

ACADEMIC SESSION: 2024-25 (Winter-2024)

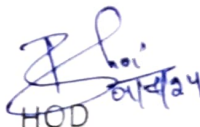
Discipline : ELECTRICAL ENGINEERING		Semester : 3RD	Name of the Teaching Faculty : Sarada Kumar Nayak ,Sr Lecturer(Math),Govt. Polytechnic, Sonepur	
Subject : ENGG.MATH-III		THEORY		
		Semester From date: 1/07/2024 to 08/11/2024		
		No. of weeks :-18 (excluding holidays)		
WEEK	No.of classes/week 04	CHAPTER	THEORY	NO.OF PERIODS
1st	1st	Complex Numbers	Introduction to the subject, Real and Imaginary numbers	1
	2nd		Complex numbers, Conjugate complex numbers, Modulus and Amplitude of a complex number.	1
	3rd		Geometrical representation of complex numbers.	1
	4th		Properties of Complex Numbers	1
2nd	1st	Matrices	Determination of cube roots of unity and their properties.	1
	2nd		De-Moivre's Theorem and applications	1
	3rd		Problem Practice & Class Test	1
	4th		Define Rank of a Matrix	1
3rd	1st	Linear Differential Equations.		1
	2nd		Elementary row transformations to determine the rank of a matrix.	1
	3rd		Rouche's theorem for consistency of a system of linear equations in n unknowns.	1
	4th		Solve equations in three unknowns testing consistency.	1
4th	1st	Linear Differential Equations.	Homogeneous and Non-Homogeneous Linear Differential Equations with constant coefficients with examples.	1
	2nd		General solution of linear Differential Equations in terms of C.F. and P.I.	1
	3rd		Rules for finding C.F. and P.I. in terms of operator D.	1
	4th		Problem Practice	1
5th	1st	Linear Differential Equations.	Partial Differential Equation(P.D.E.)	1
	2nd		Formation of Partial Differential Equation by eliminating arbitrary constants and arbitrary functions.	1
	3rd		Problem Practice	1
	4th		Partial Differential Equation of the form $Pp+Qq=R$	1
6th	1st		Problem Practice & Class Test	1

	2nd	Laplace Transforms	Define Gamma function and Gamma of $(n+1)=n!$ and Gamma of $\frac{1}{2}=\text{square root of } \pi$	1
	3rd		Define Laplace Transform of a function $f(t)$ and inverse Laplace Transform.	1
	4th		L.T. of standard functions and explain existence conditions of L.T.	1
7th	1st		Explain linear, shifting property of L.T.	1
	2nd	Formulate L. T. of derivatives, integrals, multiplication by t^n and division by t .	1	
	3rd	Illustrative Examples, Problem Practice.	1	
	4th	Derive Formulae of inverse L.T. and explain method of partial fractions.	1	
8th	1st	Illustrative Examples, Problem Practice.	1	
	2nd	Derive Formulae of inverse L.T. and explain method of partial fractions	1	
	3rd	Problem Practice.	1	
	4th	Define periodic functions	1	
9th	1st	Fourier Series	Dirichlet's condition for the Fourier Series expansion of a function and it's convergence.	1
	2nd		Continue, Problem Practice	1
	3rd		Express periodic function(x) satisfying Dirichlet's conditions as a Fourier series.	1
	4th		Problem Practice	1
10th	1st	Euler's Formula	1	
	2nd	Doubt clearing, Problem practice.	1	
	3rd	Even and Odd functions and Fourier series in $(0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi)$	1	
	4th	Continue	1	
11th	1st	Obtain F.S. of continuous functions and functions having points of discontinuity in $(0 \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi)$	1	
	2nd	continue	1	
	3rd	Problem Practice	1	
	4th	Problem Practice	1	
12th	1st	Numerical Methods.	Problem Practice	1
	2nd		Problem Practice	1
	3rd		Class Test	1
	4th		Appraise limitation of analytical methods of solution of algebraic equations.	1
13th	1st	Iterative formula for finding the solutions of algebraic equations by Bisection method.	1	
	2nd	Newton Raphson method	1	
	3rd	Problem Practice, Doubt Clearing,	1	

	4th		Problem Practice, Doubt Clearing,	1	
14th	1st	Finite difference and interpolation	Problem Practice & Class Test	1	
	2nd		Explain finite difference and form table of forward and backward difference	1	
	3rd		Define shift operator(E) and relation between shift operator & difference operator.	1	
	4th		Problem Practice	1	
15th	1st		Problem Practice	1	
	2nd		Problem Practice	1	
	3rd		Explain finite difference and form table of forward and backward difference	1	
	4th		Define shift operator(E) and relation between shift operator & difference operator.	1	
16th	1st		Problem Practice	1	
	2nd		Problem Practice	1	
	3rd		Problem Practice	1	
	4th		Problem Practice & Class Test	1	
17th	1st		Numerical Integration	Newton's forward and backward interpolation formula for equal intervals.	1
	2nd			Problem Practice	1
	3rd			Lagrange's interpolation formula for unequal intervals.	1
	4th			Problem practice	1
18th	1st	Numerical integration, Newton's cote's formula , Trapezoidal rule.		1	
	2nd	Problem Practice		1	
	3rd	Simpson's $1/3^{\text{rd}}$ rule, problem practice.		1	
	4th	Problem Practice		1	
Total periods					72


11/7/24

Prepared By
Sarada Kumar Nayak
Sr. Lect. (Math),
GP Sonepur.


HOD 01/07/24

Electrical Engineering,
GP Sonepur.


11/7/24

Academic Coordinator
GP Sonepur.