DEPARTMENT OF MATHEMATICS

Semester : II **Integrated M.Sc. Mathematics** **Academic Year : 2017-18**

Subject : 060090206 CC4 linear Albegra

Teaching Schedule

Course Objectives: To provide framework to deal with analytical and geometrical problems. To apply the concepts and methods in imagination of dimension, data transformation, Image processing, and various fields of Applied Science.

Unit	Sub Unit	No. of Lect.(s)	Topics	Reference Chapter/ Additional Reading	Teaching Methodology to be used
Unit 1: Vector Spaces					**[18]**
1	1.1	3	Real vector spaces	Ch# 5 Elementary Linear Algebra H. Anton	Chalk& Talk
	1.2	3	Subspaces		
	1.3	3	Linear independence		
	1.4	3	Basis and dimension		
	1.5	3	Row space, Column space and null space		
	1.6	3	Rank and nullity		
Unit 2: Linear Transformations					**[20]**
2	2.1	4	General linear transformations	Ch# 8 Elementary Linear Algebra H. Anton	Chalk & Talk
	2.2	3	Kernel and range		
	2.3	4	Inverse linear transformations		
	2.4	3	Matrices of general linear transformations		
	2.5	3	Similarity		
	2.6	3	Isomorphism		
Unit 3: Eigen values and Eigen vectors					**[12]**
3	3.1	6	Eigen values and Eigenvectors	Ch# 7 Elementary Linear Algebra H. Anton	Chalk & Talk
	3.2	3	Diagonalization		
	3.3	3	Orthogonal diagonalization		
Unit 4: Conformal Mapping					**[15]**
4	4.1	3	Inner products	Ch# 6 Elementary Linear Algebra H. Anton	Chalk & Talk
	4.2	3	Angle and orthogonality in Inner product spaces		
	4.3	3	Orthonormal bases: Gram-Schmidt process, QR-decomposition		
	4.4	2	Best approximation: least square		
	4.5	2	Change of basis		
	4.6	2	Orthogonal matrices		

Text book:

1. Howard Anton and Charis Rorres – "Elementary Linear Algebra- Applications version" 9th Edition, Wiley India Edition.

Reference books:

1. David C. Lay - "Linear Algebra and its Applications", Pearson Education Asia, Indian Reprint, 2007.
2. Gilbert Strang –"Linear Algebra and its Applications", Cengage Learning.