

LESSON PLAN

SUB:-ENGG. MATHEMATICS-III

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 3rd

NAME OF FACULTY: - MANAS KUMAR MAHALIK



GOVERNMENT POLYTECHNIC, BHADRAK SESSION:2024-25

ADDAK

Academic Co-ordinator Academic Co-ordinator

Princ Govt. Polytechnic Bhadrak Govt.Polytechnic Bhadrak

Compostor: Jrd	LESSON	DEPARTMENT OF EI	GOVT. POLYTECH
Nome of the te	PLAN	ECTRICAL ENGG.	NIC, BHADRAK

		LESSON PLA	2
Discipline: Electrical Engineering	Semest	er: 3 rd	Name of the teaching faculty: Manas Kumar Mahalik, Lecturer in
Subject:	No. of c	ays/week class allotted: 04	
Engineering Mathematics-III (TE1)	Total n	o. of weeks: 15 (01.07.2024 to 0	8.11.2024)
Week	Class		 Theory Topics
	Day		
1 st	1 st	COMPLEX NUMBERS:	
		 Real and imaging number, coniul 	pary numbers, definition of a complex numbers, modulus of a
		complex numb	er with examples
	2 nd	 Amplitude of a 	complex number, geometrical
		representation	of a complex number with example
	3 rd	 Properties of cr 	omplex numbers with examples
	4 th	 Determination 	of three cube roots of unity and their
buc	1 st	Do Moivro's th	eorem and problem solving
ł	2 nd	0	QUIZ & ASSIGNMENT-I
	з гd	 MATRICES: 	
		 Recap: Definition of Ma 	atrix, row, column, order of a matrix,
		 Types of matrices: a) Romentative and the second sec	ow matrix, b) column matrix , c) square
		matrix	
	4 th	 Determination of rank (of a matrix by elementary transformation,
		with examples	-
	1 st	 Some more example of 	finding rank of a matrix by elementary
. 3 rd		transformation method	, Consistency of linear system of equations,
		Rouche's Theorem, Pro	cedure to test the consistency of linear
	2 nd	system of equations of	w test and solving system of equations.
	2	 Examples on consistence Solving system of linear 	r homogeneous equations
	З гd	• Q	UIZ & ASSIGNMENT-II
	4 th	 LINEAR DIFFERENTIAL 	EQUATIONS:
		 Definitions: i) Linear diff 	ferential equation , ii) Linear differential
		equation with constant	coefficients III/ nothogeneous and noth-
	~	coefficients, Operator D	, Concept of C.F. and P.I.
4 th	1 st	 General solution y=CF+F 	PI. Rules for finding the CF: Case 1:- If roots
		are real and different, C	ase 2: if roots are real and repeated, some
	-	examples on these two	cases
	2 nd	 Case 3: If one pair of roc 	ots be imaginary, Case 4: If two points of
	p1c	Imaginary roots are equ	ar, some examples on mese two cases. For finding the Particular Integral (PI):
	Ĺ	 Case 1: When X=e^(ax), 	Case 2: when X=sin(ax+b) or cos(ax+b),
		some examples on these	e two cases
	4 th	 Solving problems on CF 	and PI
5 th	1 st	 Case 3: when X=xⁿm, Ca 	se 4: when X=e^(ax)V, some examples on

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disection method and problem solving by this method	 Umitation of analytical methods and need of numerical method, iteration formula 	NUMERICAL METHODS:	 QUIZ & ASSIGNMENT-V 	$0 \le x \le 2\pi$ and $-\pi \le x \le \pi$.	$v \leq x \leq 2\pi$ and $-\pi \leq x \leq \pi$. and	Fourier series of continuous function in		Problems on even and odd function and Fourier series expansion	$0 \le x \le 2\pi$ and $-\pi \le x \le \pi$ with example	Odd function and its Fourier series in	$0 \le x \le 2\pi$ and $-\pi \le x \le \pi$. with example	Even function and its Fourier series in	with example	Derindin function satisfying Dirichlat's condition of a Excision satisfy	Dirichlet's condition for Fourier expansion example	$\int_{a+2\pi}^{a} \cos mx \cos x dx$. $\int_{a+2\pi}^{a+2\pi} \cos^2 nx dx$	$\int_{\alpha}^{\alpha+2\pi} cosnx dx, \int_{\alpha}^{\alpha+2\pi} sinnx dx,$	Establishment of some formulae:	formulae.	Definition of periodic function with example. Fourier series, Euler's	FOURIER SERIES:	 QUIZ & ASSIGNMENT-IV 	Derivation of formula of inverse LT and problems on Inverse LT.	Solving problems to find LT	Formulation of LT multiplication by t^n , division by t , examples	solve	Formulation of LT of derivatives and integrals, some problems to	Change of scale property, examples on it	ii) First shifting property and problems on these properties.	Properties of LT: i) Linearity property	cos ay sinh ax. cosh ax.	Derivation of Laplace transform of standard functions: k, t^{n} , sin a_{x}	transform existence of Laplace transform	notion of Lanlace transform of a function, inverse Laplace	Prove $\Gamma(\frac{1}{2}) = \sqrt{\pi}$, Short problems on reduction formula	Definition of Gamma function, reduction formula, example	LAPLACE TRANSFORMS:	QUIZ & ASSIGNMENT-III	Linear PDE of 1 st order, working rule to solve Pp+Uq=R, example;	Examples on formation of PUES	arbitrary constants and arbitrary functions.	Partial differential equation (PDE), formation of PDE by eliminating	Working rule to find the Complete solution y=CF+PI, Examples	these two cases

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 PREVIOUS YEAR QUESTIONS DISCUSSION 	PREVIOUS YEAR QUESTIONS DISCUSSION	REVISION	REVISION	QUIZ & ASSIGNMENT-VII	Simpson's 1/3 rd rule with example	 Newton –Cote's formula, Trapezoidal rule with example 	difference interpolation	 Solving problems on Lagrange's interpolation 	 Lagrange's interpolation for unequal intervals with examples 	with examples	 Newton's backward difference internalation for participation 	examples	 Newton's family of shirt operator, relation between operators 	 Definition of a set of the set	C Einthe Jar	 FINITE DIFFERENCE QUIZ & ASSIGNMENT-VI 	a method	Solution by Newton Back	

LEARNING RESOURCES:

1. Text Book of Engineering Mathematics-I By C. R Mallick, Kalyani Publication.

2. Text Book of Engineering Mathematics-III By C. R Mallick, Kalyani Publication.

3. Higher Mathematics By B.S Grewal , Khanna Publishers.

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