Tentative Weekly Lectures Schedule: **MT-1004**

Text Book: Elementary Linear Algebra, Howard Anton,12th ed **[CY/AI]FALL 2022**

Week	Contents/Topics	Tools	Exercises/Questions
1	Introduction, System of Linear equations, Elementary row operation		**1.1** (1-20)
2	Solving system of Linear equations: Gaussian Elimination and Gauss Jordan methods Matrix Operations Elementary Matrices, Methods for finding Inverse	A1	**1.2** (1-26) **1.3** (1-20) **1.5** (1-6, 11-18)
3	Invertible Matrices, Diagonal ,triangular, and symmetric matrices, Introduction to linear Transformations		**1.6** (1-20) **1.7** (1-10, 19-28) **1.8** (1-24, 27-41)
4	Application of linear systems ● Network Analysis ● Electrical circuits ● Polynomial interpolation	Q1	**1.10** (1-8,13-16)
5	Determinants by Cofactors expansion Determinants by row reduction , Proprieties of Determinants and Cramer's Rule Computer Graphics		**2.1** (1-32) **2.2** (1-23) **2.3**(1-29,31,35)
6	**Mid 1-Exam**		
7	Real Vector Space, Spanning Sets, Linear Independence,	A2	**4.1** (1-14) **4.3** (1-20) **4.4**(1-21)
8	Coordinates and Bases, Dimensions		**4.5**(1-28) **4.6**(1-20)
9	Bases for row, column, and null spaces, Rank and Nullity	Q2	**4.8**(1-31) **4.9**(1-38)
10	Eigen values and Eigenvectors, Diagonalization	A3	**5.1** (1-16) **5.2** (1-20)
11	**Mid 2 -Exam**		
12	Inner products , Angle and Orthogonality in inner product spaces		**6.1** (1-26) **6.2** (1-12, 17-19)
13	Gram-Schmidt Process, QR-Decomposition.	Q3 A4	**6.3** (1-14, 27-31) (44-49)
14	Orthogonal Matrices Orthogonal Diagonalization,		**7.1** (1-6) **7.2** (1-18)

15	Quadratic Forms Hermitian ,Unitary and Normal Matrices	Q4	**7.3** (1-8 ,17-28) **7.5** (1-18)
16	Revision / Final exam		

Course Coordinators: NU-FAST

1- Assistant Prof. Jamilusmani

2- Associate Prof. Dr.khusro Mian