

PROFORMA FOR MODIFIED COURSE

1.	Title of the Course	Linear Algebra
2.	Course Number	MA2021
3.	Status of the Course	Elective
4.	Structure of Credits	3-0-0-3
5.	Offered To	UG
6.	New Course/Modification to	Modification To MA2021
7.	To be Offered by	Department of Mathematics and Statistics
8.	To take effect from	July 2020
9.	Prerequisite	Nil
10.	Whether approved by the Department	Yes
11.	Course Objective: To introduce fundamental concepts of linear algebra. To find bases for vector spaces. To introduce linear transformations and their relation to matrices. To partition the set of all complex square matrices into similarity classes.	
12.	Course Content: Systems of linear equations, vector spaces, subspaces, linear independence, basis, dimension, linear transformation and their representation by matrices, rank-nullity theorem, eigenvalues, eigenvectors, eigenvalues of special types of matrices, spectral radius, similarity of matrices, basis of eigenvectors, diagonalization, Cayley-Hamilton theorem, inner product spaces, orthonormal sets, Gram-Schmidt process, spectral theorems for real symmetric and normal matrices, Jordan canonical forms, least-squares problems.	
13.	Text book(s): 1. Kreyszig E, <i>Advanced Engineering Mathematics</i> , 10th Edition, Wiley (2015). 2. Strang G, <i>Linear Algebra and Its Applications</i> , 4th Edition, Cengage (2014).	
14.	Reference(s): 1. Artin M, <i>Algebra</i> , 2nd Edition, Pearson (2015). 2. Axler S, <i>Linear Algebra Done Right</i> , 3rd Edition, Springer (2015). 3. Friedberg S H, Spence L E and Insel A J, <i>Elementary Linear Algebra</i> , 2nd Edition, Pearson (2019) 4. Hoffmann K and Kunze R, <i>Linear Algebra</i> , 2nd Edition, Pearson (2015).	