

## LESSON PLAN

Subject Name: Linear Algebra and Calculus  
Branch/Semester: CSE- DATA SCIENCE  
Faculty Name : Dr Santhikumar Rajamahanthi

Subject Code : 20BS  
A.Y: 2022-23

Contact Hour (Cumulative)	Unit No	Topic	Teaching Methodology
1	I	Introduction to Matrices	PPT & LM
2	I	Rank by Echelon form& problems	LM & PSM
3	I	Rank by Normal form& problems	LM & PSM
4	I	Concept on consistent/inconsistent & Solutions of Non Homogeneous linear system of equations	LM & PSM
5	I	Solutions of Non Homogeneous linear system of equations	LM & PSM
6	I	Solutions of Homogeneous linear system of equations Gauss Elimination method	LM & PSM
7	I	Solution of system of linear system of equations by Gauss Elimination method	LM & PSM
8	I	Applications- Matrix representation for a Graph and Graphical representation of Matrix	PPT & LM
9	I	Applications- Solutions of Current circuit by Matrices	PPT & LM
10	I	Problems related to above	PPT & LM
11	I	Problems & Revision	PPT & LM
12	II	Introduction & Properties of Eigen value and Eigen vectors- definition	PPT & LM
13	II	Problems on Eigen value and Eigen vectors	LM & PSM
14	II	Problems related to above	PPT & LM
15	II	Problems related to above	PPT & LM
16	II	Diagonalization of Matrices by constructing Modal matrix	LM & PSM
17	II	Properties & Problems	LM & PSM
18	II	Quadratic Forms- Reduction of Quadratic Forms to Canonical Form	LM & PSM
19	II	Problems on Rank-Nature-Index-Signature.	LM & PSM
20	II	Problems on Rank-Nature-Index-Signature.	LM & PSM

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21	II	Problems related to above	PPT & LM	
22	II	Revision	PPT & LM	
23	III	Definition of Integration , Double and triple integrals and concepts	PPT & LM	
24	III	Problems on Double Integration	PSM	
25	III	Concept on Order of Change Integration & Problems	PSM	
26	III	Problems related to above	LM & PSM	
27	III	Double integrals in Polar Co-ordinates	LM	
28	III	Change of Variables in Double Integrals	LM	
29	III	Triple Integrals Problems	LM	
30	III	Change of variables in Triple Integrals-concepts	LM	
31	III	Problems related to above	LM	
32	III	Problems on Cartesian to cylindrical polar	LM & PSM	
33	III	Problems on Cartesian to spherical polar	LM & PSM	
34	III	Problems related to above	LM & PSM	
35	III	Revision	LM & PSM	
36	IV	Definition of Gamma Function & its Properties	LM & PSM	
37	IV	Problems & Properties Gamma Function	PPT & LM	
38	IV	Definition of Beta Functions & Properties	LM & PSM	
39	IV	Problems related to above	PPT & LM	
40	IV	Relation between Beta and Gamma functions	LM	

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41	IV	Problems on Beta and Gamma functions	LM	
42	IV	Problems on Evaluation of improper integrals	LM & PSM	
43	IV	Problems on Evaluation of improper integrals	LM	
44	IV	Problems related to above	LM & PSM	
45	IV	Revision	LM & PSM	
46	V	Introduction - Scalar and vector point functions- Vector differentiation - Gradient & Problems	LM & PSM	
47	V	Problems on Directional derivatives	LM & PSM	
48	V	Definition of Divergence & Problems related to it	LM&PSM	
49	V	Problems related to Divergence	PSM	
50	V	Definition of Curl & Problems related to it	LM & PSM	
51	V	Curl & Problems related to it	PSM	
52	V	Problems Vector identities.	LM & PSM	
53	V	Problems Vector identities.	LM & PSM	
54	V	Problems related to above	LM & PSM	
55	V	Revision	LM & PSM	
56	VI	Introduction to vector Integration- Line Integration	PPT & LM	
57	VI	Surface & Volume integrals & Problems	LM	
58	VI	Statement of Gauss-divergence Theorem and Problems	PSM	
59	VI	Problems on Gauss-divergence Theorem	LM & PSM	
60	VI	Statement of Stokes Theorem and Problems	PSM	

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61	VI	Problems Stokes Theorem	LM & PSM	
62	VI	Statement of Greens Theorem on a Plane and Problems	LM & PSM	
63	VI	Problems Greens Theorem on a Plane	LM & PSM	
64	VI	Problems related to above	LM & PSM	
65	VI	Revision	LM & PSM	

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