

Satyug Darshan Institute of Engineering and Technology

Lesson Plan / Teaching Plan / Lecture Plan with Progress: B.Tech. CSE – 3rd Semester: 2025-26

Teacher Centric Approaches => TC-1 (Chalk and Talk); TC-2 (PPT); TC-3 (Video Lectures) Learner (Student) Centric Approaches => LC-1 (Assignment); LC-2 (Mini Project); LC-3 (Quiz); LC-4 (Seminar on recent trends); LC-5 (Group Task); Any other

Course Name (Code): Calculus and ODE (MTU-213-V) Maths-III

Faculty Name-Dr. S.S Mudgal

Topics / lectures are arranged in sequence - same - as to be taught in the class. Maintain data related to "Date" in its hard copy					
S. No	Lecture No	Topic Description	Teaching Pedagogy	Reference Material	Remarks, if any
1	1	Explain Sequence with examples	TC-1	R1	
2	2	Explain series with examples and Convergence, divergent of sequence and series.	TC-1	R2	
3	3	Solve some problems of Convergent and divergent	TC-1	R1	
4	4	P-Series test with examples and statement of Comparison test.	TC1-1	R1	
5	5	Solve examples of comparison test	TC1-1	R3	
6	6	Explain Ratio test with example of series	TC1-1	R4	
7	7	Solve problem of ratio test	TC1-1	R3	
8	8	Explain Cauchy Root test with examples.	TC1-1	R5	
9	9	Explain Raabe's test with examples	TC1-1	R3	
10	10	Explain Gauss test with example	TC1-1	R2	
11	11	Explain Taylor series with explanation	TC1-1	R1	
12	12	Questions of exponential, trigonometric and logarithmic functions	TC1-1	R2	
13	13	Explain differential equations with examples	TC1-1	R1	
14	14	Explain exact, linear and Bernoulli equations with examples	TC1-1	R1	
15	15	Explain Euler's equations	TC1-1	R3	
16	16	Explain equations solvable for P with examples	TC1-1	R4	
17	17	Explain equations solvable for Y with examples	TC1-1	R3	
18	18	Explain equations solvable for X with examples	TC1-1	R5	
19	19	Solve some problems of solvable for x	TC1-1	R3	
20	20	Explain equations of Clairaut's type with examples	TC1-1	R2	
21	21	Solve some problems of Clairaut's type	TC1-1	R1	
22	22	Explain Second order linear differential equations with variable coefficient	TC1-1	R2	
23	23	Solve some problems, CF and PI	TC1-1	R1	
24	24	Explain method of variation of parameters with examples, Constant coefficients.	TC1-1	R1	

25	25	Problems with variable coefficient	TC1-1	R3	
26	26	Solve problems of Cauchy Euler equations with examples	TC1-1	R4	
27	27	Explain power series solution of Legendre polynomials	TC1-1	R3	
28	28	Solve some problems of Legendre polynomials	TC1-1	R5	
29	29	Explain Bessel functions of 1 st kind with examples	TC1-1	R3	
30	30	Explain Properties of Bessel function	TC1-1	R2	
31	31	Solve some problems of Properties of Bessel functions	TC1-1	R1	
32	32	Orthogonal property of Legendre polynomial	TC1-1	R2	
33	33	Take test	TC1-1	R1	
34	34	Problems of Bessel functions	TC1-1	R1	
35	35	Rodrigue formula of Legendre polynomial.	TC1-1	R3	
36	36	Recurrence relation of Legendre polynomial.	TC1-1	R2	
37	37	Recurrence relation of Bessel functions	TC1-1	R4	
38	38	Explain multiple integration with examples	TC1-1	R3	
39	39	Explain double integration	TC1-1	R4	
40	40	Explain triple integration with examples	TC1-1	R3	
41	41	Explain change of order of integration with problems	TC1-1	R5	
42	42	Explain change of variables with problems	TC1-1	R3	
43	43	Explain green theorem with examples	TC1-1	R2	
44	44	Explain Gauss theorem with problems	TC1-1	R1	
45	45	Explain Stock theorem with examples	TC1-1	R2	
46	46	Explain orthogonal curvilinear coordinates	TC1-1	R1	
47	47	Problems of Cube, sphere and rectangular parallelepiped	TC1-1	R5	
48	48	Solve problems of gauss and stock theorem	TC1-1	R4	
49	49	Explain Limit with examples	TC1-1	R3	
50	50	Explain continuity with examples	TC1-1	R1	
51	51	Solve problems of limit and continuity	TC1-1	R3	
52	52	Explain partial derivative with examples	TC1-1	R4	
53	53	Explain directional and total derivatives with examples	TC1-1	R3	
54	54	Explain tangent plane and normal line with example	TC1-1	R5	
55	55	Explain maxima and minima with examples	TC1-1	R3	
56	56	Explain saddle point with example	TC1-1	R2	
57	57	Explain method of Lagrange multiplier with example	TC1-1	R1	
58	58	Explain Gradient with examples	TC1-1	R2	
59	59	Revision			
60	60	Revision			

Study Material / Books / Web-resources / Online Courses Links etc.

S. No.	Description
1	H. Anton, I. Biven, S. Davis, “Calculus”, Wiley, 10th edition, 2015.
2	Erwin Kreyszig, Advanced Engineering Mathematics, 10thEdition, John Wiley & Sons, 2016
3	J. Stewart, Essential Calculus, Cengage, 2nd edition, 2017
4	G.B. Thomas and R.L. Finney, Calculus and Analytic geometry, 9th Edition, Pearson, Reprint, 2002.
5	Peter V. O'Neil, Advanced Engineering Mathematics, Cengage, 7th Edition, 2012
6	Veera Rajan T., Engineering Mathematics for first year, Tata McGraw-Hill, New Delhi, 2008
7	B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, 36 Edition