

Lesson Plan
Session: 2024-25

Name of the Assistant Professor: Mr. Ankit Kumar

Class: B.Sc. 5th Sem.

Subject: Mathematics

Paper : Groups and Rings.

Dates	Week	Topic
22/07/2024 to 27/07/2024	1	<ul style="list-style-type: none">• Introduction to Syllabus• Definition of group , examples.• Properties of Groups.
29/07/2024 to 03/08/2024	2	<ul style="list-style-type: none">• Subgroups• Subgroups Criterion• Intersection of subgroups , examples.
05/08/2024 to 10/08/2024	3	<ul style="list-style-type: none">• Cyclic groups• Theorems on cyclic groups• Examples
12/08/2024 to 17/08/2024	4	<ul style="list-style-type: none">• Cosets and its properties• Lagrange's Theorem• Normal subgroups and Quotient Group
19/08/2024 to 24/08/2024	5	<ul style="list-style-type: none">• Homomorphism• Fundamental Theorem on homomorphism• Related examples
26/08/2024 to 31/08/2024	6	<ul style="list-style-type: none">• Automorphism• Inner Automorphism
02/09/2024 to 07/09/2024	7	<ul style="list-style-type: none">• Characteristic subgroup• Centralizer of an element• Derived Group
09/09/2024 to 14/09/2024	8	<ul style="list-style-type: none">• Permutation Group (S_n)• Alternating Group (A_n)• Cayley's Theorem

Dates	Week	Topic
16/09/2024 to 21/09/2024	9	<ul style="list-style-type: none"> • Introduction to Rings • Integral Domain, field
23/09/2024 to 28/09/2024	10	<ul style="list-style-type: none"> • Subrings, Theorems on Subrings • characteristic of a Ring
30/09/2024 to 05/10/2024	11	<ul style="list-style-type: none"> • Ideals, Theorems on Ideals • Principal Ideal Domain (Rings)
07/10/2024 to 12/10/2024	12	<ul style="list-style-type: none"> • Quotient Rings • Homomorphism of Rings • fundamental Theorem of Homomorphism of Rings
14/10/2024 to 19/10/2024	13	<ul style="list-style-type: none"> • Euclidean Rings • Examples, Theorems on Euclidean Rings
21/10/2024 to 26/10/2024	14	<ul style="list-style-type: none"> • Principal Ideal Domain • Theorems on P.I.D. • Unit Test
04/11/2024 to 09/11/2024	15	<ul style="list-style-type: none"> • Polynomial Rings • Division Algorithm
11/11/2024 to 16/11/2024	16	<ul style="list-style-type: none"> • Unique factorisation Domain • Theorems and Problems
18/11/2024 to 22/11/2024	17	<ul style="list-style-type: none"> • Gauss Lemma • Eisenstein's Irreducibility Criteria

Amit
Signature

Lesson Plan

Session: 2024-25

Name of the Assistant Professor: Mr. Ankit Kumar

Class: B.Sc. 5th Sem.

Subject: Mathematics

Paper : Numerical Analysis.

Dates	Week	Topic
22/07/2024 to 27/07/2024	1	<ul style="list-style-type: none">• Introduction to Numerical Analysis.• Finite difference operators and their relations.• Finding missing terms & effect of error in difference table
29/07/2024 to 03/08/2024	2	<ul style="list-style-type: none">• Interpolation with equal intervals.• Newton forward interpolation formula• Newton Backward interpolation formula
05/08/2024 to 10/08/2024	3	<ul style="list-style-type: none">• Interpolation with unequal intervals• Newton divided difference formula• Lagrange's Interpolation
12/08/2024 to 17/08/2024	4	<ul style="list-style-type: none">• Hermite formula• Gauss forward interpolation.• Gauss Backward interpolation.
19/08/2024 to 24/08/2024	5	<ul style="list-style-type: none">• Sterling formula• Bessel's formula• Problem's Discussion.
26/08/2024 to 31/08/2024	6	<ul style="list-style-type: none">• Probability Distribution of Random Variables.• Binomial distribution• Poisson's distribution
02/09/2024 to 07/09/2024	7	<ul style="list-style-type: none">• Normal distribution : mean, variance & fitting• Numerical Differentiation
09/09/2024 to 14/09/2024	8	<ul style="list-style-type: none">• Derivative of a function using interpolation.• Eigen value problems.

Dates	Week	Topic
16/09/2024 to 21/09/2024	9	<ul style="list-style-type: none"> • Power method • Jacobi's method
23/09/2024 to 28/09/2024	10	<ul style="list-style-type: none"> • Given's method • House Holder's method • Q-R method
30/09/2024 to 05/10/2024	11	<ul style="list-style-type: none"> • Numerical Integration • Trapezoidal Rule • Simpson's $1/3$ Rule
07/10/2024 to 12/10/2024	12	<ul style="list-style-type: none"> • Simpson's $3/8$ Rule • Chebyshev formula, Gauss Quadrature formula
14/10/2024 to 19/10/2024	13	<ul style="list-style-type: none"> • Numerical solution of ordinary differential equations. • Euler's method
21/10/2024 to 26/10/2024	14	<ul style="list-style-type: none"> • Euler's modified method, R-K method • Unit Test
04/11/2024 to 09/11/2024	15	<ul style="list-style-type: none"> • Picard's method • Taylor's series method
11/11/2024 to 16/11/2024	16	<ul style="list-style-type: none"> • Predictor - corrector method • Milne - Simpson's method.
18/11/2024 to 22/11/2024	17	Revision

Ankit
Signature

Lesson Plan
Session: 2024-25

Name of the Assistant Professor: Mr. Ankit Kumar

Class: B.Sc. 3rd Sem.

