

Linear Algebra - Web course

COURSE OUTLINE

Fields F_q , R , C . Vector Spaces over a field, F_n , $F[\lambda]$ =Polynomials in one Variable. Direc Notation, Ket and Bra vector, duality, adjointness, linear transformations, bases, dual bases.

Linear transformations and matrices, equivalence, similarity. Eigenvalues, eigenvectors, diagonalization, Jordan canonical form. Bilinear and sesquilinear forms, inner product, orthonormal bases, orthogonal decomposition, projections. System of equations, generalized inverses.

COURSE DETAIL

Module No.	Course Content	Lectures
1	Fields F_q , R , C . Vector Spaces over a field, F_n , $F[\lambda]$ =Polynomials in one Variable.	2
2	Direc Notations, Ket, bra vector, duality, adjointness, linear transformations, bases, dual bases.	5
3	Linear transformations and matrices, equivalence, similarity.	5
4	Eigenvalues, eigenvectors, diagonalization, Jordan canonical form	10
5	Bilinear and sesquilinear forms, inner product, orthonormal bases, orthogonal decomposition, projections.	10
6	System of equations, generalized inverses.	8

References:

1. Linear Algebra and Group Representations, Ronald Shaw, Academic Press, Volume I-1982.
2. Linear Algebra and Group Representations, Ronald Shaw, Academic Press, Volume II-1983.
3. Linear Algebra, A. R. Rao, Bhima Sankaran, TRIM, 2nd Edition, Hindustan Book Agency, 2000.



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