

Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan(2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: BSC (Phy. Sci)

Semester: 5

Subject: Groups and Rings

Week -1 01 August, 2026 03-08 August,2026	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- 2 10-15 August,2026	Cyclic groups and its examples and theorems, Euler function and its generators of groups.
Week -3 17-22 August,2026	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
Week- 4 24-29 August,2026	Examples and theorems on Normal subgroups, concept of quotient groups, examples and theorems on quotient groups.
Week -5 31 August -05 Sept ,2026	Introduction to Homomorphism and isomorphism of groups and examples, Kernel of homomorphism and Fundamental theorem, Automorphism.
Week -6 07-12 Sept ,2026	Examples and theorems on automorphism and Inner automorphism, Normalizer of a subgroup and examples, centre of a group.
Week -7 14-19 Sept ,2026	Definition of permutation group and alternating group, related theorems, Caley theorem
Week- 8 21-26 Sept ,2026	Introduction to Rings and related examples and theorems, integral domain and its examples, introduction to Field and examples.

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Week -9 28 Sept- 03 Oct,2026	Theorems on fields and integral domain, subring of a ring and examples, characteristic of ring and field and related theorems.
Week -10 05-10 Oct,2026	Introduction to ideal, their examples, sum, product, intersection, union and related theorems.
Week -11 12-17 Oct,2026	Principal ideal and principal ideal domain, their examples and theorems.
Week -12 19-24 Oct,2026	Maximal and prime ideal, idempotent and nilpotent element in ring, concept of quotient ring, ring homomorphism and its examples,
Week- 13 26-31 Oct,2026	Fundamental theorem on homomorphism. Field of quotient of an integral domain, divisibility in the ring.
Week -14, 10-14 Nov, 2026	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 -15 16-21 Nov, 2026	Unique factorization domain and its examples and theorems.
Week -16 23-28 Nov, 2026	Division algorithm, irreducibility of polynomial over ring and integral domain, mod-p and the Eisenstein's criterion for irreducibility of polynomials.
Week 17 30 Nov- 05 December, 2026	Revision of some typical topics and doubts clearance.
Week 18	Revision

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Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan (2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: Introductory Mathematics

Semester: 1

Subject: Functions and Algebra

Week -1 01 August, 2026 03-08 August,2026	Relations, Functions along with domain and range,Composition of functions
Week- 2 10-15 August,2026	Invertibility and inverse of functions, One-to-one correspondence and the cardinality of a set.
Week -3 17-22 August,2026	Relations between the roots and coefficients of general polynomial equation in one variable.
Week- 4 24-29 August,2026	Solutions of polynomial equations having conditions on roots. Common roots and multiple roots.
Week -5 31 August -05 Sept ,2026	Transformation of equations. Nature of the roots of an equation, Descarte's rule of signs.
Week -6 07-12 Sept ,2026	Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions
Week -7 14-19 Sept ,2026	Revision of above topics and test.
Week- 8 21-26 Sept ,2026	Matrix and its types. Symmetric, Skew-symmetric, Hermitian and Skew Hermitian matrices. ,

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Week -9 28 Sept- 03 Oct,2026	Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices, Linear dependence and independence of rows and columns of matrices.
Week -10 05-10 Oct,2026	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations, Theorems on consistency of a system of linear equations.
Week -11 12-17 Oct,2026	Rank of a Matrix & its applications. Rank of a matrices, Row rank and column rank of a matrix,
Week -12 19-24 Oct,2026	Elementary operations on matrices, Inverse of a matrix , Normal Form, PAQ Form
Week- 13 26-31 Oct,2026	Cayley Hamilton theorem. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.
Week -14, 10-14 Nov, 2026	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
Week -15 16-21 Nov, 2026	Diagonalization of matrix.
Week -16 23-28 Nov, 2026	Assignment and Presentation
Week 17 30 Nov- 05 December, 2026	Revision of some typical topics and doubts clearance.
Week 18	Test

Relb.

Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan (2026-27)

Name of Assistant Professor: Dr Rekha, Dr Ridam

Class and Section: Introductory Mathematics

Semester: 1

Subject: Functions and Algebra

Week -1 01 August, 2026 03-08 August,2026	Relations, Functions along with domain and range,Composition of functions
Week- 2 10-15 August,2026	Invertibility and inverse of functions, One-to-one correspondence and the cardinality of a set.
Week -3 17-22 August,2026	Relations between the roots and coefficients of general polynomial equation in one variable.
Week- 4 24-29 August,2026	Solutions of polynomial equations having conditions on roots. Common roots and multiple roots.
Week -5 31 August -05 Sept ,2026	Transformation of equations. Nature of the roots of an equation, Descarte's rule of signs.
Week -6 07-12 Sept ,2026	Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions
Week -7 14-19 Sept ,2026	Revision of above topics and test.
Week- 8 21-26 Sept ,2026	Matrix and its types. Symmetric, Skew-symmetric, Hermitian and Skew Hermitian matrices. ,

Rekha.

