

MATRIX ALGEBRA

Course No: **MM24002OE**

Total Credits: **02**

Semester: **M.A/M.Sc 2nd Semester**

Total Marks: **50**

Continuous Assessment: **Marks 10, Theory Marks: 40** Time Duration: **1½ Hrs Course**

Course objectives: To enable the student understand the basic concepts of matrices in order to solve real life problems through solution of equations.

Course Outcomes: Course outcomes for a Matrix Algebra course typically focus on developing students' understanding of matrix operations, properties, and applications in various mathematical and scientific contexts.

UNIT - I

Matrices, types, adjoint and inverse of a matrix, partition of a matrix, matrix polynomials, characteristic equation of a matrix, Cayley Hamilton theorem, elementary transformations, rank of a matrix, determination of rank.

UNIT - II

Normal form with examples, solution of equations, homogenous and non- homogeneous equations, linear dependence and independence, orthogonal and unitary matrices and their determination, eigenvalues and eigenvectors and their determination, similarity of matrices with examples.

Books Recommended

1. Franz E. Hohn, Elementary Matrix Algebra, American Publishing company Pvt. Ltd., Dover Publications, 3rd Edition, (2013).
2. Shanti Narayan, A Text Book of Matrices, S. Chand and company Ltd. S. Chand (2020)
3. Rajendra Bhatia , Matrix Analysis, Springer (1996).