

## Lesson Plan

### **B. Com 1<sup>st</sup> Semester 2024-2025**

Business Mathematics-I( B23-COM-104)

Course Type: CC-M1

#### **Contents of the Course**

<b>Unit</b>	<b>Topics</b>	<b>Contact Hours</b>
I.	Set Theory: Representation of sets, equivalent sets, power set, complement of a set. Venn Diagrams: Union and intersection of sets, De-Morgan's laws; Logical statements and truth tables.	8
II.	Logarithms: Laws of operation, log tables; Arithmetic and geometric progression.	7
III.	Matrices and Determinants: Definition of a matrix, order, equality, types of matrices; Operations on matrices: Addition, multiplication and multiplication with a scalar and their simple properties. Determinant of a square matrix (upto 3x 3 order): Properties of determinants, minors, co-factors and applications of determinants in finding the area of triangle, adjoint and inverse of a square matrix, solutions of a system of linear equations by examples.	8
IV.	Compound interest and annuities: Different types of interest rates, types of annuities, present value and amount of an annuity (including the case of continuous compounding), valuation of simple loans and debentures, problems related to sinking funds.	7

#### **Course Learning Outcomes (CLO)**

After completing this course, the learner will be able to:

1. understand set theory, logical statements and truth tables.
2. learn the logarithms and arithmetic and geometric progressions and their applications.
3. familiarize with the concepts of matrices and determinants. Learn to solve system of simultaneous linear equations.
4. have the conceptual knowledge of Compound interest, annuity, loan, debenture and sinking funds and attain skills to use these concepts in daily life.

	Theory	Tutorial	Total
Credits	01	01	02
Internal Assessment Marks	15	-	15
End Term Exam Marks	35	-	35
Exam Time	3 Hrs.	-	3 Hrs.

### **Instructions for Students**

The examiner will set 9 questions in all covering the course learning outcomes (CLOs). Question No. 1 will be compulsory and comprises of seven parts of 1 marks each. Question Nos. 2 to 9 will carry 7 marks each, having two questions from each unit. About 40% questions should be numerical type.

2. Students are required to attempt 5 questions in all, selecting one question from each unit and the compulsory question.

### **Recommended Books/E-Resources/LMS:**

- Allen R.G.D., Basic Mathematics, Macmillan, New Delhi
- D.C. Sancheti and V.K. Kapoor, Business Mathematics, Sultan Chand and Sons.
- E. Don and J. Lerner (2009). Schaum outlines of Basic Business Mathematics, McGraw Hill.
- Holden, Mathematics for Business and Economics, Macmillan India, New Delhi.
- S.C. Gupta and V.K. Kapoor, Fundamentals of Mathematical Statistics, S. Chand & Sons, Delhi.

### **Tentative Lesson Schedule**

Months	Topics	Contact Hours
July 2024	Set Theory: Representation of sets, equivalent sets, power set, complement of a set.	5 Hours
August 2024	Venn Diagrams: Union and intersection of sets, De-Morgan's laws; Logical statements and truth tables. Logarithms: Laws of operation, log tables; Arithmetic and geometric progression.	7 Hours

September 2024	Matrices and Determinants: Definition of a matrix, order, equality, types of matrices; Operations on matrices: Addition, multiplication and multiplication with a scalar and their simple properties.	6 Hours
October 2024	Determinant of a square matrix (upto $3 \times 3$ order): Properties of determinants, minors, co-factors and applications of determinants in finding the area of triangle, adjoint and inverse of a square matrix, solutions of a system of linear equations by examples.	7 Hours
November 2024	Compound interest and annuities: Different types of interest rates, types of annuities, present value and amount of an annuity (including the case of continuous compounding), valuation of simple loans and debentures, problems related to sinking funds.	5 Hours

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