Lesson Plan for the Subject Calculus

Session (2025-26)

Class: B.Sc./B.A. 1st Year (1st Sem) (Math Major)

Aug. 2025

Unit 1 :

ε-δ definition of limit and continuity of a real valued function, Basic properties of limits, Types of discontinuities, Differentiability of functions, Application of L'Hospital rule to indeterminate forms, Successive differentiation, Leibnitz theorem, Taylor's and Maclaurin's series expansion with different forms of remainder.

Sep. 2025

Unit 2 :

Asymptotes: Horizontal, vertical and oblique asymptotes for algebraic curves, Asymptotes for polar curves, Intersection of a curve and its asymptotes, Curvature and radius of curvature of curves (cartesian, parametric, polar & intrinsic forms), Newton's method, Centre of curvature and circle of curvature.

Oct. 2025

Unit 3 :

Multiple points, Node, Cusp, Conjugate point, Tests for concavity and convexity, Points of inflexion, Tracing of curves, Reduction formulae.

Nov .2025

Unit 4 :

Rectification, intrinsic equation of a curve, Quadrature, Area bounded by closed curves, Volumes and surfaces of solids of revolution.

Group Discussions, Mid Term Exams, Assignments and Revision.

Lesson Plan for the Subject Business Mathematics

Session (2025-26)

Class: B.Com 1st Year (1st Sem) (Math Minor)

Aug. 2025

Unit 1 :

Set Theory: Representation of sets, equivalent sets, power set, complement of a set. Venn Diagrams: Union and intersection of sets, De-Morgan's laws; Logical statements and truth tables.

Sep. 2025

Unit 2 :

Logarithms: Laws of operation, log tables; Arithmetic and geometric progression.

Oct. 2025

Unit 3 :

Matrices and Determinants: Definition of a matrix, order, equality, types of matrices; Operations on matrices: Addition, multiplication and multiplicationwith a scalar and their simple properties. Determinant of a square matrix (upto 3x 3 order): Properties of determinants,minors, co-factors and applications of determinants in finding the area of triangle, adjoint and inverse of a square matrix, solutions of a system of linearequations by examples.

Nov .2025

Unit 4 :

Compound interest and annuities: Different types of interest rates, types of annuities, present value and amount of an annuity (including the case of continuous compounding), valuation of simple loans and debentures, problems related to sinking funds.

Group Discussions, Mid Term Exams, Assignments and Revision.

Lesson Plan for the Session 2025-26

Class: B.A. 1st Year (1st Sem.)

Subject: Basic Calculus (Math Minor)

Aug 2025

Chapter-1: Limit, Continuity and Derivability

Chapter 2: Indeterminate Forms

Sep 2025

Chapter 3: Successive differentiation

Chapter 4: Taylor's and Maclaurin's series expansions

Oct 2025

Chapter 5: Asymptotes

Nov 2025

Chapter 6: Reduction Formulae

Revision, Tests and Assignments

Lesson Plan for the Subject Introductory Mathematics

Session (2025-26)

Class: B.A. 1st Year (1st Sem) (Math MDC)

Aug. 2025

Unit 1 :

Sets and their representations, Empty set, Finite and infinite sets, Subsets, Equal sets, Power sets, Universal set, Union and intersection of sets, Difference of two sets, Complement of a set, Venn diagram, De-Morgan's laws and their applications. An introduction to matrices and their types, Operations on matrices, Symmetric and skew-symmetric matrices, Minors, Co-factors. Determinant of a square matrix, Adjoint and inverse of a square matrix, Solutions of a system of linear equations up to order 3.

Sep. 2025

Unit 2 :

Complex numbers, Operations on complex numbers, Modulus and argument of a complex number. Linear inequalities, Algebraic solutions of linear inequalities in two variables and their graphical representation. Quadratic equations, Solution of quadratic equations.

Oct. 2025

Unit 3 :

Arithmetic progression, Geometric progression, Harmonic progression, Arithmetic mean (A.M.), Geometric mean (G.M.), Harmonic mean (H.M.), Relation between A.M., G.M. and H.M.

Nov .2025

Unit 4 :

Straight lines: Slope of a line and angle between two lines, Different forms of equation of a line: Parallel to co-ordinate axes, Point-slope form, Slope-intercept form, Two-point form, General form; Distance of a point from a straight line. Standard form of a circle and its properties.

