

**SYNERGY SCHOOL OF ENGINEERING, DHENKANAL**

Department- EE	Semester- 3rd	Name Of the Teaching Faculty- Biswajit Mishra No. of weeks- 15 Session- 2024-25
Subject- Mathematics- III	No. of days per week- 04	
Week	Class	Topic to be taught
1.	1.	Introduction to Real and Imaginary numbers, Complex numbers
	2.	Conjugate, Modulus and Amplitude of a complex number
	3.	Conversion into $a+ib$ form
	4.	Geometrical Representation of Complex Numbers. Properties of Complex Numbers.
2.	5.	Polar form representation
	6.	Determination of three cube roots of unity and their properties.
	7.	De Moivre's theorem and its examples
	8.	Square Roots and question answer discussion
3.	9.	Any root questions using De-Moivre's theorem
	10.	<b>Exercise Question and Doubt Clear</b>
	11.	Recall of Matrix chapter
	12.	Elementary row transformations
4.	13.	Elementary row transformations to determine the rank of a matrix
	14.	Rouche's theorem for consistency of a system of linear equations in unknowns.
	15.	Consistent and Inconsistent system
	16.	Solve equations in three unknowns testing consistency
5.	17.	Questions on previously taught topics
	18.	<b>Exercise Questions and Doubt Clear</b>
	19.	<b>Monthly Test-I</b>
	20.	Define Homogeneous and Non – Homogeneous Linear Differential Equations with constant coefficients with examples.
6.	21.	Find general solution of linear Differential Equations in terms of C.F. and P.I.
	22.	Derive rules for finding C.F. And P.I. in terms of operator D
	23.	Questions on previous concepts
	24.	Definition partial differential equation (P.D.E) with examples
7.	25.	Form partial differential equations by eliminating arbitrary constants and arbitrary functions
	26.	Solve partial differential equations of the form $Pp + Qq = R$
	27.	<b>Exercise Questions and Doubt Clear</b>
	28.	Gamma function and its properties
8.	29.	Laplace Transform and its examples
	30.	Shifting Theorem and its examples
	31.	multiplication by $t^n$ and division by $t$

9.	33.	Inverse Laplace and Its examples
	34.	Inverse Laplace using partial fraction
	35.	Define periodic functions and Its questions
	36.	Dirichlet's condition for the Fourier expansion of a function and It's convergence
10.	37.	Express periodic function satisfying Dirichlet's conditions as a Fourier series.
	38.	Euler's formulae and its examples
	39.	Even and Odd functions and find Fourier Series in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
	40.	F.S of continuous functions and functions having points of discontinuity in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
11.	41.	<b>Exercise Questions and Doubt Clear</b>
	42.	Limitation of analytical methods of solution of Algebraic Equations.
	43.	Iterative formula for finding the solutions of Algebraic Equations by : (i) Bisection method
	44.	(ii) Newton- Raphson method
12.	45.	Questions on previous topics
	46.	<b>Exercise Questions and Doubt Clear</b>
	47.	Finite difference and form table of forward and backward difference
	48.	Shift Operator and Relation between & difference operator
13.	49.	Newton's forward and backward interpolation formula for equal intervals
	50.	State Lagrange's interpretation formula for unequal intervals
	51.	Examples on interpolation formula
	52.	Explain numerical integration and state: 1. Newton's Cote's formula.
14.	53.	2. Trapezoidal rule
	54.	3. Simpson's 1/3rd rule
	55.	Questions on previously taught topics
	56.	<b>Exercise Questions and Doubt Clear</b>
15.	57.	<b>Monthly Test-II</b>
	58.	<b>Previous Year Question Discussion</b>
	59.	<b>Selective questions practice</b>
	60.	<b>Doubt Clear Class &amp; Quiz Test</b>

No. of Assignments to be given- 04

No. of Monthly Tests to be done- 02

No. of Quiz Tests to be done- 01

Prepared By

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