

Subject Code: 1SC2040102	Subject Title: LINEAR ALGEBRA
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Course Objective:

- To provide students with a good understanding of the concepts and methods of linear algebra, described in detail in the syllabus.
- To connect linear algebra to other fields both within and without mathematics.
- To develop abstract and critical reasoning by studying logical proofs and the axiomatic method as applied to linear algebra.

Teaching scheme (hours) per week		Credit			Theory Marks		Practical Marks		Total
Lecture	Tutorial	Theory	Practical	Total	Uni. Assessment	Cont. Assessment	Uni. Assessment	Cont. Assessment	
4	1	5	-	5	60	40	--	--	100

Subject Contents				
Unit. No	Topic	Total Hours	Weight (%)	
1	Quick review of vector spaces, linear independence and basis, dual space.	18	25	
2	The algebra of linear transformations. Characteristic roots. Matrices.	18	25	
3	Canonical forms: triangular forms, Canonical forms of a Nilpotent linear Transformation. Decomposition of a finite dimensional vector space: Jordan forms.	18	25	
4	Trace and transpose. Determinants. Classification of quadrics.	18	25	

Course Outcome:

On successful completion of the course, students should be able to

- Students will be able to apply the concepts and methods described in the syllabus, they will be able to solve problems using linear algebra, they will know a number of applications of linear algebra, and they will be able to follow complex logical arguments and develop modest logical arguments.

List of References:

- Herstein, I. N., Topics in algebra, Wiley Eastern Ltd., New Delhi, 1975.
- Kumaresan, S., Linear Algebra: A Geometric Approach, Prentice Hall of India, 2000.
- Simmons G. F., Introduction to Topology and Modern Analysis, McGraw-Hill Co., Tokyo, 1963.
- Helson, H., Linear Algebra, (Second Edition), Hindustan Book Agency, TRIM-4, 1994.
- Kwak J. H., Hong S., Linear Algebra, (Second edition), Birkhauser.