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DEPARTMENT OF ELECTRICAL ENGINEERING

Govt. Polytechnic, Balasore

LESSON PLAN FOR ACADEMIC SESSION - 2024-2025

MATH-III

Course Code : Th-1	**Semester : 3RD**
Total Periods : 75(60L+15T)	**Examination : 3 Hours**
Theory Periods : 4 P/Week	**Internal Assessment : 20 Marks**
Tutorial :	**End Semester Examination : 80 Marks**
Maximum Marks : 100	
Semester From Date : 01/07/2024	**To Date : 16/12/2024**
Name of Teaching Faculty : Er. BISWAJIT MALLIK	

Week	Class day	Theory
1st	1st	Real Numbers, Imaginary Numbers Complex Numbers and it's properties
	2nd	Conjugate of complex number and Modulus of complex number
	3rd	Amplitude of complex number and Geometrical representation
	4th	Determination of three cube roots of unity and their properties with examles
2nd	1st	De Moivre's Theorem and examples based on De Moivre's Theorem
	2nd	Problem Solve
	3rd	Introduction about matrix, Define rank of matrix Elementary row operations to determine rank of matrix
	4th	Rouche's Theorem for consistency of a system of linear equations in n unknowns
3rd	1st	Problem Solve based on previous class
	2nd	Problem Solcve
	3rd	Define Homo. And Non-Homo. Linear Diff. Equations, Examples
	4th	General solution of Linear diff. equations in terms of C.F. and P.I.

4th		Derive rules for finding C.F. and P.I. in terms of operator D
		Derive rules for finding C.F. and P.I. in terms of operator D
		Problem Solve
		Define Partial Differential Equations (P.D.E) , Examples
5th		Form P.D.E by eliminating arbitrary constants and functions with examples
		Solve P.D.E of the form Pp+Qq=R
		Problem Solve based on previous class
		Problem Solve
6th		Introduction, Laplace transform and Doubble Integral
		Define Gamma function with examples
		Laplace transform of function f(t)
		Define Inverse Laplace transform with examples
7th		Define Laplace transform of standard functions and explain existence of conditions of L.T
		Explain Linear shifting property of L.T.
		Formulate L.T. of derivatives, integrals
		Formulate L.T. by multiplication by t^n and division by t
8th		Solve problem
		Derive formulae of the inverse L.T. with examples
		Explain the method of partial fractions
		Solve problem
9th		Introduction of Periodic function
		Dirchilet's conditions for the Fourier expansion of a function and it's convergence
		Dirchilet's conditions for the Fourier expansion of a function and it's convergence continue
		Express periodic function f(x) satisfying Dirchilet's conditions as a Fourier series

		Problem Solve
		State Euler Formulae
		Define even function and find Fourier series in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
10th		Define odd function and find Fourier series in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
		Problem Solve
		Fourier series of continuous function in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
		Fourier series of function having point of discontinuity in $0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$
11th		Problem Solve
		Appraise limitation of analytical methods of solutions of Algebraic Equation
		Derivation of iterative formula for bisection method and examples
		Derivation of iterative formula for Newton-Raphson method and examples
12th		Problem Solve
		Explain finite difference and form table of forward and backward difference
		Define shift operator and establish relation between E and difference operator (Δ)
		Derive Newton's forward interpolation formula for equal intervals with examples
13th		Derive Newton's backward interpolation formula for equal intervals with examples
		Problem Solve
		State Lagrange's interpolation formulae for for unequal intervals.
		Newton's Cote's formula and examples
14th		Trapezoidal Rule and examples.
		Problem Solve
		Simpsons 1/3rd rule and examples.

15th		Problem Discussion
		Problem Discussion