	ACADEMIC PLANNER (APPLIED MATHEMATICS-XII, 2025-26)						
Month(WD)	Content	Learning outcomes	Practical/ Project work/ Mode of Assessment	Assignment/ H.W	Teaching Pedagogy	INTERDISCIPLINA RY ASPECT	21ST CENTURY SKILLS/ SDG
April 1-15 (10)	UNIT - 2 ALGEBRA Matrices and Types of Matrices Equality of matrices, Transpose of a matrix, Symmetric and Skew symmetric matrix, Algebra of Matrices Determinants	 Defines matrix Identifies different types of matrices Determines equality of two matrices Defines symmetric and skew symmetric matrix Performs operations on Matrices Finds determinant of a square matrix 	Class tests, homework assignments, problem- solving sessions	Exercises of Chapter from CBSE Book/M.L Bhargava	Problem-solving sessions, matrix operation practice, computational tools for matrix calculations	Computer Science (Data Encryption),	Collaboration, Logical Reasoning SDG 4: Quality Education
April 16-30 (12)	UNIT - 2 ALGEBRA Inverse of a Matrix, Solving system of simultaneous equations using matrix method and Cramer's rule	 Defines the inverse of a square matrix Apply properties of inverse of matrices Solves the system of simultaneous equations using i) Cramer's Rule ii) Inverse of coefficient matrix 	Matrix multiplication and the inverse of a matrix using Spreadsheet	Exercises of Chapter from CBSE Book/M.L Bhargava	Visualizing solutions using Graphing tools (Geogebra)	Economics (input- output analysis), Statistics	Problem Solving, Computational Skills, Analytical Skill SDG 8: Economic Growth
	UNIT-1 NUMBERS, QUANTIFICATION AND NUMERICAL APPLICATIONS Modulo Arithmetic, Congruence Modulo	 Applies arithmetic operations using modular arithmetic rules Defines congruence modulo Applies the definition in various problems 	Class tests, assignments	Exercises of Chapter from CBSE Book/M.L Bhargava	Problem-solving sessions, real-world application exercises	Computer Science (use modulo 2 (binary) arithmetic to detect and correct bit errors)	Analytical Skills, Application of Knowledge
May 1-15 (11) 16-25 (8)	UNIT-1 NUMBERS, QUANTIFICATION AND NUMERICAL APPLICATIONS Alligation and Mixture Numerical Problems: Boats and Streams (upstream and downstream)	 Understands the rule of alligation to produce a mixture at a given price Apply rule of allegation Distinguish between upstream and downstream 	Project on any one topic from the List of Projects suggested by CBSE - HHW	Exercises of Chapter from CBSE Book/M.L Bhargava	Inquiry-based learning, Real-life examples	Chemistry (Mixtures)	Logical Thinking, Analytical Reasoning

July 1-15 (12)	UNIT-1 NUMBERS, QUANTIFICATION AND NUMERICAL APPLICATIONS Numerical Problems: Pipes and Cisterns Races and Games, Numerical Inequalities	 Determine the time taken by two or more pipes to fill or empty the tank Compare the performance of two players w.r.t. time, distance 	Class tests, assignments	Exercises of Chapter from CBSE Book/M.L Bhargava	Inquiry-based learning, Real-life examples	Physics (Relative Speed)	Logical Thinking, Analytical Reasoning
16-31 (14)	UNIT - 3 CALCULUS Higher Order Derivatives, Application of Derivatives, Marginal Cost and Marginal Revenue using derivatives Increasing /Decreasing Functions, Maxima and Minima	 Determines derivatives up to second order Determines the rate of change of various quantities Finds marginal cost and marginal revenue Solves applied problems related to optimization of cost, revenue and profit only. 	Plot the graphs of functions on excel and study the graph to find out the point of maxima/minima	Exercises of Chapter from CBSE Book/M.L Bhargava	Decision Making, Application based Learning Problem-solving, Hands-on Graphing	Economics (Marginal Cost & Revenue)	Application-based Learning SDG 12: Responsible Consumption & Production
August 1-15 (11) 16-31 (12)	UNIT- 3 CALCULUS Integration and its Applications Integration, Indefinite Integrals as family of curves UNIT- 3 CALCULUS Definite Integrals as area under the curve Application of Integration	 Understands and determines indefinite integral as anti-derivative Evaluates indefinite integrals by different methods Understands fundamental theorem of Integral calculus and evaluates the definite integral Applies the definite integral to find consumer & producer surplus 	Class tests, assignments	Exercises of Chapter from CBSE Book/M.L Bhargava	application of integration in finding areas, computational tools	Economics (consumer and producer surplus)	Problem Solving, Computational Skills, Analytical Skills SDG 12: Responsible Consumption & Production
	Differential Equations Differential Equations, Formation and Solution of differential Equations	 Recognizes a differential equation Formulates and solves differential equation 	Class tests, homework, problem solving.	Exercises of Chapter from CBSE Book/M.L Bhargava	Problem solving sessions	Economics (Population growth)	Problem Solving, Computational Skills SDG 13: Climate Action

