

<b>Program: B.Com.(Economics)</b>				<b>Semester: I</b>	
<b>Course: Mathematical and Statistical Techniques I (OE)</b>				<b>Course Code:</b>	
<b>AY:2024-25</b>					
<b>Teaching Scheme</b>				<b>Evaluation Scheme</b>	
<b>Lecture (per week) 60 mins</b>	<b>Practical (lectures per week) 60 mins</b>	<b>Tutorial (Hours per week)</b>	<b>Credit</b>	<b>Continuous Assessment (CA)</b>	<b>Semester End Examinations (SEE)</b>
2	-	-	2	40%	60%
<b>Learning Objectives:</b>					
<ul style="list-style-type: none"> <li>• To equip students with basic Mathematical and Statistical tools.</li> <li>• To make the students aware of applications of Mathematical and Statistical Techniques in Business &amp; Finance.</li> </ul>					
<b>Course Outcomes:</b>					
After completion of the course, learners would be able to:					
<b>CO1:</b> Apply knowledge of Shares and Mutual funds to make wise investment.					
<b>CO2:</b> Use the knowledge of derivatives, in Economics.					
<b>CO3:</b> Calculate averages and use it appropriately in real life problems					
<b>CO4:</b> Understand and appreciate the practical relevance of various basic statistical tools in the Field of finance and economics.					
<b>Outline of Syllabus: (per session plan)</b>					
<b>Module</b>	<b>Description</b>				<b>No of Hours</b>
1	<b>Functions and Derivatives</b>				8
2	<b>Shares and Mutual Funds</b>				7
3	<b>Measures of Central Tendency</b>				8
4	<b>Measures of Dispersion</b>				7
	<b>Total</b>				<b>30</b>

Unit	Topic	No. of Hours/Credits
<b>Module 1</b>	<b>Functions and Derivatives</b>	<b>8</b>
	a) Concept of real functions: constant function, linear function, $x^n$ , $e^x$ , $a^x$ , $\log x$ , Demand, Supply, Total Revenue, Average Revenue, Total cost, Average cost and Profit function. Equilibrium Point, Break-even point. b) Derivative of functions: i. Derivative as rate measure, Derivative of $x^n$ , $e^x$ , $a^x$ , $\log x$ . ii. Rules of derivatives: Scalar multiplication, sum, difference, product, quotient (Statements only), Simple problems, iii. Applications: Marginal Cost, Marginal Revenue, Elasticity of Demand, finding derivatives of functions in Economics and Commerce.	
<b>Module 2</b>	<b>Shares and Mutual Funds</b>	<b>7</b>
	a) Shares: Concept of share face value, market value, dividend, equity shares, preferential shares, bonus shares. b) Mutual Funds: Simple problems on calculation of Net income after considering entry load, dividend, change in Net Asset Value (N.A.V.) and exit load. Averaging of price under the Systematic Investment Plan (S.I.P.)	
<b>Module 3</b>	<b>Measures of Central Tendency</b>	<b>8</b>
	Definition of Average, Types of Averages: Arithmetic Mean, Combined and Weighted arithmetic mean, median, and Mode for raw data, Ungrouped frequency distribution, grouped frequency distribution. Quartiles, Deciles and Percentiles	
<b>Module 4</b>	<b>Measures of Dispersion</b>	<b>7</b>
	Concept and idea of dispersion, Various measures of dispersion such as Range, Quartile deviation, Mean Deviation from mean, Standard Deviation and corresponding coefficients, combined standard deviation	