Bhubanananda Orissa School of Engineering, Cuttack

Department of Humanities and Science

LESSON PLAN
Academic Session: 2024-25 (winter)

Semester: 3rd SEMESTER

Branch: ELECTRICAL **Sec**:B

Subject: ENGINEERING MATHEMATICS-III

Prepared by: DPTIMA

Discipline: Sec:B	Semester:3RD		Name Of The Teaching Faculty: (Faculty in Mathematics)
Subject:	No. Of Days /Per Week Class Alloted:4P (MONT,THU,SAT)		Semester From: Date:01/07/2024 to 08/11/2024
Week	Class Days	Dates	Theory Topics
	1.	22.08.2024	**Introduction & Syllabus discussion**
	2.	24.08.2024	**UNIT - I:1. Complex Numbers** 1.1 Real and Imaginary numbers.
	3.	29.08.2024	1.2 Complex numbers, conjugate complex numbers, Modulus and Amplitude of a complex number.
	4.	31.08.2024	Solve problem
	5.	02.09.2024	1.3 Geometrical Representation of Complex Numbers.
	6.	2.09.2024	1.4 Properties of Complex Numbers.
	7.	5.09.2024	1.5 Determination of three cube roots of unity and their properties.
	8.	12.09.2024	**1. Complex Numbers** 1.6 De Moivre's theorem
	9.	14.09.2024	1.7 Solve problems on 1·1 - 1·6
	10.	19.09.2024	**2.Matrices** 2.1 Define rank of a matrix 2.2 Perform elementary row transformations to determine the rank of a matrix
	11.	21.09.2024	2.3 State Rouche's theorem for consistency of a system of linear equations in 'n' unknowns
	12.	23.09.2024	2.4 Solve equations in three unknowns testing consistency.
	13.	23.09.2024	**3. Linear Differential Equations** 3.1. Define homogeneous and non – homogeneous Differential Equations with constant coefficients with examples.
	14.	26.09.2024	3.2. Find general solution of linear equations in terms of C.F. and P.I.
	15.	28.09.2024	3.2. Find general solution of linear equations in terms of C.F. and P.I. **Continue…**

	16.	03.10.2024	**4. Laplace Transforms** 4.1 Define Gamma function and $\Gamma(n+1)=n!$ and find $\Gamma(1/2)=\sqrt{\pi}$ $\square$
	17.	05.10.2024	4.2 Define Laplace transform of a function f(t) and inverse Laplace transform
	18.	14.10.2024	4.3 Derive L.T. of standard functions and explain existence conditions of L.T.
	19.	14.10.2024	4.4 Explain linear, shifting property of L.T.
	20.	17.10.2024	4.5 Formulate L.T. of derivatives, integrals, multiplication by t^n and division by t.
	21.	19.10.2024	4.6 Derive formulae of inverse L.T. and explain method of partial fractions
	22.	21.10.2024	**5. Fourier Series** **5.1** Define periodic functions $\square$ **5.2** State Dirichlet's condition for the Fourier expansion of a function and it's convergence
	23.	21.10.2024	**5.3** Express periodic function f(x) satisfying Dirichlet's conditions as a Fourier series.
	24.	24.10.2024	**5.4** State Euler's formulae **5.5** Define Even and Odd functions and find Fourier Series in ($0 \le x \le 2\pi \ and -\pi \le x \le \pi$)
	25.	26.10.2024	**5.6 Obtain** F.S of continuous functions and functions having points of discontinuity in ($0 \le x \le 2\pi \ and -\pi \le x \le \pi$) $\square$ Solve problems on 5.1 – 5.6
	26.	28.10.2024	**6. Numerical Methods** 6.1 Appraise limitation of analytical methods of solution of algebraic equations $\square$
	27.	28.10.2024	6.2 Derive iterative formula for finding the solutions of algebraic Equations by (a) Bisection method
	28.	02.11.2024	(b) Newton- Raphson method

	29.	04.11.2024	**7. Finite difference and interpolation** **7.1** Explain finite difference and form table of forward and backward difference
	30.	04.11.2024	**7.2** Define shift Operator (E) and establish relation between E & difference operator (Δ).
	31.	07.11.2024	**7.4** Derive Newton's forward and backward interpolation formula for equal intervals
	32.	09.11.2024	**7.5** state Lagrange's interpretation formula for unequal intervals
	33.	11.11.2024	**7.7** Explain numerical integration and state
	34.	11.11.2024	**7.7.1** Newton's Cote's formula **7.7.2** Trapezoidal rule
	35.	14.11.2024	**7.7.3** Simpson's $1/3^{rd}$ rule
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