Week -9 28 Sept- 03 Oct,2026	Unitary and Orthogonal Matrices, Idempotent, Involuntary, Nilpotent Matrices, Linear dependence and independence of rows and columns of matrices.
Week -10 05-10 Oct,2026	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations, Theorems on consistency of a system of linear equations.
Week -11 12-17 Oct,2026	Rank of a Matrix & its applications. Rank of a matrices, Row rank and column rank of a matrix,
Week -12 19-24 Oct,2026	Elementary operations on matrices, Inverse of a matrix , Normal Form, PAQ Form
Week- 13 26-31 Oct,2026	Cayley Hamilton theorem. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix.
Week -14, 10-14 Nov, 2026	Cayley Hamilton theorem and its use in finding the inverse of a matrix.
Week -15 16-21 Nov, 2026	Diagonalization of matrix.
Week -16 23-28 Nov, 2026	Assignment and Presentation
Week 17 30 Nov- 05 December, 2026	Revision of some typical topics and doubts clearance.
Week 18	Test

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Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan(2026-27)

Name of Assistant Professor: Dr Ridam, Dr Rekha

Class and Section: BSC (Phy. Sci)

Semester: 3rd

Subject: Ordinary Differential Equation

Week -1 01 August, 2026 03-08 August,2026	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- 2 10-15 August,2026	Solution of an exact differential equation. Solution of an exact differential equation Definition of integrating factor, Finding integrating factor by inspection. Rule 1,2,3,4 & 5 for finding integrating factor and question based on it. Introduction of equation of first order but not of first degree.
Week -3 17-22 August,2026	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.
Week- 4 24-29 August,2026	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 -5 31 August -05 Sept ,2026	Orthogonal trajectory in cartesian and polar coordinates Definition of linear differential equation with constant Coeff., D

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	operator, definition of auxiliary equation, complete solution for differential equation with constant Coeff.
Week -6 07-12 Sept ,2026	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 -7 14-19 Sept ,2026	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.
Week- 8 21-26 Sept ,2026	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 -9 28 Sept- 03 Oct,2026	Solution of a linear differential equation of second order by removing the first derivative and changing the dependent variable. Solution of a linear differential equation of second order by changing the independent variable.
Week -10 05-10 Oct,2026	Solution of a linear differential equation of second order by the method of variation of parameters. Solution of a linear differential equation of second order by the method of undetermined Coefficient.

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Week -11 12-17 Oct,2026	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 $dx/P = dy/Q = dz/R$.
Week -12 19-24 Oct,2026	Revision of some typical topics and doubts clearance.
Week- 13 26-31 Oct,2026	Concept of Second integral found with the help of first. Introduction to total differential equation and condition for exactness.
Week -14, 10-14 Nov, 2026	Method to solve total differential equation. Solution when one variable is constant out of three variables in $Pdx+Qdy+Rdz=0$
Week -15 16-21 Nov, 2026	Method of solving homogeneous equation. Method of auxiliary equation.
Week -16 23-28 Nov, 2026	Tests and presentation.
Week 17 30 Nov- 05 December, 2026	Revision of some typical topics and doubts clearance.
Week 18	Revision

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Chaudhary Hardwari Lal Govt. College Chhara, Jhajjar

Lesson Plan(2026-27)

Subject-Mathematics

Class-B.Sc. SEC Mathematics

Paper:- Mathematical Programming in C

Name: Dr Rekha, Dr Ridam

& Numerical Method

	Month
	<u>AUGUST</u>
Week 1	Programmer's model of a computer, Algorithms, Flow charts,
Week 2	Data types
Week 3	Operators and Expressions
Week 4	Input / outputs functions
	<u>SEPTEMBER</u>
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.
	<u>OCTOBER</u>
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
	<u>NOVEMBER</u>
week 2	Secant method, Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods.
Week 3	Simultaneous linear algebraic equations: Gauss-elimination method,
Week 4	Gauss-Jordan method, Triangularization method (LU decomposition method).
Week 5	Crout's method, Cholesky Decomposition method. Iterative method
	<u>DECEMBER</u>
Week 1	Jacobi's method, Gauss-Seidal's method, Relaxation method
Week 2	Test and Assignment

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