GOVERNMENT POLYTECHNIC JAJPUR
A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019
Website:https://www.gpjajpur.orgE-mail: principalgpjajpur@yahoo.co.in Contact: 9437155107

LESSON PLAN

3RD SEMESTER,MATH & SC

DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY: Pragyan Priyadarsini
SUBJECT:ENGG .MATHEMATICS-III	NO.OF DAYS/WEEKS CLASS ALLOTED	SEMESTER FROM DATE :15/09/2022 TO DATE: 22/12/2022 NO.OF WEEKS: 15

WEEKS	CLASS DAY	TOPICS
1ST	1st	i) Define rank of a matrix.
	2nd	ii) Elementary row transformations to determine the rank of a matrix.
	3rd	iii) State Rouche's theorem for consistency of a system of linear equations in n unknowns .
	4th	iv) Solve equations in three unknowns testing consistency.
2ND	1st	i) Solve problems on matrices.
	2nd	ii) Introduction of linear differential equation
	3rd	iii) general solution of linear Differential Equations in terms of C.F. and P.I.
	4th	iv) Discuss some problem on linear Differential Equations in terms of C.F. and P.I.
3RD	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.
4TH	1st	i) Discuss objective type question with answer .
	2nd	i) Define Gamma function . ii) Reduction formula for Γ(n)
	3rd	i) Define Laplaee Transform of a function f(t). ii) Condition for the existance. iii) Transforms of elimentary functions.
	4th	iv) Some examples of elimentary function.
5TH	1st	i) Explain linear, shifting property of L.T.
	2nd	ii) First shifing property.
	3rd	i) Application of first shifting property. ii) Change of scale property
	4th	iv) Discuss some problem regarding on shifting property of L.T.
6TH	1st	i) Laplace transform of derivatives .
	2nd	ii) Laplace transform of integral.
	3rd	iii) Inverse Laplace Transform .
	4th	iv) Derive formulae of inverse L.T.
7TH	1st	iii) Explain method of partial fractions .
	2nd	iv) Discuss some problem regarding on I.L.T. of partial fraction .
	3rd	v) Solve problems on L.T.
	4th	i) Define periodic functions. ii) Founier Series defination.
8th	1st	i) Some useful integrals. ii) State Dirichlet's condition for the Fourier expansion of a function.
	2nd	ii) Convergence of Dirichlet's condition for the Fourier expansion of a function.
	3rd	iv) Express periodic function f(x) satisfying Dirichlet's conditions as a Fourier series.
	4th	v) State Euler's formulae. vi) some examples of Euler's formula.

9TH	1st	i) Dirchelet's Condition.
		ii) Discontinuous Functions.
	2nd	iii) Define Even and Odd functions and find Fourier Series.
	3rd	iv) Examples of even and odd functions.
	4th	v) Expansion of an Even Function.
10TH	1st	i)Expansion of an odd Function.
	2nd	ii) Half Range Series.
	3rd	i) Sine Series and Cosine Series .
		ii) Obtain F.S of continuous functions and having points of discontinuity.
	4th	v) Discuss some problem on fourier series.
11th	1st	i) Discuss objective type question with answer .
	2nd	ii) Introduction of Numerical methods.
	3rd	iii) Limitation of analytical methods.
	4th	iv) Bisection method with some example
12th.	1st	i) Newton- Raphson method.
	2nd	ii) some examples of Newton- Raphson method.
	3rd	iii) Discuss exercise of Numerical methods.
	4th	iv) Explain finite difference and form table of forward and backward difference.
13th	1st	i) Discuss exercise of forword and backword difference.
	2nd	ii) Define shift Operator E .
		iii) Relation between E & difference operator Δ
	3rd	iv) Newton's Forward interpolation formula for equal intervals.
	4th	v) 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 interpretation formula for unequal intervals.
	3rd	iii) Numerical integration and state.
		iv) Newton's Cote's formula.
	4th	v) Trapezoidal rule.
15th	1st	i) Some problems of Trapezoidal rule.
	2nd	ii) Simpson's 1/3rd rule
		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 .

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

N.B: 8 extra classes may be needed to complete the course.

Signature of Faculty