PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN
Session-2024-2025

Semester:2nd   Discipline: Common

Subject: Mathematics-II

Name of the Teaching Faculty: Mr. Shubhranshu Kumar Sahu

Subject: Mathematics-II

No. of Days/per week class allotted : 04

Semester From Date :04-02-2025   To Date: 17-05-2025

No. of Weeks : 15

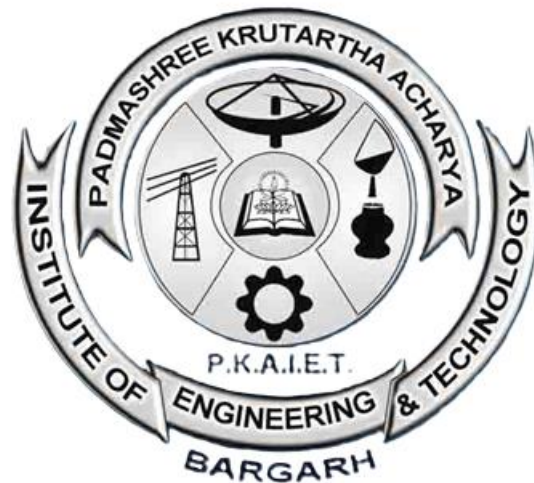| Week	Class Day	Theory /Practical Topics
1st	1	Definition and evaluation of determinant, order of determinant
	2	Properties of the determinant
	3	Evaluation of determinant using properties
	4	Crammer's rule to find solution of linear equations.
2nd	1	Solving linear equations by Crammer's rule
	2	Solution to exercises on determinant
	3	Definition and order of a matrix
	4	Types of matrices
3rd	1	Algebra of matrices (addition, Substraction and scalar multiplication)
	2	Construction of matrices using a given rule
	3	Transpose of a matrix and its properties
	4	Cofactor and ad joint of a square matrix
4th	1	Inverse of a square matrix
	2	Product of two matrices
	3	Solution to linear equations by matrix inverse method.
	4	Solutions of Exercises on matrices

Shubhranshu ku sahu

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Week	Class Day	Theory /Practical Topics
5th	1	Definition of integration as anti-derivative
	2	Algebra of integration
	3	Simple integration by algebraic substitution
	4	Integration by trigonometric substitution
6th	1	Integration by parts
	2	Integration of rational function using partial fraction
	3	Some standard formulae on integration
	4	Integration of trigonometric function
7th	1	Definite integral
	2	Properties of definite integral
	3	Use of reduction formula such as : $\int_0^{\frac{\pi}{2}} sin^m x\, dx,$ $\int_0^{\frac{\pi}{2}} cos^n x\, dx, \int_0^{\frac{\pi}{2}} (sin^m x)(cos^n x)\, dx$ where m, n∈N
	4	Fundamental theorem on integral calculus
8th	1	Finding area bounded by Curves and coordinate axes
	2	Area bounded by two curves
	3	Volume of solid form by revolution of an area about axes
	4	Exercises on integration

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Semester From Date :04-02-2025   To Date: 17-05-2025

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Week	Class Day	Theory /Practical Topics
9th	1	Locus of a point and its equation
	2	Distance and division formula, slope of a straight line.
	3	Equation of a straight line in slope-intercept form, Two-Point form
	4	Equation of straight line in slope-point and intercept form
10th	1	Equation of straight line in normal form and general form
	2	Point of intersection of two straight lines
	3	Angle between two straight lines, Parallel and Perpendicular condition
	4	Equation of a straight line passing through a point (i)Perpendicular to a line (ii)Parallel to a line
11th	1	Distance of a point from a line
	2	Solution to exercises on straight line
	3	Definition of circle and finding centre, radius of circle
	4	Equation of circle passing through three given points
12th	1	Finding coordinates of end points of a diameter on a circle
	2	Equation of a circle on a given diameter.
	3	Equation of circle touching 'X', 'Y' or both axes
	4	Solution of exercises on circle

Shubhranshu Ku Sahu
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Week	Class Day	Theory /Practical Topics
13th	1	Parabola: Definition, vertex, focus, directrix
	2	Ellipse: Definition, vertex, focus, directrix
	3	Hyperbola: Definition, vertex, focus, directrix
	4	Solution to exercises on above Conics
14th	1	Definition of vector, rectangular resolution of a vector
	2	Addition, Substraction and scalar multiplication of vectors
	3	Scalar and vector product of two vectors, angle between Two vectors
	4	Solution to exercises on vectors related to work, moment and angular velocity.
15th	1	Definition of differential equation, order and degree of a differential equation
	2	Solution of first order and first-degree differential Equation by variable separation method
	3	Introduction to MATLAB
	4	Simple programmes using MATLAB

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PADMASHREE KRUTARTHA INSTITUTE OF ENGINEERING AND TECHNOLOGY, BARGARH

LESSON PLAN

Session : 2024-25

Semester : 2nd   Discipline : **All Branches**

Subject : **Mathematics**

Name of the Teaching Faculty : **SUKRU MEHER**

Subject: <u>Mathematics</u>   **No. of Days per week class allotted : <u>04</u>**

Semester from Date : <u>04.02.2025</u> To Date : <u>17.05.2025</u> No. of Weeks : <u>15</u>

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Sukru Meher
Signature of the faculty

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Sukru Meher
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