

Course Title:				Linear Algebra				
Course Code:				MTL 3232				
Course Coordinator				Dr. A. K. Das				
Credits				5				
Evaluation Scheme Total 100 Marks								
Quiz (Total 20 Marks)				Assignment/Project (Total 20 marks) (Minimum Two Assignments or one Project)		Mid-Term	Major Examination	Total
Quiz I (5 marks)	Quiz II (5 marks)	Quiz III (5 marks)	Quiz IV (5 marks)	10	10	20 marks) (1 ½ Hour Duration)	(40 marks) (3 Hour Duration)	100 Marks
WEEKS				TOPICS TO BE COVERED				
Week 1				Matrices: Types of matrices, Rank of a matrix, Characteristic polynomial of a matrix.				
Week 2				Eigen values, Eigen vectors. Cayley – Hamilton theorem and its applications, Determinant and its properties.				
Week 3				Vector spaces, Subspaces.				
Week 4				Linear span, Linearly Independent and dependent subsets of a vector space				
Week 5				Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces.				
Week 6				Invariance of the number of elements of bases sets, Dimensions.				
Week 7				Quotient space and its dimension.				
Week 8				Homomorphism and isomorphism of vector spaces.				
Week 9				Linear transformations, Vector space of all the linear transformations.				
Week 10				Algebra of linear transformation on a vector space				
Week 11 (17th -21st March, 2025)				Mid-Term				
2nd May, 2025				Showing of Mid-Term Answer Sheets				
Week 13				Null space and range of linear transformation.				
Week 14				Rank - Nullity theorem and associated topics.				

Week 15	Inverse of a linear transformation on finite dimensional vector space.
Week 16	Matrix representation of linear transformation, Bilinear forms.
Week 17 (5th -9th May, 2025)	Revision Week
Week 18 (13th – 22nd May, 2025)	Major Examinations
29th May, 2025	Showing of Major Exams Answer Sheets

Recommended Books:

1. K. Hoffman and R. Kunje, Linear Algebra, PHI Learning Pvt. ltd, 2012.
2. S. Lipschutz and M.L. Lipson, Schaum's Outline Series, Mc Graw Hill.
3. Shanti Narayan, P.K. Mittal, A Textbook of Matrices, S. Chand Publishing, 2010
4. S.Kumaresan, Linear Algebra:A Geometric Approach, Prentice-Hall of India, 2004

Calendar of Quizzes/Assignment etc. to be provided as per below details and exact dates to be fixed in consultation with other course coordinators to avoid overlap of Quizzes of different courses.

Component	Date
Quiz-I	27th -31st, January 2025
Quiz-II	24th -28th February, 2025
Assignment-I	10th -12th February, 2025
Mid-Term	17-21st March, 2025
Assignment-II/ Project Submission	21st – 24th April, 2025
Quiz-III	7th – 11th April, 2025
Quiz-IV	28th April-2nd, May, 2025
Major Exam	13th – 22nd May, 2025