LESSON PLAN

Name Of The Institute:	**C. V. Raman Polytechnic**
Department:	**Mathematics**
Semester/Division/Branch:	**3rd Sem**
Subject Name With Code:	Engineering Mathematics - III (Th.3)
Total No. Of Class (Required):	**60**
Faculty Name:	**Dr. Soumyarani Mishra**

Class No.	*Brief Description Of The Topic/Chapter To Be Taught*	Remarks
1	Mission, Vision, COS	
2	**1. Complex Numbers** 1.1 Real and Imaginary numbers. 1.2 Complex numbers, conjugate complex numbers, Modulus and Amplitude of a complex number	
3	1.3 Geometrical Representation of Complex Numbers. 1.4 Properties of Complex Numbers.	
4	1.5 Determination of three cube roots of unity and their properties.	
5	1.6 De Moivre's theorem	
6	Problem solving	
7	Problem solving	
8	**2. Matrices** 2.1. Define rank of a matrix. 2.2. Perform elementary row transformations to determine the rank of a matrix.	
9	2.3. State Rouche's theorem for consistency of a system of linear equations in unknowns. 2.4. Solve equations in three unknowns testing consistency.	
10	Examples	
11	**3.Linear Differential Equations** 3.1. Define Homogeneous and Non Homogeneous Linear Differential Equations with constant coefficients with examples.	
12	3.2. Find general solution of linear Differential Equations in terms of C.F. and P.I. 3.3. Derive rules for finding C.F. And P.I. in terms of operator D.	
13	3.4. Define partial differential equation (P.D.E) . 3.5. Form partial differential equations by eliminating arbitrary constants and arbitrary	

	functions.	
14	3.6. Solve partial differential equations of the form Pp + Qq = R	
15	Examples	
16	Examples	
17	Class Test-1	
18	**4. Laplace Transforms** 4.1. Define Gamma function.	
19	4.2. Define Laplace Transform of a function and Inverse Laplace Transform .	
20	4.3. Derive L.T. of standard functions and explain existence conditions of L.T.	
21	4.4. Explain linear, shifting property of L.T.	
22	4.5. Formulate L.T. of derivatives, integrals, multiplication by and division by .	
23	EXAMPLES	
24	EXAMPLES	
25	4.6. Derive formulae of inverse L.T. and explain method of partial fractions.	
26	EXAMPLES	
27	EXAMPLES	
28	EXAMPLES	
29	**5. Fourier Series** 5.1. Define periodic functions. 5.2. State Dirichlet's condition for the Fourier expansion of a function and it's converegence	
30	EXAMPLES	
31	5 .3. Express periodic function satisfying Dirichlet's condition for the Fourier expansion .	
32	5.4. State Euler's formulae. 5.5. Define Even and Odd functions and find Fourier Series.	
33	EXAMPLES	
34	EXAMPLES	
35	5.6. Obtain F.S of continuous functions and functions having points of discontinuity.	
36	EXAMPLES	
37	EXAMPLES	
38	**6. Numerical Methods** 6.1. Appraise limitation of analytical methods of solution of Algebraic Equations.	
39	6.2. Derive Iterative formula for finding the solutions of Algebraic Equations by : 6.2.1. Bisection method	

40	6.2.2. Newton- Raphson method	
41	EXAMPLES	
42	**7. Finite difference and interpolation** 7.1. Explain finite difference and form table of forward and backward difference.	
43	7.2. Define shift Operator and establish relation between & difference operator.	
44	EXAMPLES	
45	7.3. Derive Newton's forward and backward interpolation formula for equal intervals.	
46	EXAMPLES	
47	EXAMPLES	
48	7.4. State Lagrange's interpretation formula for unequal intervals.	
49	EXAMPLES	
50	7.5. Explain numerical integration and state: 7.5.1.Newton's Cote's formula.	
51	7.5.2. Trapezoidal rule.	
52	EXAMPLES	
53	7.5.3. Simpson's 1/3rd rule.	
54	EXAMPLES	
55	EXAMPLES	
56	CLASS TEST-II	
57	REVESION	
58	REVESION	
59	REVESION	
60	REVESION	

Signature Of The Faculty **Signature Of The H.O.D**