

Lesson Plan for Session 2023-2024

Teacher- Dr. Minakshi, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 1st Semester, **Paper** – Calculus

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Introduction of the Syllabus, Scheme of Examination, ϵ - δ definition of the limit of a function, Basic Properties of limits
2.	31 July – 05 Aug.	Continuous Functions and Classification of discontinuities, Problems related to Continuity of functions, ϵ - δ definition of Continuity
3.	07 Aug. – 12 Aug.	Differentiability of Functions and Problems based on it, Test
4.	14 Aug. – 19 Aug.	Successive Differentiation and Standard Formulas for n^{th} derivative of functions
5.	21 Aug. – 26 Aug.	Leibnitz Theorem and Problems, Revision
6.	28 Aug. – 02 Sept.	Maclaurin and Taylor Series expansions, Test
7.	04 Sept. – 09 Sept.	Asymptotes parallel to Co-ordinate axes, Oblique Asymptotes
8.	11 Sept. – 16 Sept.	Intersection of Curve and its Asymptotes, Asymptotes in Polar Co-ordinates, Revision
9.	18 Sept. – 23 Sept.	Introduction to Curvature, Assignment
10.	25 Sept. – 30 Sept.	Radius of Curvature for Cartesian, Parametric and Polar Curves
11.	02 Oct. – 07 Oct.	Pedal Equation, Newton's Method, Discussion
12.	09 Oct. – 14 Oct.	Centre of Curvature, Chord of Curvature, Evolutes, Test
13.	16 Oct. – 21 Oct.	Singular Points, Multiple Points, Cusps and its types, Nodes and Conjugate Points
14.	23 Oct. – 28 Oct.	Points of Inflexion, Curve Tracing: Cartesian, Parametric and Polar, Test
15.	30 Oct. – 04 Nov.	Reduction Formulae, Rectification, Assignment
16.	06 Nov. – 18 Nov.	Quadrature, Revision
17.	20 Nov. – 24 Nov.	Volumes and Surfaces of solids of revolution, Revision

Minakshi
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Dr. Minakshi, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 3rd Semester, **Paper –** Statics

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Introduction of Syllabus and Scheme of Examination, Forces acting at a Point, Parallelogram Law of Forces, Resolution of a given Force, Triangle Law of Forces
2.	31 July – 05 Aug.	λ - μ Theorem, Lami's Theorem, Polygon Law of Forces, Theorem of Concurrent Forces
3.	07 Aug. – 12 Aug.	Parallel Forces: Like and Unlike, Problems, Test
4.	14 Aug. – 19 Aug.	Moments, Varignon's Theorem
5.	21 Aug. – 26 Aug.	Couples: Definition, Moment of a Couple, Problems
6.	28 Aug. – 02 Sept.	Equilibrium and Resultant of Couples, Resultant of a Force and a Couple, Revision
7.	04 Sept. – 09 Sept.	Analytical Conditions of Equilibrium of Coplanar Forces, Test
8.	11 Sept. – 16 Sept.	Friction, Problems related to Inclined Planes, Equilibrium of Rods and Ladders
9.	18 Sept. – 23 Sept.	Centre of Gravity: Uniform Rod, Parallelogram Lamina, Triangular Lamina, Uniform Quadrilateral Lamina, Trapezoidal Lamina, Assignment
10.	25 Sept. – 30 Sept.	Centre of Gravity by Integration Method, Test
11.	02 Oct. – 07 Oct.	Virtual Work, Revision
12.	09 Oct. – 14 Oct.	Forces in three dimensions: Reduction of number of forces to a single force and a single couple
13.	16 Oct. – 21 Oct.	Poinsot's Central Axis, Problems
14.	23 Oct. – 28 Oct.	Wrenches, Related Problems, Test
15.	30 Oct. – 04 Nov.	Null Lines and Null Planes: Theorems, Equations, Related Problems
16.	06 Nov. – 18 Nov.	Equilibrium of Bodies: Stable, Unstable and Neutral, Assignment
17.	20 Nov. – 24 Nov.	Revision, Test

Minakshi
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Dr. Minakshi, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 5th Semester, **Paper** – Numerical Analysis

