Class: XII
Subject: Mathematics

NO. OF PERIOD	TOPIC	SUB-TOPIC	LEARNING OBJECTIVES / SKILLS TO BE DEVELOPED	ASSESSMENT / ACTIVITIES	LEARNING OUTCOMES
15	Continuity and differentiability	Continuity, Differentiability, Exponential and logarithmic functions, Logarithmic differentiation, Derivatives in parametric form, Second order derivatives, Mean value theorem	Points of discontinuity of functions, identify points of non-differentiability of functions, derivatives of exponential and logarithmic functions, derivatives of functions in parametric form	Practice sheet	To identify points of discontinuity of functions, To identify points of non-differentiability of functions, To find derivatives of exponential and logarithmic functions, To find derivatives of functions in parametric form
15	Applications of Derivatives	Rate of change of Quantities, Increasing and decreasing functions, Tangents and normal, Approximations, Maxima and minima	Rate of change of dependent variable due to change in independent variable, increasing and decreasing functions, equation of tangent and normal at a point on the given curve, error in a variable due to error in another variable, approximate values of quantities using derivatives, maxima and minima points of a function	Practice sheet	To find Rate of change of dependent variable due to change in independent variable, To identify increasing and decreasing functions, To find equation of tangent and normal at a point on the given curve, To find error in a variable due to error in another variable, To find approximate values of quantities using derivatives, To find maxima and minima points of a function
12	Matrices	Types of Matrices, Operations on matrices, Transpose of a matrix, Symmetric and skew symmetric matrices, Elementary row transformations of a matrix, Inverse of a matrix	Add 2 matrices, Expressing matrix as sum of symmetric and skew symmetric matrices, inverse of a matrix by using elementary row transformations	Practice sheet	To add 2 matrices, Expressing matrix as sum of symmetric and skew symmetric matrices, To find inverse of a matrix by using elementary row transformations

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12	Determinants	Properties of determinants, Area of a triangle, Minors and cofactors, Adjoint and inverse of a matrix, Applications of determinants and matrices	Area of triangle, To understand properties to simplify determinants, system of equations using matrices.	Practice sheet	To find area of triangle, To understand properties to simplify determinants, To solve system of equations using matrices.
15	Relation and functions	Types of relations, Types of functions, Composition of functions and invertible functions, Binary operations	Identify one to one, onto and invertible functions., inverse of a function if it exists., whether the binary operation is associative, commutative., find identity and inverse of binary operations	Practice sheet	To identify one to one, onto and invertible functions., To find inverse of a function if it exists., To identify whether the binary operation is associative, commutative., To find identity and inverse of binary operations
15	Inverse trigonometric functions	Basic concepts and graph, Properties of Inverse trigonometric functions	Inverse values of trigonometric functions	Practice sheet	To find inverse values of trigonometric functions
20	Integrals	Integration as an inverse process of differentiation, Methods of Integration, Integration of special functions, Method of Partial fractions, By-Parts, Definite Integral, Definite integral using substitution and properties	Indefinite and definite integrals	Practice sheet	To solve both indefinite and definite integrals
10	Applications of Integrals	Introduction, Area under simple curves, Area between 2 curves	Area using integration	Practice sheet	To find Area using integration

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15	Differential Equations	Introduction, Degree and order, General and particular solution, Formation of differential equation, Solution to first order, first degree differential equations	Degree and order of a differential equation, form differential equation when solution is given, differential equations using variable separable, homogeneous, Linear DE method	Practice sheet	To identify degree and order of a differential equation, To form differential equation when solution is given, To solve differential equations using variable separable, homogeneous, Linear DE method
15	Vector Algebra	Introduction, Types of vectors, Addition of vectors, Multiplication of vectors by scalar, Dot and cross product, Scalar triple product	Dot product and cross product of 2 vectors, Scalar triple product of 3 vectors, projection of one vector on another , To analyze vectors if dot product or cross product is zero	Practice sheet	To find dot product and cross product of 2 vectors, To find Scalar triple product of 3 vectors, To find projection of one vector on another , To analyze vectors if dot product or cross product is zero
15	Three Dimensional geometry	Direction cosines and ratios of a line, Equation of line in space, Angle between 2 lines, Shortest distance between 2 lines , Equation of plane, Coplanarity of 2 lines, Angle between 2 planes, Distance of a point from a plane, Angle between a line and a plane	Equation of line in space in Cartesian and vector form, equation of plane in Cartesian and vector form , To find angle between 2 lines using DCS, distance between 2 lines, angle between 2 planes using normal lines, distance between a point from a plane	Practice sheet	To find equation of line in space in Cartesian and vector form, To find equation of plane in Cartesian and vector form , To find angle between 2 lines using DCS, To find distance between 2 lines, To find angle between 2 planes using normal lines, To find distance between a point from a plane

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13	Linear programming	The problem and mathematical formulation, Applications in daily life	Solutions to problems	Practice sheet	To find solutions to problems
20	Probability	Conditional probability, Multiplication theorem , Addition theorem, Independent events , Bayes' theorem, Random variables and its probability distribution, Bernoulli trials and binomial distribution	Probability using conditional probability formula, solve problem by Bayes' theorem, probability distribution of different random variables, solve problem by using Bernoulli trials,	Practice sheet	To find probability using conditional probability formula, To identify and solve problem by Bayes' theorem, To find probability distribution of different random variables, To identify and solve problem by using Bernoulli trials,