February 2025

symmetric, Skew symmetric, Hermitian and skew Hermitian matrices, Elementary operations on matrices, Rank of a matrix, Inverse of a matrix, Linear dependence and independence of rows and columns of matrix, Row Rank and column rank of a matrix, Eigenvalues, Eigen vectors and Characteristic equation of a matrix, Minimal polynomial of a matrix, Cayley- Hamilton theorem.

March 2025

Applications of matrices to a system of linear (both homogeneous and non Homogeneous) equations. Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.

April 2025

Relation between the roots and coefficients of a general polynomial equation in one variable, Solutions of polynomial equations having conditions on roots, Common roots and multiple roots, Transformation of equations, Nature of the roots of an equation, Descarte's rule of signs.

May 2025

Solutions of cubic equations (Cardon's method), Divisibility, greatest common divisor (gcd), least common multiple (lcm), Prime numbers, Fundamental theorem of Arithmetic.

Course Learning Outcomes (CLOs):

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

1. Understand types of matrices, operations, rank, inverse, eigen values, eigenvectors, and Cayley-Hamilton theorem.

2. Solve linear equations with matrices, understand consistency, and also understand bilinear and quadratic forms.

3. Analyze polynomial equations, solve with root conditions, and apply Descartes' rule of signs.

4. Solve cubic equations, understand divisibility, gcd, lcm, prime numbers, and the fundamental theorem of arithmetic.

LESSON PLAN OF MATHEMATICS DEPT.
Name Of College: Govt College for Girls Sector- 52, Gurugram,   Academic Session :2024-25   Semester: Even, (Feb 2025 to May 2025)   Name of Teacher: Dr. Kusum Saharan   Subject: Essential Mathematics (MDC)   Class: B.Com/B.CA. IInd SEMESTER

February 2025

Sets and their representations, types of sets, subsets, union and intersection of sets, difference of two sets, complement of a set, Venn-diagram, De-Morgan's laws and their applications.

March 2025

Functions and its graphical Representation

April 2025

The concept of differentiation, Differentiation of simple functions, second order derivative and its Application.

May 2025

Integration of simple algebraic and trigonometric functions

Course Learning Outcomes (CLOs):

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

l. Gain the knowledge of set theory, types of sets and operations on sets.

2. Understand the concept of functions with graphical representation.

3. Find derivatives of simple functions and derive its application.

 4. Evaluate integral of simple algebraic and trigonometric functions.

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<tr><td colspan="1">LESSON PLAN OF MATHEMATICS DEPT.</td></tr>
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LESSON PLAN OF MATHEMATICS DEPT.
Name Of College: Govt College for Girls Sector- 52, Gurugram,   **Academic Session :2024-25**   **Semester: Even, (Jan 2025 to April 2025)**   **Name of Teacher: Dr. Kusum Saharan/ Dr. Yogesh Kumari**   **Subject: Business Statistics**   **Class: B.Com.4th SEMESTER**

January 2025

Index Numbers: Meaning, Types and Uses; Methods of Constructing price and Quantity indices; Tests of adequacy; Chain - base Index Numbers, Base shifting, Splicing and Deflating; Problems in constructing index numbers; Consumer price Index.

February 2025

Analysis of Time Series: Causes of Variations in time series data; Components of a time series.

Decomposition: Additive and Multiplicative models; determination of trend. Moving averages method and method of least squares; Computation of seasonal indices by simple averages, Ratio to trend ,Ratio to moving average and link relative methods.

March 2025

Theory of Probability: Probability as a concept; Approaches to defining probability, Addition and Multiplication laws of probability; Conditional probability, Baye's Theorem.

April 2025

Probability Distribution: Probability Distribution as a concept; Binomial, Poisson and Normal Distribution- Their Properties and Parameters.

Course Learning Outcomes (CLOs):

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

1. Understand the meaning , types and uses of index numbers.

2. Identify and solve problems in constructing index numbers.

3. Determine trends using moving averages and least squares methods.

4.Develop an understanding of probability and Probability Distribution as a concept.