

Program: B.Com.(Economics and Analytics)				Semester: II	
Course: Mathematical and Statistical Techniques II (OE)				Course Code:	
AY:2024-25					
Teaching Scheme				Evaluation Scheme	
Lecture (per week) 60 mins	Practical (lectures per week) 60 mins	Tutorial (Hours per week)	Credit	Continuous Assessment (CA)	Semester End Examinations (SEE)
2	-	-	2	40%	60%
Learning Objectives:					
<ul style="list-style-type: none"> • To equip students with basic Mathematical and Statistical tools. • To make the students aware of applications of Mathematical and Statistical Techniques in Business & Finance. 					
Course Outcomes:					
After completion of the course, learners would be able to:					
CO1: Define the concepts of probability and conditional probability and random variables and use these concepts in other fields.					
CO2: Demonstrate the basic concepts of simple and compound interest					
CO3: To apply Compound Interest and Annuities in solving real life problems					
CO4: Apply the analytical techniques to solve annuity problems					
CO5: Learn and apply probability distributions					
CO6: Apply decision theory to select best action.					
Outline of Syllabus: (per session plan)					
Module	Description				No of Hours
1	Interest and Annuity				8
2	Probability Distribution, Binomial Distribution				7
3	Poisson, Normal Distribution				8
4	Decision Theory				7
	Total				30

Unit	Topic	No. of Hours/Credits
Module 1	Interest and Annuity	8
	Simple Interest, Compound Interest; Annuity Immediate and its Present value, Future value. Equated Monthly Installments (EMI) using reducing balance method & amortization of loans	
Module 2	Probability Distribution, Binomial Distribution	7
	Probability distribution of a discrete random variable; Expectation and Variance of random variable, simple examples on probability distributions, Discrete probability distribution, Binomial Probability distribution (Properties and applications only, no derivations are expected)	
Module 3	Poisson, Normal Distribution	8
	Poisson Distribution, Continuous Probability distribution: Normal Distribution. (Properties and applications only, no derivations are expected)	
Module 4	Decision Theory	7
	a) Basics of Decision Theory: Decision making situation, Decision maker, Courses of Action, States of Nature, Pay-off and Pay-off matrix; Decision making under uncertainty, Maximin, Maximax, Minimax regret and Laplace criteria. b) Decision making under Risk: Expected Monetary Value (EMV); Decision Tree; Expected Opportunity Loss (EOL),	