SES'S L. S. RAHEJA COLLEGE OF ARTS AND COMMERCE (AUTONOMOUS)

Syllabus of Business Mathematics under NEP 2020 vertical (OE) with effect from 2024-25

Programme: Bachelor of Commerce (Management Studies)

Department of Mathematics, Statistics and Computer

HoD/Sr. Person of the Department: Dr. Seema Ukidve

Date of approval by the BoS: 24/04/2024

Approved by the Academic Council: 29/04/2024

Ratified by the Governing Body: 06/05/2024

Program: Bachelor of Commerce (Management Studies)				Semester: II	
Course: Business Mathematics				Code: UGBMSIIOE124	
Academic Year: 2024-2025 Batch: 2024-2027					
Teaching Scheme				Evaluation Scheme	
Lectures	Practicals	Tutorials	Credits	Internal Continuous Assessment (ICA) (weightage)	Term End Examination (TEE) (weightage)
30	Nil	Nil	2	20	30
Internal Component					
Class Test (Duration 30 Mins)		Presentation		Class Participation	
10		5		5	

Learning Objectives:
- To equip the student with a broad-based knowledge of mathematics in business.
- To understand the concepts of basic financial calculations as well as applications of profit and loss in business.

Course Outcomes:

- Interpret Financial Mathematical concepts such as Annuities, Sinking funds, Loans EMI etc.

- Adapt and use the concept of determinant and Matrices.

Pedagogy:
- Business Applications of mathematical techniques studied would be discussed in class. Short case studies would either be discussed in class or given to students as assignments.

Module	Module Content	Module Wise Pedagogy Used	Module Wise Duration
I	**Elementary Financial Mathematics Simple and Compound Interest** Interest compounded once a year, continuous, nominal, and effective rate of interest **Annuity**-Present and future value, sinking funds. Appreciation & Depreciation of Assets Equated Monthly Installments (EMI) – Flat interest rate and reducing balance method **Permutation and combination:** Simple problem to be solved with calculator only **Functions:** **Algebraic Functions:** Analysis of polynomial and rational functions commonly used in various applications. **Functions in Business and Economics:** Focus on functions used to determine breakeven and equilibrium points. **Curve Sketching:** Techniques for graphically representing functions, including determining intervals of increase and decrease, concavity, and finding critical points.	Classroom sessions with computational thinking.	5+5+5
II	**Matrices:** Some important definitions and some important results, matrix operation (addition, subtraction) multiplication (scalar and matrix), transpose of a matrix **Determinants:** of a matrix of order two or three, properties and results of determinants. Solving the system of linear equation using Cramer's rule Inverse of a matrix using ad joint of a matrix and matrix inversion method Case study: Input-Output Analysis	Classroom sessions with computational thinking.	7+8

Reference Books:

- Business Mathematics, D. C. Sancheti and V. K. Kapoor, Sultan Chand & Sons, 2006,
- Mathematics for Business Economics: J. D. Gupta, P. K. Gupta and Man Mohan, Tata Mc-Graw Hill Publishing Co. Ltd., 1987
- *M. P. Chaudhary, Advanced Applied Mathematics*, Piyush Book Publication Pvt. Ltd. New Delhi, India, **2003**.ISBN:81-86548-64-5.
- Ramachandra *Rao*, P Bhimasankaram. Edition, 2. *Publisher*, *Hindustan Book Agency*, 2000. ISBN, 9386279010, 9789386279019. Length, 428 pages.
- A Textbook of Matrices, S. Chand Publishing, 2010, ISBN 8121925967, 9788121925969
- Introduction to Probability and Statistics for Engineers and Scientists by Sheldon M. Ross
- Introduction to Operations Research by Frederick S. Hillier, Gerald J. Lieberman and Bodhibrata Nag.

QUESTION PAPER PATTERN

Details of Internal Continuous Assessment (ICA)
Internal Marks: 20
    • 1 Internal Test of 10 marks will be conducted.
    • 1 Assignment of 10 Marks will be given.

Term End Examination Question Paper Pattern Total Marks: 30 Q1 Answer any **three** out of the following Four questions (based on Module I)   5*3=15 Q2 Answer any **three** out of the following Four questions (Based on Module II)   5*3=15