



**Curriculum**  
**Subject- Applied Mathematics (241)**  
**Class – XII**  
**Session – 2026-27**

Month	April	May	June	July
<b>Concepts</b>	<b>Ch.1</b> Numbers & Quantification <b>Ch.2</b> Numerical Applications	<b>Ch.3</b> Matrices and Determinants <b>Ch.4</b> Derivatives and its application	<b>Ch.5</b> Integration and its application <b>Ch.6</b> Differential Equations	<b>Ch.7</b> Probability
<b>Learning Outcomes</b>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>Define and apply modulus of an integer.</li> <li>Define and apply congruence modulo.</li> <li>Describe the rule of alligation to produce a mixture at a given price.</li> <li>Determine the mean price of a mixture.</li> <li>Apply the rule of allegations.</li> <li>Distinguish between upstream and downstream.</li> <li>Express the problem in the form of an equation.</li> <li>Determine the time taken by two or more pipes to fill or empty the tank.</li> <li>Describe the basic concepts of numerical inequalities.</li> <li>Describe and write numerical inequalities.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>Define matrix &amp; Identify different kinds of matrices.</li> <li>Find the size / order of matrices</li> <li>Determine equality of two matrices.</li> <li>Write transpose of given matrix</li> <li>Define symmetric and skew symmetric matrix.</li> <li>Perform operations like addition &amp; subtraction on matrices of the same order.</li> <li>Perform multiplication of two matrices of appropriate order.</li> <li>Perform multiplication of a scalar with matrix.</li> <li>Find the determinant of a square matrix.</li> <li>Use elementary properties of determinants.</li> <li>Define and apply the inverse of a square matrix.</li> <li>Solve the system of simultaneous equations using               <ol style="list-style-type: none"> <li>Cramer's Rule</li> <li>Inverse of coefficient matrix.</li> </ol> </li> <li>Formulate real life problems into a system of simultaneous linear equations and solve it using these methods.</li> <li>Determine second and higher order derivatives.</li> <li>Describe differentiation of parametric functions and implicit functions.</li> <li>Determine the rate of change of various quantities.</li> <li>Describe the gradient of tangent and normal to a curve at a given point.</li> <li>Write the equation of tangents and normal to a curve at a given point.</li> <li>Define marginal cost and marginal revenue.</li> <li>Find marginal cost and marginal revenue.</li> <li>Determine whether a function is increasing or decreasing.</li> <li>Determine the conditions for a function to be increasing or decreasing.</li> <li>Find the point(s) of local maxima and local minima and corresponding local maximum and local minimum values.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>Explain and determine indefinite integrals of simple functions as anti-derivative.</li> <li>Evaluate indefinite integrals of simple algebraic functions by method of:               <ol style="list-style-type: none"> <li>substitution</li> <li>partial fraction</li> <li>by parts</li> </ol> </li> <li>Define a definite integral as the area under the curve.</li> <li>Describe the fundamental theorem of Integral calculus and apply it to evaluate the definite integral.</li> <li>Apply properties of definite integrals to solve the problems.</li> <li>Recognize a differential equation.</li> <li>Find the order and degree of a differential equation.</li> <li>Formulate differential equation.</li> <li>Verify the solution of the differential equation.</li> <li>Solve a simple differential equation.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>Explain the concept of Random Variables and its Probability Distributions.</li> <li>Find probability distribution of discrete random variables.</li> <li>Apply arithmetic mean of frequency distribution to find the expected value of a random variable, Standard deviation and Variance.</li> <li>Identify the Bernoulli Trials and apply Binomial Distribution.</li> <li>Evaluate Mean, Variance and S.D of a binomial distribution.</li> <li>Describe the Conditions of Poisson Distribution.</li> <li>Evaluate the Mean and Variance of Poisson distribution.</li> <li>Describe normal distribution as a Continuous distribution.</li> <li>Evaluate value of Standard normal variate.</li> <li>Area relationship between Mean and Standard Deviation.</li> </ul>

