

Syllabus
Term I (March – September)
Class XII
Subject : Mathematics

Month	Topic/Sub Topic
March	Relations and Functions: Types of relations: Reflexive, symmetric, transitive and equivalence relations. One to one and onto functions.
April	Inverse Trigonometric Functions: Definition, range, domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions. Matrices: Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices. Addition, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Determinants: Determinant of a square matrix (up to 3×3 matrices), minors, cofactors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.
May	Continuity and Differentiability: Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concepts of exponential, logarithmic functions.

	Derivatives of $\log x$ and e^x. Logarithmic differentiation. Derivative of functions expressed in parametric forms. Second order derivatives. Applications of Derivatives: Rate of change, increasing/decreasing functions, maxima and minima. Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).
July	Integrals: Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts. Fundamental Theorem of Calculus. Basic properties of definite integrals and evaluation of definite integrals. Applications of the Integrals: Applications in finding the area under simple curves, especially lines, arcs of circles/parabolas/ellipses (in standard form only).
August	Differential Equations: Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, homogeneous differential equations of first order and first degree. Solutions of linear differential equation. Vectors: Vectors and scalars, magnitude and direction of a vector. Direction cosines/ratios of vectors. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors.
September	Revision and Half Yearly Examinations

Syllabus
Term II (October – March)
Class XII

Month	Topic/ Sub Topic
October	Three-dimensional Geometry: Direction cosines/ratios of a line joining two points. Cartesian and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Probability: Multiplications theorem on probability. Conditional probability, independent events, total probability, Baye's theorem. Random variable and its probability distribution, mean and variance of haphazard variable.
November	Linear Programming: Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions, optimal feasible solutions. and Revision
December	Revision and Pre board 1
January	Pre Board 2 and Revision.
February	Revision/Board Practicals / Board Theory Examinations
March	Board Theory Examinations