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Introduction of Syllabus and Scheme of Examination, Finite Difference Operators and their relation
2.	31 July – 05 Aug.	Finding Missing Terms and Effect of error in difference tabular values, Introduction to Interpolation with Equal Intervals
3.	07 Aug. – 12 Aug.	Newton's Forward and Backward Interpolation Formula, Related Problems
4.	14 Aug. – 19 Aug.	Interpolation with Unequal Intervals: Divided Difference, Lagrange, Hermite Interpolation Formula, Test
5.	21 Aug. – 26 Aug.	Introduction to Central Differences: Derivation of Gauss Forward and Gauss Backward and Problems
6.	28 Aug. – 02 Sept.	Sterling Formula, Bessel's Interpolation Formula
7.	04 Sept. – 09 Sept.	Probability Distribution: Binomial, Normal and Poisson
8.	11 Sept. – 16 Sept.	Eigen Values: Power Method, Jacobi's Method, Test
9.	18 Sept. – 23 Sept.	Given's Method, House Holder's Method, QR-Method, Lanczo's Method
10.	25 Sept. – 30 Sept.	Numerical Differentiation, Related Problems, Assignment
11.	02 Oct. – 07 Oct.	Numerical Integration: Newton-Cote's Quadrature Formula, Trapezoidal Rule
12.	09 Oct. – 14 Oct.	Simpson's Rule: $1/3^{\text{rd}}$ and $3/8^{\text{th}}$, Problems
13.	16 Oct. – 21 Oct.	Chebycev Formula, Gauss Quadrature Formula, Problems, Test
14.	23 Oct. – 28 Oct.	Introduction to Numerical Solution of Ordinary Differential Equations, Revision
15.	30 Oct. – 04 Nov.	Single Step Methods: Picard's Method, Taylor Series Method Euler's and Runge-Kutta Method
16.	06 Nov. – 18 Nov.	Multiple-Step Methods: Predictor-Corrector Method, Modified Euler's Method, Milne-Simpson's Method, Assignment
17.	20 Nov. – 24 Nov.	Revision, Test

Minakshi

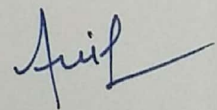
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Dr. Anil Kumar, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 1st Semester, **Paper** – Solid Geometry

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Conic Sections and its classifications, General equation of second degree, centre of a conic section, Asymptotes of conic, Length and equation of the axes of a central conic, Foci and directrices of conic
2.	31 July – 05 Aug.	Tangent and Normal at any point to the conic, Chord of contact, Pole of line to the conic, Director circle of conic
3.	07 Aug. – 12 Aug.	Tracing of conics, System of conics
4.	14 Aug. – 19 Aug.	Confocal conics, Polar equations of a conic with focus as pole, Equation of directrices, Chord, tangent and normal to the conic
5.	21 Aug. – 26 Aug.	Asymptotes of polar equation of conic, Director circle and tracing of conic w.r.t. polar equation, Assignment-1 st
6.	28 Aug. – 02 Sept.	Sphere, Plane section of sphere, Sphere through a given circle, Sphere and a line
7.	04 Sept. – 09 Sept.	Tangent plane, Plane contact, Equation of the polar plane, Reciprocal property
8.	11 Sept. – 16 Sept.	Intersection of two spheres, Radical plane of two spheres, Co-axial system of spheres
9.	18 Sept. – 23 Sept.	Equation of cone, Right circular cone, Quadric cone through the axis, Enveloping cone
10.	25 Sept. – 30 Sept.	Intersection of straight line and a cone, Equation of reciprocal cone, Right circular cylinder
11.	02 Oct. – 07 Oct.	Enveloping cylinder, Central conicoid, Equation of tangent plane, Test-1 st
12.	09 Oct. – 14 Oct.	Director Sphere, Normal to the conicoids, Polar plane of a point, Enveloping cone of a conicoid
13.	16 Oct. – 21 Oct.	Enveloping cylinder of conicoid, Plane section with a given centre, Diametral plane property, Assignment-2 nd
14.	23 Oct. – 28 Oct.	Tracing of paraboloid, Normals to an elliptic paraboloid, Diametral plane, Plane section of the paraboloid
15.	30 Oct. – 04 Nov.	Area of central plane section, Axis of non-central plane section, circular section of an ellipsoid and paraboloid
16.	06 Nov. – 18 Nov.	Generating lines, Confocal Conicoid
17.	20 Nov. – 24 Nov.	Reduction of second degree equation, Test- 2 nd



