

<b>LESSON PLAN FOR WINTER SEMESTER(2021-22)</b>			
<b>Discipline : 3rd semester (Electrical)</b>			
<b>Name of the Faculty: PADMINI PANIGRAHI (Lect. in Mathematics)</b>			
Subject: Engg. Mathematics-3	<b>4 theory classes per week</b>	<b>From: 01.10.2021      To:08.01.2022</b> <b>of Weeks: 13      Total no. periods : 51 theory</b>	<b>No.</b>
Week	Class Day	Theory	Range
1st	1st	<b>Complex Numbers</b> 1.1 Real and Imaginary numbers	01.10.2021 to 07.10.2021
	2nd	1.2 Complex numbers, conjugate complex numbers, Modulus and Amplitude of a complex number	
	3rd	1.3 Geometrical Representation of Complex Numbers.	
2nd	1st	1.4 Properties of Complex Numbers	21.10.2021 to 27.10.2021
	2nd	1.5 Determination of three cube roots of unity and their properties.	
	3rd	1.6 De Moivre's theorem	
	4th	<b>Matrices</b> 2.1. Define rank of a matrix.	
3rd	1st	2.2. Perform elementary row transformations to determine the rank of a matrix.	28.10.2021 to 03.11.2021
	2nd	2.3. State Rouche's theorem for consistency of a system of linear equations in unknowns.	
	3rd	2.4. Solve equations in three unknowns testing consistency.	
	4th	<b>Linear Differential Equations</b> 3.1. Define Homogeneous and Non – Homogeneous Linear Differential Equations with constant coefficients with examples	
4th	1st	3.2. Find general solution of linear Differential Equations in terms of C.F. and P.I.	04.11.2021 to 10.11.2021
	2nd	3.2. Find general solution of linear Differential Equations in terms of C.F. and P.I.	
	3rd	3.3. Derive rules for finding C.F. And P.I. in terms of operator D	
	4th	3.3. Derive rules for finding C.F. And P.I. in terms of operator D	
5th	1st	3.4 Define partial differential equation (P.D.E)	11.11.2021 to 17.11.2021
	2nd	3.5. Form partial differential equations by eliminating arbitrary constants and arbitrary functions.	
	3rd	3.6. Solve partial differential equations of the form $Pp + Qq = R$	
	4th	3.6. Solve partial differential equations of the form $Pp + Qq = R$	

6th	1st	<b>4. Laplace Transforms</b> 4.1. Define Gamma function	18.11.2021 to 24.11.2021
	2nd	4.2. Define Laplace Transform of a function and Inverse Laplace Transform	
	3rd	4.3. Derive L.T. of standard functions and explain existence conditions of L.T.	
	4th	4.4. Explain linear, shifting property of L.T	
7th	1st	4.4. Explain linear, shifting property of L.T	25.11.2021 to 01.12.2021
	2nd	4.5. Formulate L.T. of derivatives, integrals, multiplication by $t^n$ and division by $t$ .	
	3rd	4.5. Formulate L.T. of derivatives, integrals, multiplication by $t^n$ and division by $t$ .	
	4th	4.6. Derive formulae of inverse L.T. and explain method of partial fractions	
8th	1st	4.6. Derive formulae of inverse L.T. and explain method of partial fractions	02.12.2021 to 08.12.2021
	2nd	<b>6. Numerical Methods</b> 6.1. Appraise limitation of analytical methods of solution of Algebraic Equations	
	3rd	6.2. Derive iterative formula for finding the solutions of Algebraic Equations by : 6.2.1. Bisection method	
	4th	6.2.2. Newton- Raphson method	
9th	1st	<b>7. Finite difference and interpolation</b> 7.1. Explain finite difference and form table of forward and backward difference	09.12.2021 to 15.12.2021
	2nd	7.2. Define shift Operator and establish relation between & difference operator .	
	3rd	7.3. Derive Newton's forward and backward interpolation formula for equal intervals.	
	4th	7.3. Derive Newton's forward and backward interpolation formula for equal intervals.	
10th	1st	7.4. State Lagrange's interpretation formula for unequal intervals.	16.12.2021 to 22.12.2021
	2nd	7.4. State Lagrange's interpretation formula for unequal intervals.	
	3rd	7.5 Explain numerical integration and state: 7.5.1. Newton's Cote's formula.	
	4th	7.5.2. Trapezoidal rule.	
11th	1st	7.5.3. Simpson's 1/3rd rule	23.12.2021 to 29.12.2021
	2nd	7.5.2. Trapezoidal rule.	
	3rd	7.5.3. Simpson's 1/3rd rule	
	4th	<b>5. Fourier Series</b> 5.1. Define periodic functions.	

12th	1st	5.2. State Dirichlet's condition for the Fourier expansion of a function and it's convergence	30.12.2021 to 05.01.2022
	2nd	5.2. State Dirichlet's condition for the Fourier expansion of a function and it's convergence	
	3rd	5.3. Express periodic function $f(x)$ satisfying Dirichlet's conditions as a Fourier series	
	4th	5.4. State Euler's formulae	
13th	1st	5.5. Define Even and Odd functions and find Fourier Series	06.01.2022 to 08.01.2022
	2nd	Obtain F.S of continuous functions and functions having points of discontinuity	
	3rd	Obtain F.S of continuous functions and functions having points of discontinuity	

