ARSD College, University of Delhi

Model Course Handout/Lesson Plan

Course Name : B.Sc. (Hons.) Computer Science						
Semester	**Course Code**	**Course Title**	**Lecture (L)**	**Tutorial (T)**	**Practical (P)**	**Credit (C)**
I	DSC03	Mathematics for Computing			2	1
Teacher/Instructor(s)		Dr. Parul Jain				
Session		2022-23				

List of Experiments:

Details of the Lab Course		
Session	**Name of Experiment**	**Contact Hours**
1	Create and transform vectors and matrices (the transpose vector (matrix) conjugate transpose of a vector (matrix))	2
2	Generate the matrix into echelon form and find its rank.	2
3	Find cofactors, determinant, adjoint and inverse of a matrix.	2
4	Solve a system of Homogeneous and non-homogeneous equations using Gauss elimination method.	2*2
5	Solve a system of Homogeneous equations using the Gauss Jordan method.	2
6	Generate basis of column space, null space, row space and left null space of a matrix space	2
7	Check the linear dependence of vectors. Generate a linear combination of given vectors of Rn/ matrices of the same size and find the transition matrix of given matrix space.	2
8	Find the orthonormal basis of a given vector space using the Gram-Schmidt orthogonalization process.	2
9	Check the diagonalizable property of matrices and find the corresponding eigenvalue and verify the Cayley- Hamilton theorem.	2*2
10	Application of Linear algebra: Coding and decoding of messages using nonsingular matrices. eg code “Linear Algebra is fun” and then decode it.	2
11	Compute Gradient of a scalar field.	2
12	Compute Divergence of a vector field.	2
13	Compute Curl of a vector field.	2
	Total	**30**

Dr. Parul Jain
Department of Computer Science