September 1-15(11)	UNIT - 8 LINEAR PROGRAMMING Introduction and related terminology, Mathematical formulation of Linear Programming Problem, Different types of Linear Programming Problems Graphical method of solution for problems in two variables Feasible and Infeasible Regions, Feasible and Infeasible solutions, optimal feasible solution	 Formulates Linear Programming Problem upto 3 non-trivial constraints Draws the Graph for a system of linear inequalities involving two variables and to find its solution graphically 	Class tests, homework worksheets	Exercises of Chapter from CBSE Book/M.L Bhargava	Graphical representations, real- world examples of optimization problems	Economics (resource allocation), Business Studies (Optimization Problems)	Problem Solving, Modeling, Analytical Skills SDG 12: Responsible Consumption & Production
16-30 (12)		F	IALF YEARLY EXA	MINATIONS			
October 1-15 (8)	UNIT- 4 PROBABILITY DISTRIBUTIONS Probability Distribution, Mathematical Expectation Variance UNIT- 4 PROBABILITY DISTRIBUTIONS Binomial Distribution, Poison Distribution, Normal Distribution	 Understands the concept of Random Variables and its Probability Distributions Finds probability distribution of discrete random variable Applies binomial, Poisson, and normal distributions to solve problems Calculates mathematical expectation and variance for discrete random variables. 	Class tests, assignments, practical problems	Exercises of Chapter from CBSE Book/M.L Bhargava	Problem-solving sessions, real-world application examples	Biology (Genetics Probability), Business Studies (Risk Analysis) Finance (stock market analysis)	Data Interpretation, Analytical Thinking, Statistical Reasoning, Data Analysis
16-31 (10)	UNIT – 6 TIME BASED DATA Time Series, Components of Time Series, Time Series analysis for univariate data Secular Trend, Methods of Measuring trend	 Defines time series and identifies its components (trend, seasonality, etc.) Demonstrates the techniques of finding trend by different methods 	Collect data from newspapers on traffic, sports activities and market trends and use excel to study future trends	Exercises of Chapter from CBSE Book/M.L Bhargava	Experiential Learning, Graphical representation of time series data, analysis of real-world time series	Economics (Inflation), Geography (Demographic Studies), Environmental Science (climate change analysis), Stock Market Analysis	Data Analysis, Forecasting, Data Management, Research Skills SDG 9: Industry, Innovation & Infrastructure

November 1-15 (11)	UNIT - 5 INFERENTIAL STATISTICS Population and Sample, Parameter and Statistics and Statistical Interferences t-Test (one sample t-test)	 Understands the concepts of population, sample, parameter, and statistic; Explains the importance of sampling distribution. 	Collect the data on weather, price, inflation, and pollution analyze the data and make meaningful inferences	Exercises of Chapter from CBSE Book/M.L Bhargava	Research-Based Learning	Social Sciences (research methodology)	Data Interpretation, Statistical Literacy SDG 4: Quality Education
16-30 (12)	UNIT - 7 FINANCIAL MATHEMATICS Perpetuity, Sinking Funds, Valuation of Bonds, Calculation of EMI Calculation of Returns, Compound Annual Growth Rate, Linear method of Depreciation, Valuation of Bonds	 Understands the concepts of perpetuity and sinking funds; Calculate related financial values. Calculates EMI, returns, rates of return; Apply depreciation methods. Defines the concept of valuation of bond and related terms. Calculates value of bond using present value approach 	Stock Market data sheet on excel	Exercises of Chapter from CBSE Book/M.L Bhargava	Problem-solving sessions, financial calculations of real- life financial scenarios, case studies of financial planning	Commerce (Banking & Finance)	Entrepreneurship, Financial Literacy, Problem Solving, Analytical Skills SDG 8: Work and Economic Growth
December 1-15 (12) 16-31 (13)		•	Pre-Board Exam	ination	-		

	TERMWISE SYLLABUS
UT 1 (July)	UNIT-1 NUMBERS, QUANTIFICATION AND NUMERICAL APPLICATIONS, UNIT-2 ALGEBRA
Half Yearly/ Term 1 (September)	UNIT- 1, 2, 3,8 (NUMBERS, QUANTIFICATION AND NUMERICAL APPLICATIONS, ALGEBRA, CALCULUS, LINEAR PROGRAMMING)
Pre-Board (December)	Complete Syllabus