Department of Mathematics
Faculty of Sciences, Jamia Millia Islamia

Multidisciplinary Paper in Mathematics (2024-25) Proposed Course Structure and Syllabus

Semester	Code	Title of the Paper	Credits
III	24MATT201	Matrices & Determinants	3

24MATT201	Matrices & Determinants

Unit-I Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices. Addition, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication. Non-commutativity of multiplication of matrices

Unit-II Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists. Determinant of a square matrix (up to 3×3 matrices), properties of determinants, minors, cofactors and applications of determinants in finding the area of a triangle.

Unit-III Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equation by examples, solving system of linear equations in two or three variables using inverse of a matrix.

Books Recommended

1. V Krishnamurthy, V P Mainra and J L Arora, An introduction to Linear Algebra, Affiliated East- West Press Pvt. Ltd., New Delhi.
2. Seymour Lipschutz and Marc Lars Lipson, Linear Algebra, Schaum's outlines Series, McGraw-Hill.