KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN
Session (2021-2022)

Discipline: All Branches	Semester: 3rd Winter/2021	Name of the Faculty:	
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Subject: Engg.Math-III, Theory-1	**No.of Days/Week:** 04	**Start Date:** 01-10-2021 **End Date:** 31-01-2022	

WEEK	CLASS DAY	THEORY TOPICS
1st	1st	Introduction to syllabus and evaluation scheme
	2nd	Define real and Imaginary Numbers and power of i with related examples
	3rd	Define complex number, algebra of complex numbers, equality of two complex numbers, conjugate and modulus of a complex number with related problems
	4th	Properties of complex numbers, Determine Inverse of a complex number and express in the form of a+ib with related problems
2nd	1st	Determination of the cube roots of unity and their properties with related problems
	2nd	Explain Geometrical representation of a complex number, polar form and argument of a complex number with related problems
	3rd	Determine square root of a complex number, State Demoivre's Theorem and solve related problems
	4th	Assignment Discussion on Complex numbers
3rd	1st	Introduction of matrix and its basic concepts, Types of matrices, Addition, subtraction and multiplication by a scalar
	2nd	Transpose of a matrix, sub-matrix and minors, Rank of a matrix and its problems
	3rd	Elementary transformation and its uses in finding rank, Row Reduction Echelon matrix and related problems
	4th	State Rouche's theorem for consistency of a system of linear equations in n unknowns and solve related problems
4th	1st	Solve more problems on test of consistency
	2nd	Assignment Discussion on Matrices
	3rd	Class Test -1 on Complex number and matrices

	4th	Define differential equation , Order and degree of differential equation with examples
5th	1st	Define Homogeneous and Non – Homogeneous Linear Differential Equations with constant coefficients with examples.
	2nd	Rules for finding complementary functions for real roots and related problems
	3rd	Rules for finding complementary functions for complex roots and related problems
	4th	Define Inverse differential operator and rules of particular integral for exponential function with related problems
6th	1st	Rules for finding particular integral for algebraic, Trigonometric and $e^x f(x)$ with related problems
	2nd	Assignment Discussion on Differential Equation
	3rd	Quiz Test-1 on Complex numbers, Matrices and D.E
	4th	Partial differential equation(PDE) of first order
7th	1st	Formation of a PDE eliminating arbitrary constants and functions and solve related problems
	2nd	Linear partial differential equation of first order (Pp+Qq=R) and Explain method of multipliers and grouping, Solve related problems.
	3rd	Assignment on Partial Differential Equation
	4th	Define gamma function and its uses, Define Laplace transformation of a function f(t) and its existence
8th	1st	Derive Standard formulas of Laplace transform and related problems
	2nd	Explain Linearity property and 1st shifting property of LT and discuss related problems
	3rd	Formulate Laplace transform of Derivative and integrals , solve related problems
	4th	Formulate Laplace transform multiplication by t^n and division by t , solve related problems
9th	1st	Derive formulae of inverse L.T. and explain method of partial fractions , solve related problems
	2nd	Assignment on Laplace Transform
	3rd	Class Test -2 on DE,PDE and LT
	4th	Define Periodic functions with examples , odd and even function and define fourier series(F.S)
10th	1st	Explain Eulers formula in different intervals and its use in fourier series of a function, Solve related problems
	2nd	State Dirichlet's condition for the Fourier expansion of a function and it's convergence with examples
	3rd	Express even and odd functions as a fourier series form, solve related problems $(0 \le x \le 2\pi \ and -\pi \le x \le \pi)$
	4th	Obtain F.S of continuous functions and functions having points of discontinuity in $(0 \le x \le 2\pi \ and -\pi \le x \le \pi)$ with related problems
11th	1st	Assignment discussion on Fourier series

	2nd	Define polynomial function , algebraic and transcendental equations with examples , solution of Algebraic equations
	3rd	Express direct and iterative method, Derive Iterative formula for finding the solutions of Algebraic Equations by Bisection Method , Solve related problems
	4th	Explain Newton- Raphson method and Solve related problems in algebraic form only
12th	1st	Assignment Discussion on Numerical Methods
	2nd	Explain finite difference and form table of forward and backward difference , solve related problems
	3rd	Define shift Operator E and establish relation between the operators .
	4th	Define Interpolation , Derive Newton's forward interpolation formula for equal intervals and solve related problems
13th	1st	Derive Newton's backward interpolation formula for equal intervals and solve related problems
	2nd	Assignment Discussion on Finite Difference , Newton's Forward and Backward interpolation
	3rd	State Lagrange's interpretation formula for unequal intervals and solve related problems
	4th	Quiz Test-2 on PDE , LT and FS
14th	1st	Explain numerical integration state Newton's Cote's formula and Trapezoidal rule, solve related problems on Trapezoidal rule
	2nd	State Simpson's 1/3rd rule and solve related problems
	3rd	Assignment Discussion on Lagrange's and Numerical Integration
	4th	Class Test-3on FS and Numerical Analysis
15th	1st	Previous year question Discussion
	2nd	Previous year question Discussion
	3rd	Previous year question Discussion
	4th	Class Test-4on FS and Numerical Analysis

Signature of Concern Teacher