		<ul style="list-style-type: none"> <li>Find the absolute maximum and absolute minimum value of a function.</li> </ul>		
<b>Skills</b>	Logical and Analytical Thinking/Numeracy and Computational/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Personal Development
<b>Activities</b>	<b>Competency-skills based activity/Experiential Learning:</b> Fibonacci sequence: Its history and presence in nature.			<b>Competency-skills based activity/Experiential Learning:</b> Probability and dice roll simulation.
<b>Art Integration</b>	Economics and Management Skills			
<b>Assessment</b>	<ul style="list-style-type: none"> <li>Project work and record</li> <li>Year-end Presentation/ Viva of the Project</li> <li>Main Book: 'Applied Mathematics'</li> </ul>			



Month	August	September	October	November /December
<b>Concepts</b>	<b>Ch.8</b> Financial Mathematics	<b>Ch.9</b> Inferential Statistics  <b>Ch.10</b> Linear programming	<b>Ch.11</b> Time series	<b>Ch.12</b> Logical Reasoning  Revision of complete syllabus with HOTS
<b>Learning Outcomes</b>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>• Explain the concept of perpetuity and sinking funds.</li> <li>• Calculate perpetuity.</li> <li>• Differentiate between sinking fund and saving account.</li> <li>• Explain the concept of EMI.</li> <li>• Calculate EMI using various methods.</li> <li>• Explain the concept of rate of return and nominal rate of return.</li> <li>• Calculate rate of return and nominal rate of return.</li> <li>• Describe the concept of Compound Annual Growth Rate.</li> <li>• Differentiate between Compound Annual Growth Rate and Annual Growth Rate Calculate Compound Annual Growth Rate.</li> <li>• Define the concept of linear method of Depreciation.</li> <li>• Interpret cost, residual value and useful life of an asset from the given information.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>• Differentiate between population and sample.</li> <li>• Differentiate between a representative and unrepresentative sample.</li> <li>• Draw a representative sample using simple random sampling.</li> <li>• Draw a representative sample using systematic and random sampling.</li> <li>• Explain the relation between Parameter and Statistic.</li> <li>• Explain the limitation of Statistics to generalize the estimation for population.</li> <li>• Interpret the concept of Statistical Significance and Statistical Inferences.</li> <li>• Explain the relation between Population-Sampling Distribution-Sample.</li> <li>• Differentiate between Null and Alternate hypothesis.</li> <li>• Define and calculate the degree of freedom.</li> <li>• Test Null hypothesis and make inferences using t-test statistics for one group / two independent groups.</li> <li>• Familiarize with terms related to Linear Programming Problem.</li> <li>• Identify and formulate different types of LPP.</li> <li>• Identify feasible, infeasible, bounded and unbounded regions.</li> <li>• Describe feasible and infeasible solutions.</li> <li>• Find optimal feasible solutions.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>• Components of time series.</li> <li>• Solve practical problems based on statistical data and Interpret the result.</li> <li>• Demonstrate the techniques of finding trends by different methods.</li> </ul>	<p><b>Students will be able to</b></p> <ul style="list-style-type: none"> <li>• Solve logical problems involving odd man out, syllogism, blood relation and coding decoding.</li> </ul>
<b>Skills</b>	Logical and Analytical Thinking/Numeracy and Computational/Academic And Life Skills/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Academic And Life Skills/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Academic And Life Skills/Personal Development	Logical and Analytical Thinking/Numeracy and Computational/Personal Development

<b>Activity</b>	<b>Competency-skills based activity/Experiential Learning :</b> Logarithms for financial calculations such as interest, present value, future value, profit/loss etc. with large values).	<b>Competency-skills based activity/Experiential Learning:</b> Predicting stock market crash.	<b>Competency-skills based activity/Experiential Learning:</b> Weather prediction (prediction of monsoon from past data).	
<b>Art Integration</b>	Economics and Management Skills			
<b>Assessment</b>	<ul style="list-style-type: none"> <li>● Project work and record</li> <li>● Year-end Presentation/ Viva of the Project</li> <li>● Main Book: 'Applied Mathematics'</li> </ul>			