

Program: Bachelor of Management Studies (B.M.S.) (2024-25)				Semester: II	
Course: Mathematical and Statistical Techniques II (OE)				Course Code:	
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	20	30
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: Demonstrate the basic concepts of simple and compound interest and apply Compound Interest and Annuities in solving real life problems					
CO2: Define the concepts of probability and random variables and use these concepts in other fields.					
CO3: Apply Binomial and Poisson probability distributions					
CO4: Use Normal distribution to solve problems and to apply decision theory to select best action.					
Outline of Syllabus: (per session plan)					
Module	Description				No of Hours
1	Interest and Annuity				6
2	Elementary Probability and Probability Distribution				9
3	Binomial Distribution and Poisson distribution				6
4	Normal Distribution and Decision Theory				9
	Total				30

Unit	Topic	No. of Hours/Credits
Module 1	Interest and Annuity	6
	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	Elementary Probability theory And Probability Distribution,	9
	Concept of random experiment/trial and possible outcomes; Sample Space and Discrete Sample Space; Events their types, Algebra of Events; Mutually Exclusive and Exhaustive Events, Complementary events; Classical definition of Probability, Addition theorem (without proof), Simple Examples, independent events, conditional probability Probability distribution of a discrete random variable; Expectation and Variance of random variable, simple examples on probability distributions,	
Module 3	Binomial Distribution and Poisson Distribution	6
	Discrete probability distribution, Binomial Probability distribution (Properties and applications only, no derivations are expected), Poisson Distribution	
Module 4	Normal Distribution and Decision Theory	9
	Continuous Probability distribution: Normal Distribution. (Properties and applications only, no derivations are expected) 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),	

Reference books:

1. Business Mathematics by Dr. S. R. Arora and Dr. Kavita Gupta, Taxmann publication, 2021 re-print.
2. Basic statistics for business & economics by Douglasc A., Lind William, G. Marchal, Samuel A. Wathen 10th edition year 2022.

Prepared by:

Approved by:

Signature
Head of Department Management

Signature
(Principal)

Evaluation Pattern

Total Marks allotted: 50 marks

a) Details of Continuous Assessment (CA)

40% of the total marks per course.

Marks allotted for CA is **20 marks**.

Breakup of the 20 Marks is as follows:

Continuous Assessment	Details	Marks
Component 1 (CA-1)	Internal class test (online or offline) MCQs/Explain the concepts/Answer in brief/Case study or application-based questions.	10 marks
Component 2 (CA-2)	Presentations/Project Work/ Viva-Voce/ Book Review/ Field visit & its presentations/ Assignments/ Group Discussions Etc.	10 marks

b) Semester End Exam

QUESTION PAPER FORMAT

All Questions are compulsory

Question Number	Description	Marks	Total Marks
1	on module 1 and 2 Attempt any 3 out of 4 (each question of 5 marks)	5 × 3	15
2	on module 3 and 4 Attempt any 3 out of 4 (each question of 5 marks)	5 × 3	15
Total Marks			30

Signature

(Program Chairperson & Vice Principal)

Signature

(Principal)