

**PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
**Department of Mechanical Engineering**  
**LESSON PLAN**

Name: - Dr. Manju Rani

Subject Name: - Higher Engineering Mathematics

Branch/Semester: -3<sup>rd</sup> Sem.

Subject Code :- BS-204A

Sr. No.	Lecture No.	Description of Topic	Lecture plan date	TARGET OUTCOME
1	L1	<b>Unit 1:</b> Laplace Transformation Introduction to Laplace Transformation	31/08/21	
2	L2	Laplace Transform of Elementary Functions	1/09/21	
3	L3	Basic properties of Laplace Transform	2/09/21	
4	L4	Numerical on Laplace Transform	6/09/21	
5	L5	Laplace transform of periodic function	7/09/21	
6	L6	Finding inverse Laplace transform by different methods	8/09/21	<b>CO1</b>
7	L7	Numerical on finding inverse Laplace transform	9/09/21	
8	L8	Convolution theorem	13/09/21	
9	L9	Numerical on Convolution theorem	14/09/21	
10	L10	Solve ODEs by Laplace Transform method.	15/09/21	
11	L11	Numerical on solving ODEs by Laplace Transform method.	16/09/21	
12	<b>Test of Unit 1</b>		20/09/21	
13	L12	<b>Unit: 2</b> Partial Differential Equations: Basics of Partial Differential Equations	21/09/21	

14	L13	Formation of Partial Differential Equations	22/09/21	
15	L14	Numerical on Formation of Partial Differential Equations	23/09/21	
16	L15	Solutions of first order linear and non-linear PDEs	27/09/21	<b>CO2</b>
17	L16	Charpit's method	28/09/21	
18	L17	Numericals on Charpit's method	29/09/21	
19	L18	Solution to homogenous linear partial differential equations (with constant coefficients) by complimentary function and particular integral method.	30/10/21	
20	L19	Numerical on solution of linear partial differential equations	4/10/21	
21	L20	cont..	5/10/21	
22	L21	cont..	6/10/21	
23	L22	cont..	7/10/21	
24	L23	cont..	11/10/21	
25	<b>Test of Unit 2</b>		12/10/21	
Ist Sessional from 13/10/2021 – 16/10/2021				
26	L24	<b>Unit 3: Numerical Methods 1</b>	18/10/21	
27	L25	Bisection method	19/10/21	
28	L26	Newton-Raphson method	20/10/21	
29	L27	Regula-Falsi method	21/10/21	
30	L28	Finite differences	25/10/21	

31	L29	Relation between operators	26/10/21	
32	L30	Interpolation using Newton's forward	27/10/21	
33	L31	Interpolation using Newton's backward	28/10/21	
34	L32	Difference formulae	2/11/21	
35	L33	Interpolation with unequal intervals	3/11/21	
36	L34	Newton's divided difference	8/11/21	<b>CO3</b>
37	L35	Lagrange's formulae.	9/11/21	
38	L36	cont..	10/11/21	
39	<b>Test of Unit-3</b>		11/11/21	
2 <sup>nd</sup> Sessional from 15/10/2021 – 22/10/2021				
40	L37	<b>Unit 3: Numerical Methods 2</b> Numerical Differentiation	23/11/21	
41	L38	Newton's forward difference formulae	24/11/21	
42	L39	Newton's backward difference formulae	25/11/21	
43	L40	Numerical integration	29/11/21	<b>CO-4</b>
44	L41	Trapezoidal rule	30/11/21	
45	L42	Simpson's 1/3rd and 3/8 rules	1/12/21	
46	L43	Ordinary differential equations: Taylor's series,.	2/12/21	
47	L44	Euler and modified Euler's methods	6/12/21	
48	L45	Runge-Kutta method of fourth order for solving first and second order equations.	7/12/21	
49	L46	Cont...	8/12/21	

50	<b>Test of Unit 4</b>	9/12/21	
3 <sup>rd</sup> Sessional from 13/12/2021 – 15/12/2021			



Subject In charge