EE 514 :APPLIED LINEAR ALGEBRA(3-0-0: 3)

Linear Systems of Equations
Gaussian elimination, matrix algebra, applications of matrix arithmetic Matrix Inverses Determinants, Tensor Product.

Vector Spaces
Definitions and basic concepts, subspaces, linear combinations, subspaces associated with matrices and operators, bases and dimension, linear systems, change of basis and linear operators, standard norm and inner product, applications of norm and inner product, unitary and orthogonal matrices.

Eigen Value Problem
Definitions and basic properties, similarity and diagonalization, applications to discrete dynamical systems, orthogonal diagonalization, singular value decomposition.

Abstract Spaces
Normalized linear spaces, inner product spaces, Gram-Schmidt algorithm, operator norms.

Text Books & References

1. Thomas S Shores, “Applied Linear Algebra”.
2. Gilbert Strang, “Introduction to Linear Algebra”, Wellesley-Cambridge press, South Asian Ed.
3. Datta Kanti B, “Matrix and Linear Algebra”, Prentice Hall of India.
4. Hoffman K, Kunze Ray, “Linear Algebra”, Prentice Hall of India.