

GOVERNMENT POLYTECHNIC JAJPUR

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LESSON PLAN

3RD SEMESTER, ELECTRICAL

DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY: Smt. Pragyan Priyadarsini	
SUBJECT: ENGG. M MATHEMATICS-III	NO. OF DAYS/WEEKS CLASS ALLOTTED	SEMESTER FROM DATE : 01/08/2023 TO DATE: 30/11/2023	
		NO. OF WEEKS: 16	
WEEKS	CLASS DAY	TOPICS	
1st	1st	i) Introduction of complex number	
	2nd	ii) Real and Imaginary numbers.	
	3rd	iii) Complex numbers, conjugate complex numbers.	
	4th	iv) Modulus and Amplitude of a complex	
		v) Geometrical Representation of Complex Numbers	
		vi) Properties of Complex Numbers	
2nd	1st	i) Determination of three cube roots of unity and their properties.	
	2nd	ii) De Moivre's theorem with example	
	3rd	iii) Discuss objective questions	
	4th	iv) Solve problems on complex number .	
3rd	1st	i) Define rank of a matrix.	
	2nd	ii) Elementary row transformations to determine the rank of a matrix.	
	3rd	iii) State Rouché's theorem for consistency of a system of linear equations in n unknowns .	
	4th	iv) Solve equations in three unknowns testing consistency.	
4th	1st	i) Solve problems on matrices.	
	2nd	ii) Introduction of linear differential equation	
		iii) CLASS TEST-1	
	3rd	iv) general solution of linear Differential Equations in terms of C.F. and P.I.	
	4th	v) Discuss some problem on linear Differential Equations in terms of C.F. and P.I.	
5th	1st	i) Partial differential equations by eliminating arbitrary constants and arbitrary function .	
	2nd	ii) some example on P.D.E by eliminating arbitrary constants and arbitrary function .	
	3rd	iii) Partial differential equations of the form $Pp + Qq = R$	
	4th	iv) Solve problems on Linear differential equation.	
6th	1st	i) Discuss objective type question with answer .	
	2nd	i) Define Gamma function . ii) Reduction formula for $\Gamma(n)$	
	3rd	i) Define Laplace Transform of a function $f(t)$.	
		ii) Condition for the existence.	
	4th	iii) Transforms of elementary functions.	
	i) Some examples of elementary function. ii) Explain linear, shifting property of L.T.		
7th	1st	i) First shifting property.	
	2nd	ii) Application of first shifting property.	
		iii) Change of scale property	
	3rd	iv) Discuss some problem regarding on shifting property of L.T.	
	4th	v) Laplace transform of derivatives .	
		vi) Laplace transform of integral.	
8th	1st	i) Inverse Laplace Transform .	
	2nd	ii) Derive formulae of inverse L.T.	
	3rd	iii) Explain method of partial fractions .	
	4th	iv) Discuss some problem regarding on I.L.T. of partial fraction . v) Solve problems on L.T.	
9th	1st	i) Define periodic functions.	
		ii) Fourier Series definition.	
	2nd	iii) Some useful integrals.	
		iv) State Dirichlet's condition for the Fourier expansion of a function.	
	3rd	v) Convergence of Dirichlet's condition for the Fourier expansion of a function.	
		vi) Express periodic function $f(x)$ satisfying Dirichlet's conditions as a Fourier series.	
4th	vii) State Euler's formulae. viii) some examples of Euler's formula.		
10th	1st	i) Dirichlet's Condition.	
		ii) Discontinuous Functions.	
	2nd	i) Define Even and Odd functions and find Fourier Series.	
		ii) Examples of even and odd functions.	
	3rd	i) Expansion of an Even Function.	
ii) Expansion of an odd Function.			
4th	i) Half Range Series.		
1st	i) Sine Series and Cosine Series .		
	ii) Obtain F.S of continuous functions and having points of discontinuity.		
	i) Discuss some problem on fourier series.		

11th	2nd	ii) Discuss objective type question with answer .
	3rd	i) Introduction of Numerical methods.
		ii) Limitation of analytical methods.
12th	4th	i) Bisection method with some example
	1st	i) Newton- Raphson method.
	2nd	ii) some examples of Newton- Raphson method.
	3rd	iii) Discuss exercise of Numerical methods.
13th	4th	iv) CLASS TEST -2
	1st	i) Explain finite difference and form table of forward and backward difference.
		ii) Discuss exercise of forward and backward difference.
		iii) Define shift Operator E .
	2nd	iv) Relation between E & difference operator Δ
	3rd	v) Newton's Forward interpolation formula for equal intervals.
4th	vi) Newton's backward interpolation formula for equal intervals.	
14th	1st	i) Examples of Newton's forward and backward interpolation formula for equal intervals.
	2nd	ii) State Lagrange's interpolation formula for unequal intervals.
	3rd	iii) Numerical integration and state.
		iv) Newton's Cote's formula.
15th	4th	v) Trapezoidal rule.
	1st	i) Some problems of Trapezoidal rule.
		ii) Simpson's 1/3rd rule
	2nd	iii) Some problems on Simpson's 1/3rd rule.
	3rd	iv) Discuss exercise of Finite difference & interpolation.
4th	v) Discuss objective type question with answer .	
16th	1st	ii) Discuss previous year questions with answer
	2nd	iii) Discuss previous year questions with answer
	3rd	iv) Discuss previous year questions with answer
	4th	iv) Discuss previous year questions with answer

Learning Resources:			
Sl.No	Title of the Book	Name of Authors	Name of Publisher
1.	Higher engineering mathematics	Dr B.S. Grewal	khanna publishers
2.	Elements of mathematics Vol-1	Odisha state bureau of text book preparation and production	
3.	Text Book of Engineering Mathematics-I	C.R Mallick	Kalayani publication
4.	Text Book of engineering mathematics-III	C.R Mallick	Kalayani publication


 Signature of the Faculty
 31/07/2023