

Government PG College, Ambala Cantt

Course File(Session 2023-24)

Name of Assistant Professor: Ms. Neha Rani

Class: B.Com. General I Year/1st semester

Section: C

Course Code and Name: B23-COM-104/Business Mathematics I

As per NEP-2020

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Session 2023-2024			
Part-A Introduction			
Subject	Commerce		
Semester	I		
Name of the Course	Business Mathematics-1		
Course Code	B23-COM-104		
Course Type: (CC/MCC/MDC/ CCM/ DSEC/VOC/DSE/PC/AEC/ VAC	CC-M1		
Pre-requisite for the course (if any)	NIL		
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. 5*.		
Credits	Theory	Tutorial	Total
	01	01	02
Internal Assessment Marks	15	-	15
End Term Exam Marks	35	-	35
Exam Time	3 Hrs.	-	3 Hrs.
Part-B Contents of the Course			

Instructions for Paper Setters

1. 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.

Unit	Topics	Contact Hours
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 3x3 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
V*		

Suggested Evaluation Methods**Internal Assessment:****Theory**

Class Participation Seminar/Presentation/Assignment/Quiz/Class Test etc.

Mid Term Exam

End Term Exam**Part-C Learning Resources****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, McGrawHill.
- 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.

* Applicable for courses having practical component.

Lesson Plan

From August 2023 to November 2023

Week No	Scheduled Dates	Topics to be covered
1.	24-29 July	Matrices: Definition of a matrix, order, equality, types of matrices
2.	31-5 August	Operations on matrices: Addition, Subtraction and their simple properties
3.	7-12 August	Operations on matrices: multiplication and multiplication with a scalar and their simple properties
4.	14-19 August	Determinant of a square matrix (upto 3x3 order): Properties of determinants
5.	21-26 August	Minors, co-factors and applications of determinants in finding the area of triangle
6.	28-02 September	Adjoint and inverse of a square matrix
7.	4-9 September	Solutions of a system of linear equations by examples
8.	11-16 September	Arithmetic Progression
9.	18-23 September	Geometric progression
10.	25-30 September	Logarithms: Laws of operation, log tables; Set Theory: Representation of sets, equivalent sets
11.	2-7 October	Power set, Complement of a set. Venn Diagrams: Union and intersection of sets, De-Morgan's laws; Logical statements and truth tables.
12.	9-14 October	Types of annuities
13.	16-21 October	Compound interest: Different types of interest rates
14.	23-28 October	present value and amount of an annuity (including the case of continuous compounding)
15.	30-04 November	valuation of simple loans and debentures
16.	06-09 November	Problems related to sinking funds
17.	10-16 November	Diwali Vacations
18.	17--24 November	Final Test, Assignments and REVISION of Contents
Exams Starts		