 2	Implementation of Loops,
Week 3	Switch Statement & Case control structures
Week 4	Functions, Preprocessors and Arrays.
	OCTOBER
Week 1	Strings: Character Data Type, Standard String handling Functions Arithmetic Operations on Characters. Structures:
Week 2	Definition, using Structures ,Use of Structures in Arrays and Arrays in Structures.
Week 3	Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions.
Week 4	Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method
Week 5	Secant method, Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods.
	NOVEMBER
week 2	Simultaneous linear algebraic equations: Gauss-elimination method,
Week 3	Gauss-Jordan method, Triangularization method (LU decomposition method).

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Week 4	Crout's method, Cholesky Decomposition method. Iterative method
Week 5	Jacobi's method, Gauss-Seidal's method, Relaxation method
	DECEMBER
week 1	Test and Assignment

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Lesson Plan(2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: MDC **Semester: 1**

Subject: Introductory Mathematics

	AUGUST
Week -2	Numbers, H.C.F. and L.C.M. of Numbers.
Week- 3	Decimal and Fractions, Simplification,
Week -4	Square roots and cube roots,
	SEPTEMBER
Week- 1	Surds and indices.
Week -2	Problems and test.
Week -3	Problems on numbers, Average.
Week -4	Percentage, Profit and Loss
	OCTOBER
Week- 1	Ratio and proportion
Week -2	Problem on ages.
Week -3	Partnership, Time and work
Week -4	Time and distance.
Week-5	Revision and Practice.
	NOVEMBER
Week -2	Problems and Test.
Week- 3	Problems on trains.
Week -4	Mixure problem

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Week-5	Problems based on Calendar and clock.
	DECEMBER
Week-1	Assignments and Presentations.

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Lesson Plan(2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: BSC (Phy. Sci) **Semester: 5**

Subject: Groups and Rings

	AUGUST
Week -2	Definition of group and its brief introduction, examples of group and general properties. Theorems on group, introduction of subgroups and its examples, subgroup criterion, product, intersection and union of subgroup.
Week- 3	Cyclic groups and its examples and theorems, Euler function and its generators of groups.
Week -4	Introduction of cosets of a subgroup, theorems on cosets, Index of a subgroup, Lagrange`s theorem and its consequences, introduction to Normal subgroups and simple groups
	SEPTEMBER
Week- 1	Examples and theorems on Normal subgroups, concept of quotient groups, examples and theorems on quotient groups.
Week -2	Introduction to Homomorphism and isomorphism of groups and examples, Kernel of homomorphism and Fundamental theorem, Automorphism.
Week -3	Examples and theorems on automorphism and Inner automorphism, Normalizer of a subgroup and examples, centre of a group.
Week -4	Definition of permutation group and alternating group, related theorems, Caley theorem
	OCTOBER
Week- 1	Introduction to Rings and related examples and theorems, integral domain and its examples, introduction to Field and examples.
Week -2	Theorems on fields and integral domain, subring of a ring and examples, characteristic of ring and field and related theorems.
Week -3	Introduction to ideal, their examples, sum, product, intersection, union and related theorems,Principal ideal and principal ideal domain, their examples and theorems.
Week -4	,Maximal and prime ideal, idempotent and nilpotent element in ring,concept of quotient ring, ring homomorphism and its examples.

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	NOVEMBER
Week -2	Test. Fundamental theorem on homomorphism. Field of quotient of an integral domain, divisibility in the ring.
Week- 3	Unit, prime and irreducible element in ring and their examples. Introduction to polynomial ring, polynomial over ring and integral domain, GCD and LCM in ring, Euclidean ring, its example and theorems, theorems on prime and irreducible element
Week -4	Unique factorization domain and its examples and theorems, Division algorithm, irreducibility of polynomial over ring and integral domain, mod-p and the Eisenstein`s criterion for irreducibility of polynomials.
	DECEMBER
Week-1	Assignments and Presentations.