Subject: Mathematics

Paper : Partial Differential Equations.

Dates	Week	Topic
22/07/2024 to 27/07/2024	1	Introduction to Partial differential Equations (Order, degree, linear / Non linear)
29/07/2024 to 03/08/2024	2	• Formation of Partial Differential Equations (by eliminating arbitrary constants and functions)
05/08/2024 to 10/08/2024	3	• Classification of solution • Solution of Lagrange's Linear equations
12/08/2024 to 17/08/2024	4	• Compatible system of first order equations • Charpit's method
19/08/2024 to 24/08/2024	5	• Jacobi's method • Problems on Jacobi's method
26/08/2024 to 31/08/2024	6	• Linear Partial Differential Equations of second and Higher order (C.I., P.I.)
02/09/2024 to 07/09/2024	7	• Solution of non homogeneous linear partial differential equations with constant coefficients.
09/09/2024 to 14/09/2024	8	Partial diff. equations with variable coefficients reducible to equations with constant coefficients.

Dates	Week	Topic
16/09/2024 to 21/09/2024	9	<ul style="list-style-type: none"> • Classification of second order linear P.D.Es • Reduction to canonical forms (Hyperbolic)
23/09/2024 to 28/09/2024	10	<ul style="list-style-type: none"> • Reduction to Canonical forms and solution (parabolic and elliptic equations)
30/09/2024 to 05/10/2024	11	<ul style="list-style-type: none"> • Monge's Method • Problems on Monge's method.
07/10/2024 to 12/10/2024	12	<ul style="list-style-type: none"> • Monge's method of solving $R_s + S_s + T_t + U(rt - s^2) = V$
14/10/2024 to 19/10/2024	13	<ul style="list-style-type: none"> • Characteristic Equations • Cauchy's Problem
21/10/2024 to 26/10/2024	14	<ul style="list-style-type: none"> • Method of Separation of Variables • Solution of one-dimensional wave equation • Unit Test
04/11/2024 to 09/11/2024	15	<ul style="list-style-type: none"> • Solution of two dimensional wave equation • Solution of one-dimensional Heat eqn.
11/11/2024 to 16/11/2024	16	<ul style="list-style-type: none"> • Solution of two dimensional Heat eqn. • Solution of Laplace's equation.
18/11/2024 to 22/11/2024	17	<ul style="list-style-type: none"> • Revision

Ankit
Signature

Lesson Plan
Session: 2024-25

Name of the Assistant Professor: Mr. Ankit Kumar

Class: B.Sc. 3rd Sem.

Subject: Mathematics

Paper : Statics.

Dates	Week	Topic
22/07/2024 to 27/07/2024	1	<ul style="list-style-type: none">• Introduction to Statics.• Preliminaries
29/07/2024 to 03/08/2024	2	<ul style="list-style-type: none">• forces acting at a point• Parallelogram, Triangle law of forces• Lami's Theorem , Polygon law of forces
05/08/2024 to 10/08/2024	3	<ul style="list-style-type: none">• Condition of Equilibrium of Concurrent forces.• Parallel forces• Moments of a force
12/08/2024 to 17/08/2024	4	<ul style="list-style-type: none">• Varignon's Theorem• Centre of a number of parallel forces• Moment of a force about a line
19/08/2024 to 24/08/2024	5	<ul style="list-style-type: none">• Couples , moment of a couple , equilibrium of two couples• Resultant of a force and a couple
26/08/2024 to 31/08/2024	6	<ul style="list-style-type: none">• Analytical conditions of equilibrium of co-planar forces
02/09/2024 to 07/09/2024	7	<ul style="list-style-type: none">• Friction , kinds of friction , laws of friction• Problems on equilibrium of Rods and ladders
09/09/2024 to 14/09/2024	8	<ul style="list-style-type: none">• Centre of Gravity• Problems on Centre of Gravity

Dates	Week	Topic
16/09/2024 to 21/09/2024	9	<ul style="list-style-type: none"> • Virtual Work • principle of Virtual work
23/09/2024 to 28/09/2024	10	<ul style="list-style-type: none"> • Problems on virtual work • forces in three dimension
30/09/2024 to 05/10/2024	11	<ul style="list-style-type: none"> • Conditions of Equilibrium of a rigid body • Poinset's Central axis
07/10/2024 to 12/10/2024	12	<ul style="list-style-type: none"> • Wrenches • Theorems on Wrenches
14/10/2024 to 19/10/2024	13	<ul style="list-style-type: none"> • Null lines • Null planes • Theorems and Problems
21/10/2024 to 26/10/2024	14	<ul style="list-style-type: none"> • Stable, Unstable, Neutral Equilibrium • Unit Test
04/11/2024 to 09/11/2024	15	<ul style="list-style-type: none"> • A body Resting inside other fixed concave body • Problems Discussion
11/11/2024 to 16/11/2024	16	<ul style="list-style-type: none"> • problems Discussion (Continued)
18/11/2024 to 22/11/2024	17	<ul style="list-style-type: none"> • Revision

Amit
Signature