Subject : Mathematics Class : 11th

MONTH & CHAPTER	CONTENT	ACTIVITIES/ Co-curricular Activities
<u>April</u> **Sets**	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.	Venn Diagrams : Union of sets, Intersections of sets Difference of sets Complement of sets
5. Complex Numbers	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. Statement of Fundamental Theorem of Algebra, solution of quadratic equations (with real coefficients) in the complex number system.	Represent complex Number on graph.
<u>May</u> **Relations & Functions**	Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of real with itself (R x R only).Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a	Graphs of different types of functions

	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	Graph of sinx, cosx and tanx
3. Trigonometric Functions.	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±y) and cos (x±y) in terms of sinx, siny, cosx & cosy and their simple applications.	
July **6. Linear Inequalities**	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.	
7. Permutations & Combinations	Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, formula for ${}^nP_r$ and ${}^nC_r$,	

8. Binomial Theorem	simple applications. History, statement and proof of the binomial theorem for positive integral indices. Pascal's triangle, general and middle term in binomial expansion, simple applications	Derivation of Pascal's Triangle Law (With the help of sticks)
August **9. Sequence & Series**	Sequence and Series 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.	To Demonstrate that the Arithmetic Mean of two given positive numbers is always greater than their Geometric Mean.
<u>September</u>	Revise & Half Yearly Exams Chapters : (1,2,3,5,6,7,8,9)	
<u>October</u> **10. The Straight Lines**	Straight Lines 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.	Derivations of Equation of straight line 1. Slope intercepts form. 2. Normal Form
11. Conic sections	Sections of a cone: circles, ellipse, parabola, hyperbola. Standard equations and simple	Derivation of formation of equation of Parabola

	properties of parabola, ellipse and hyperbola. Standard equation of a circle.	
13. Limits & Derivatives	Limits Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Derivatives Derivative introduced as rate of change both as that of distance function and geometrically. Definition of Derivative, relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.	
<u>November</u>		
14. Statistics	Statistics Measures of Dispersion: Range, mean deviation, variance and standard deviation of ungrouped/grouped data.	
12. Introduction to Three-dimensional	Introduction to Three-dimensional. Geometry Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points and section formula.	Derivation of Distance Formula
15. Probability	Probability 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.	
December	Revision & U.T.	
January – February & March	Pre-Board & Final Exams	
Syllabus		
U.T.-1	Chapters : 1,2,3,5	
U.T.-2	Chapters : 7, 8, 9	