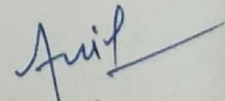
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Dr. Anil Kumar, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 3rd Semester, **Paper** – Partial Differential Equations

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Formulation of partial differential equations
2.	31 July – 05 Aug.	Classification of the solution of PDE, Solution of Lagrange's linear equations
3.	07 Aug. – 12 Aug.	Compatible system of first order PDE, Charpit's general method
4.	14 Aug. – 19 Aug.	Standard form of PDE, Jacobi's method, Linear PDE of second and higher order, Assignment-1 st
5.	21 Aug. – 26 Aug.	Complementary function of non-homogenous PDE, Complementary function of linear homogenous PDE with constant coefficients
6.	28 Aug. – 02 Sept.	Particular integral of linear homogenous/non-homogenous PDE with constant coefficients
7.	04 Sept. – 09 Sept.	Reducible and irreducible PDE, Partial differential equation with variable coefficients, Test-1 st
8.	11 Sept. – 16 Sept.	Classification of PDE, Canonical forms of PDE, Reduction of hyperbolic equation to its canonical form
9.	18 Sept. – 23 Sept.	Reduction of parabolic and elliptic equation to its canonical form
10.	25 Sept. – 30 Sept.	Reimann's method and Monge's method for PDE of second order
11.	02 Oct. – 07 Oct.	Monge's method for another type of PDE, Characteristics of second order PDE, Assignment-2 nd
12.	09 Oct. – 14 Oct.	Cauchy's problem, Method of separation of variable: Wave equations
13.	16 Oct. – 21 Oct.	Method of separation of variable: Heat equations
14.	23 Oct. – 28 Oct.	Method of separation of variable: Laplace equations
15.	30 Oct. – 04 Nov.	Problems on Wave, Heat and Laplace equations, Test-2 nd
16.	06 Nov. – 18 Nov.	Revision of syllabus
17.	20 Nov. – 24 Nov.	Revision of syllabus



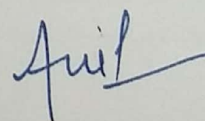
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Dr. Anil Kumar, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 5th Semester, **Paper** – Groups and Rings

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Definition of group with example, General properties of group, Order of an element of a group, definition of subgroup with examples
2.	31 July – 05 Aug.	Various criteria for subgroup, Cyclic groups
3.	07 Aug. – 12 Aug.	Euler's function and its relation with generator of a group, Cosets, Left and right cosets, Index of a subgroup
4.	14 Aug. – 19 Aug.	Coset decomposition, Lagrange's theorem and its consequences, Normal subgroups, Simple groups
5.	21 Aug. – 26 Aug.	Quotient groups, Homomorphism, Isomorphism, Assignment-1 st
6.	28 Aug. – 02 Sept.	Automorphism, Inner-automorphism of a group, Automorphism of cyclic groups
7.	04 Sept. – 09 Sept.	Centralizer and normalier, Characteristic subgroup, Derived group of a group
8.	11 Sept. – 16 Sept.	Permutation groups, Even and odd permutations, Aletrnating groups, Cayley's theorem, Test-1 st
9.	18 Sept. – 23 Sept.	Definition of rings with examples, Integral domain and fields
10.	25 Sept. – 30 Sept.	Subrings, Characteristics of a ring, Ideals
11.	02 Oct. – 07 Oct.	Principal ideals, Maximal ideals, Quotient rings
12.	09 Oct. – 14 Oct.	Homomorphism and Isomorphism of rings
13.	16 Oct. – 21 Oct.	Imbedding of rings, Field of quotient of an integral domain, Euclidean rings, Assignment-2 nd
14.	23 Oct. – 28 Oct.	Prime element and irreducible element, Polynomial rings, Polynomial over the rational field
15.	30 Oct. – 04 Nov.	Polynomial rings over commutative rings, Unique factorization domain
16.	06 Nov. – 18 Nov.	Primitive and irreducible polynomial, Gauss's lemma, Field of quotient of a UFD, Eisenstein's irreducibility criterion, Test-2 nd
17.	20 Nov. – 24 Nov.	Revision of syllabus



