



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

Class: XI

Subject: Mathematics

Month	CHAPTERS (NCERT TEXT BOOK)	CONTENT (As per Rationalised Syllabus)
June	Chapter-1 Sets Chapter-2 Relation and Functions	Sets and their representations. Empty set. Finite and Infinite sets. Equal sets. Subsets. Subsets of a set of real numbers especially intervals (with notations). Power set. Universal set. Venn diagrams. Union and Intersection of sets. Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself ($\mathbb{R} \times \mathbb{R}$ only). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation.
July	Chapter-2 Relation and Functions (Cont'd) Chapter-3. Trigonometric Functions	Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin^2 x + \cos^2 x = 1$, for all x . Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of $\sin x$, $\sin y$, $\cos x$ & $\cos y$ and their simple applications. Deducing identities like the following

	Chapter-5 Complex Numbers and Quadratic Equations	$\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y}, \cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}$ $\sin \alpha \pm \sin \beta = 2 \sin \frac{1}{2}(\alpha \pm \beta) \cos \frac{1}{2}(\alpha \mp \beta)$ $\cos \alpha + \cos \beta = 2 \cos \frac{1}{2}(\alpha + \beta) \cos \frac{1}{2}(\alpha - \beta)$ $\cos \alpha - \cos \beta = -2 \sin \frac{1}{2}(\alpha + \beta) \sin \frac{1}{2}(\alpha - \beta)$ <p>Identities related to $\sin 2x$, $\cos 2x$, $\tan 2x$, $\sin 3x$, $\cos 3x$ and $\tan 3x$.</p> <p>Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quadratic equations. Algebraic properties of complex numbers. Argand plane.</p>
August	Chapter-5 Complex Numbers and Quadratic Equations (Cont'd) Chapter-9 Sequence and Series Chapter-10 Straight lines Unit test I	<p>Statement of Fundamental Theorem of Algebra, solution of quadratic equations (with real coefficients) in the complex number system.</p> <p>Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.</p> <p>Brief recall of two dimensional geometry from earlier classes. Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form, two-point form, intercept form and normal form. General equation of a line. Distance of a point from a line.</p> <p>Chapter 1,2 & 5</p>
September	Chapter-13 Limits and Derivatives	<p>Limits Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions</p>

	Chapter-15 Statistics Term 1 Internal Assessment	Measures of Dispersion: Range, mean deviation, variance and standard deviation of ungrouped/grouped data. Activity 1 - 4
October	Chapter-6 Inequalities Chapter-7 Permutation and Combination Term 1 End Exam	Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line. Graphical solution of linear inequalities in two variables. Graphical method of finding a solution of system of linear inequalities in two variables Fundamental principle of counting. Factorial n . $(n!)$ Permutations and combinations, formula for nPr and nCr , simple applications. Chapter 1,2,5,9,10,13 & 15
November	Chapter-11 Conic Sections Chapter-12 Introduction to three Dimensional Geometry	Sections of a cone: circles, ellipse, parabola, hyperbola. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle. Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula
December	Chapter-13 Limits and Derivatives	Derivative introduced as rate of change both as that of distance function and geometrically. Definition of Derivative, relate it to slope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.
January	Chapter- 16 Probability Unit test II	Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Probability of an event, probability of 'not', 'and' and 'or' events. Chapter 3, 6,7 & 11

February	Revision	
	Term 2 Internal Assessment	Activity 5 - 8
March	Term 2 End Exam	Chapter 3,6,7 11,12 13 & 16

ASSESSMENTS SYLLABUS

1. Unit test-1(August)

- Chapter-1 Sets
- Chapter-2 Relation and Functions
- Chapter-5. Complex Numbers and Quadratic Equations

2. Term 1 End Exam

- Chapter-1 Sets
- Chapter-2 Relation and Functions
- Chapter-5 Complex Numbers and Quadratic Equations
- Chapter-9 Sequence and Series
- Chapter-10 Straight lines
- Chapter-13 Limits and Derivatives
- Chapter-15 Statistics

3. Unit test-2 (Dec- Jan)

- Chapter-3. Trigonometric Functions
- Chapter-6 Inequalities
- Chapter-7 Permutation and Combination
- Chapter-11 Conic Sections

4. Term 2 End Exam (March)

- Chapter-3. Trigonometric Functions
- Chapter-6 Inequalities
- Chapter-7 Permutation and Combination
- Chapter-11 Conic Sections
- Chapter-12 Introduction to three Dimensional Geometry
- Chapter-13 Limits and Derivatives
- Chapter-16 Probability

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