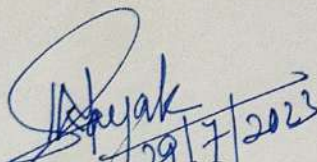


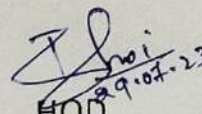
ACADEMIC SESSION: 2023-24(Winter-2023)

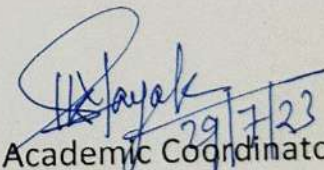
Discipline : ELECTRICAL ENGINEERING		Semester : 3RD	Name of the Teaching Faculty : Sarada Kumar Nayak ,Sr Lecturer(Math),Govt. Polytechnic, Sonepur		
Subject : ENGG.MATH-III		Semester From date: 1/08/2023 to 30/11/2023 No. of weeks :-16 (excluding holidays)			
WEEK	No. of classes/week 04	CHAPTER	THEORY	N0.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		Determination of cube roots of unity and their properties.	1	
	2nd		De-Moivre's Theorem and applications	1	
	3rd		Problem Practice.	1	
	4th		Matrices	Define Rank of a Matrix	1
3rd	1st			1	
	2nd	Elementary row transformations to determine the rank of a matrix.		1	
4th	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		
	5th	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	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	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	Fourier Series	Define periodic functions	1
9th	1st		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	Appraise limitation of analytical methods of solution of algebraic equations.	1

	2nd	Methods.	Iterative formula for finding the solutions of algebraic equations by Bisection method.	1
	3rd		Newton Raphson method	1
	4th		Problem Practice	1
13th	1st		Numerical Methods.	Problem Practice, Doubt Clearing,
	2nd	Problem Practice, Doubt Clearing,		1
	3rd	Problem Practice, Doubt Clearing,		1
	4th	Problem Practice, Doubt Clearing,		1
14th	1st	Finite difference and interpolation	Problem Practice	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	Finite difference and interpolation	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
16th	1st	Finite difference and interpolation	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 NUMBER OF CLASSES				64


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