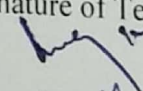
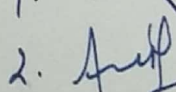
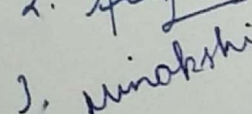
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher-Mr. Satish Kumar, Dr. Anil Kumar, Dr. Minakshi Assistant Professor of Mathematics
Subject- Mathematics, Class- B.Com. 1st year, 1st Semester, Paper – Business Mathematics

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Introduction of Syllabus and Scheme of Examination, Theory of Sets
2.	31 July – 05 Aug.	Operation on Sets: Union, Intersection, Complement, Difference of Sets
3.	07 Aug. – 12 Aug.	Cartesian Product of Sets, Applications of Set Theory
4.	14 Aug. – 19 Aug.	Indices, Test
5.	21 Aug. – 26 Aug.	Logarithm and its properties
6.	28 Aug. – 02 Sept.	Factorial, Fundamental Principle of Counting, Permutation
7.	04 Sept. – 09 Sept.	Combination
8.	11 Sept. – 16 Sept.	Application of Permutation and Combination, Revision
9.	18 Sept. – 23 Sept.	Circular Permutation, Test, Assignment
10.	25 Sept. – 30 Sept.	Sequence and Series : General Term of A.P., Sum of n terms of A.P.
11.	02 Oct. – 07 Oct.	Arithmetic Mean, General Term of G.P., Sum of n terms of G.P., Geometric Mean
12.	09 Oct. – 14 Oct.	Application of A.P. and G.P. to Business Problems, Test
13.	16 Oct. – 21 Oct.	Data Interpretation: Definition, Types of Data, Sources of Collection of Data
14.	23 Oct. – 28 Oct.	Continuous Series, Approaches to Data Interpretation
15.	30 Oct. – 04 Nov.	Tabulation of Data
16.	06 Nov. – 18 Nov.	Graphical Representation of Statistical Data, Assignment
17.	20 Nov. – 24 Nov.	Revision, Test

Signature of Teacher

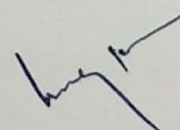
1. 
2. 
3. 

Lesson Plan for Session 2023-2024

Teacher- Mr. Satish Kumar, Assistant Professor of Mathematics

Subject- Mathematics, **Class-** B.Sc./B.A. 2nd year, 3rd Semester, **Paper** – Advanced Calculus

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Continuity, Sequential continuity, Properties of continuous functions, uniform continuity
2.	31 July – 05 Aug.	Chain rule of differentiability, Mean value theorem, Rolle's theorem and its applications, Test
3.	07 Aug. – 12 Aug.	Lagrange's mean value theorem and their geometrical interpretations. Taylor's theorem with various form of remainders
4.	14 Aug. – 19 Aug.	Darboux Intermediate value theorem for derivatives, Indeterminate forms, Assignment
5.	21 Aug. – 26 Aug.	Limit and continuity of real valued functions of two variables, Partial differentiation, Total Differentials, Composite functions and implicit functions. Change of Variables
6.	28 Aug. – 02 Sept.	Homogenous functions and Euler's theorem on homogenous functions, Taylor's theorem for functions of two variables
7.	04 Sept. – 09 Sept.	Differentiability of real valued functions of two variables, Schwarz and Young's theorem
8.	11 Sept. – 16 Sept.	Implicit functions theorem, Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers
9.	18 Sept. – 23 Sept.	Curves: Tangents, Principal normals, Binormals and its applications, Assignment
10.	25 Sept. – 30 Sept.	Serret-Frenet formulae, Locus of the centre of curvature, Spherical curvature
11.	02 Oct. – 07 Oct.	Locus of centre of spherical curvature, Involutives, Evolutes and its applications
12.	09 Oct. – 14 Oct.	Bertrand curves, Surfaces: Tangent planes, Test
13.	16 Oct. – 21 Oct.	One parameter family of surfaces, envelopes
14.	23 Oct. – 28 Oct.	Revision of Unit 1
15.	30 Oct. – 04 Nov.	Revision of Unit 2
16.	06 Nov. – 18 Nov.	Revision of Unit 3
17.	20 Nov. – 24 Nov.	Revision of Unit 4