Group Discussions, Mid Term Exams, Assignments and Revision.

Lesson Plan for the Subject Mathematics for All
Session (2025-26)

Class: B.A. 2nd Year (3rd Sem) (Math MDC)

Aug. 2025

Unit 1 :

The concept of a set, Types of sets, Operations on sets, Venn diagram, De-Morgan's laws. The concept of a function, Elementary functions and their graphical representation. Solution of simple quadratic and cubic equations, Solution of simultaneous linear equations up to three variables. Arithmetic progression, Geometric progression.

Sep. 2025

Unit 2 :

The concept of differentiation, differentiation of simple functions, second order differentiation, Maxima and minima of a function, Use of differentiation for solving problems related to real-life situations. Integration of simple algebraic, trigonometric and exponential functions.

Oct. 2025

Unit 3 :

Presentation of data: Frequency distribution and cumulative frequency distribution, Diagrammatic and graphical presentation of data, Construction of bar, Pie diagrams, Histograms, Frequency polygon, Frequency curve and Ogives. Measures of central tendency: Arithmetic mean, Median, Mode, Geometric mean and Harmonic mean for ungrouped and grouped data. Measures of dispersion: Concept of dispersion, Mean deviation and its coefficient, Range, Variance and its coefficient, Standard deviation.

Nov .2025

Unit 4 :

Correlation: Concept and types of correlation, Methods of finding correlation: Scatter diagram, Karl Pearson's coefficients of correlation, Rank correlation. Linear regression: Principle of least square, Fitting of straight line, Two lines of regression, Regression coefficients. Solution of differential equations of first order and degree one with variable separable.

Group Discussions, Mid Term Exams, Assignments and Revision.

Lesson Plan for the Subject Differential Equations

Session (2025-26)

Class : B.Sc./B.A. 2nd Year (3rd Sem) (Math Major)

Aug. 2025

Unit 1 :

Chapter 1 : Differential Equations of First Order and First Degree

Chapter 2 : Exact Differential Equations

Chapter 3 : Equations of First Order but not of First Degree

Chapter 4 : Orthogonal Trajectories

Sep. 2025

Unit 2 :

Chapter 5 : Linear Differential Equations with Constant Co-efficients

Chapter 6 : Cauchy - Euler Equations

Chapter 7 : Linear Differential Equations of Second order with variable coefficients

Oct. 2025

Unit 3 :

Chapter 8 : Ordinary simultaneous differential equations

Chapter 9 : Total Differential Equations

Chapter 10 : First Order Linear Partial Differential Equations

Nov .2025

Unit 4 :

Chapter 11 : First Order Non Linear Partial Differential Equations

Chapter 12 : Second Order Linear Partial Differential Equations with Constant Coefficients

Group Discussions ,Mid Term Exams , Assignments and Revision.

Lesson Plan for the Subject Linear Algebra

Session (2025-26)

Class : B.Sc./B.A. 3rd Year (5th Sem)

Aug. 2025

Unit 1 :

Vector Space and Subspaces, Basis and Dimension, Quotient Space.

Sep. 2025

Unit 2 :

Linear Transformations, Rank and Nullity.

Oct. 2025

Unit 3 :

Inner Product Spaces

Nov .2025

Unit 4 :

Linear operator on IPS, Algebra of Linear

Transformations & Matrix of a linear Transformation.

Group Discussions, Mid Term Exams, Assignments and Revision.

Lesson Plan for the Subject Statics and Dynamics

Session (2025-26)

Class : B.Sc./B.A. 3rd Year (5th Sem)

Aug. 2025

Unit 1 :

Friction, Centre of Gravity, Virtual work.

Sep. 2025

Unit 2 :

Forces in three dimensions, Poinsot's Central axis, Wrenches, Null lines and planes.

Oct. 2025

Unit 3 :

Definition of conservative forces impulsive forces, Projectile motion of a particle in a plane, Vector angular velocity.

Nov .2025

Unit 4 :

General motion of a rigid body central orbit Kepler's law of motion, Motion of a particle in three dimensions.

Group Discussions, Mid Term Exams, Assignments and Revision.