BLOOM PUBLIC SCHOOL
C-8 Vasant Kunj New Delhi
SYLLABUS FOR THE SESSION 2021-22

Class: XII
Subject: Mathematics

MONTH	CHAPTERS (NCERT TEXT BOOK)	CONTENT (As per Rationalised Syllabus)
April	Chapter 2: Inverse Trigonometric Functions	Definition, range, domain, principal value branch.
June	Chapter 3: Matrices	Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a matrix, symmetric and skew symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices, Invertible matrices; (Here all matrices will have real entries)
	Chapter 4: Determinants	Determinant of a square matrix (up to 3 x 3 matrices), minors, co-factors and applications of determinants in finding the area of a triangle. Adjoint and inverse of a square matrix. Solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix.
July	Chapter 5: Continuity and Differentiability	Continuity and differentiability, derivative of composite functions, chain rule, derivative of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives.
	Chapter 6: Applications of Derivatives	Applications of derivatives: increasing/decreasing functions, tangents and normal,
	Periodic Assessment-1	**Chapters 2,3 & 4**

August	Chapter 6: Applications of Derivatives (cont'd) Chapter 1: Relation and Functions	Maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real life situations). Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions.
September	Chapter 12: Linear Programming Chapter 7: Integrals **Periodic Assessment-2** **Term 1 Internal Assessments**	Introduction, related terminology such as constraints, objective function, optimization, different types of linear programming (L.P.) problems. Graphical method of solution for problems in two variables, feasible and infeasible regions (bounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints). Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, **Chapter 1, 5 & 6** **Activity 1 to 4**
October	Chapter 7: Integrals (Cont'd) **Pre-board Term 1 Exam**	Evaluation of simple integrals of the following types and problems based on them $\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{ax^2+bx+c}}$ $\int \frac{px + q}{ax^2 + bx + c} dx, \int \frac{px + q}{\sqrt{ax^2+bx+c}} dx, \int \sqrt{a^2 \pm x^2}\, dx, \quad \int \sqrt{x^2 - a^2} dx$ Fundamental Theorem of Calculus (without proof). Basic properties of definite integrals and evaluation of definite integrals **Chapters 1,2,3,4,5,6 and 12**
November	Chapter 8: Applications of the Integrals	Applications in finding the area under simple curves, especially lines, parabolas; area of circles /ellipses (in standard form only) (the region should be clearly identifiable).

	Chapter 9: Differential Equations	Definition, order and degree, general and particular solutions of a differential equation. Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree of the type: $\frac{dy}{dx} = f(y/x)$. Solutions of linear differential equation of the type: dy/ dx + py = q, where p and q are functions of x or constant.
December	Chapter 10: Vectors	Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios of a vector. 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. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors.
	Chapter 11: Three - dimensional Geometry	Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Distance of a point from a plane.
January	Chapter 13: Probability	Conditional probability, multiplication theorem on probability, independent events, total probability, Bayes' theorem, Random variable and its probability distribution.
	Periodic Assessment-3	**Chapter 7, 8 and 9**
	Term 2 Internal Assessment	**Activity 5 to 8**
February	**Pre-board Exam Term 2**	**Chapters 7,8,9,10,12 & 13**
March	**CBSE Board Exam**	**Chapters 7,8,9,10,12 & 13**

ASSESSMENTS SYLLABUS

1. **Periodic Assessment-1 (August)**
   Chapter 2: Inverse Trigonometric Functions
   Chapter 3: Matrices
   Chapter 4: Determinants

2. **Periodic Assessment-2 (September)**
   Chapter 1: Relation and Functions
   Chapter 5: Continuity and Differentiability
   Chapter 6: Applications of Derivatives

3. **Pre-board Exam-1/Term 1 End Exam**
   Chapter 1: Relation and Functions
   Chapter 2: Inverse Trigonometric Functions
   Chapter 3: Matrices
   Chapter 4: Determinants
   Chapter 5: Continuity and Differentiability
   Chapter 6: Applications of Derivatives
   Chapter 12: Linear Programming

4. **Periodic Assessment-3 (Dec-Jan)**
   Chapter 7: Integrals
   Chapter 8: Applications of the Integrals
   Chapter 9: Differential Equations

5. **Preboard Exam-2/ Term 2 End Exam**
   Chapter 7: Integrals
   Chapter 8: Applications of the Integrals
   Chapter 9: Differential Equations
   Chapter 10: Vectors
   Chapter 11: Three - dimensional Geometry
   Chapter 13: Probability

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