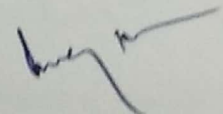
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher- Mr. Satish Kumar, Assistant Professor Mathematics

Subject-Mathematics, Class- B.Sc./B.A 1st year, 1st Semester, Paper - Algebra

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices
2.	31 July – 05 Aug.	Elementary Operations on matrices, Rank of a matrices, Inverse of a matrix, Linear dependence and independence of rows and columns of matrices, Test
3.	07 Aug. – 12 Aug.	Row rank and column rank of a matrix, Eigen values, eigenvectors and the characteristic equation of a matrix
4.	14 Aug. – 19 Aug.	Minimal polynomial of a matrix, Cayley Hamilton theorem and its use in finding the inverse of a matrix.
5.	21 Aug. – 26 Aug.	Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations, Assignment
6.	28 Aug. – 02 Sept.	Theorems on consistency of a system of linear equations
7.	04 Sept. – 09 Sept.	Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.
8.	11 Sept. – 16 Sept.	Relations between the roots and coefficients of general polynomial equation in one variable
9.	18 Sept. – 23 Sept.	Solutions of polynomial equations having conditions on roots, Assignment
10.	25 Sept. – 30 Sept.	Common roots and multiple roots, Transformation of equations
11.	02 Oct. – 07 Oct.	Nature of the roots of an equation Descarte's rule of signs
12.	09 Oct. – 14 Oct.	Solutions of cubic equations (Cardon's method)
13.	16 Oct. – 21 Oct.	Biquadratic equations and their solutions, Test
14.	23 Oct. – 28 Oct.	Revision of Unit 1
15.	30 Oct. – 04 Nov.	Revision of Unit 2
16.	06 Nov. – 18 Nov.	Revision of Unit 3
17.	20 Nov. – 24 Nov.	Revision of Unit 4



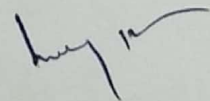
Signature of Teacher

Lesson Plan for Session 2023-2024

Teacher-Mr. Satish Kumar, Assistant Professor of Mathematics

Subject- Mathematics, Class- B.Sc./B.A.3rd year, 5th Semester, Paper – Real Analysis

Sr. No.	Date/Period	Topics
1.	24 July – 29 July	Riemann integral, Integrability of continuous and monotonic functions
2.	31 July – 05 Aug.	The Fundamental theorem of integral calculus
3.	07 Aug. – 12 Aug.	Mean value theorems of integral calculus, Test
4.	14 Aug. – 19 Aug.	Improper integrals and their convergence, Comparison tests
5.	21 Aug. – 26 Aug.	Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter
6.	28 Aug. – 02 Sept.	Continuity, Differentiability and integrability of an integral of a function of a parameter, Assignment
7.	04 Sept. – 09 Sept.	Definition and examples of metric spaces, neighborhoods
8.	11 Sept. – 16 Sept.	Limit points, interior points, open and closed sets, closure and interior, boundary points
9.	18 Sept. – 23 Sept.	Subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Assignment
10.	25 Sept. – 30 Sept.	Cantor's intersection theorem, Baire's category theorem, contraction Principle
11.	02 Oct. – 07 Oct.	Continuous functions, uniform continuity
12.	09 Oct. – 14 Oct.	Compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property
13.	16 Oct. – 21 Oct.	Total boundedness, finite intersection property, continuity in relation with compactness
14.	23 Oct. – 28 Oct.	Connectedness, components, Test
15.	30 Oct. – 04 Nov.	Continuity in relation with connectedness.
16.	06 Nov. – 18 Nov.	Revision of Unit 1 & 2
17.	20 Nov. – 24 Nov.	Revision of Unit 3 & 4



Signature of Teacher