

**PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF  
ENGINEERING & TECHNOLOGY, BARGARH**



**LESSON PLAN**  
**Session-2022-2023**

**Discipline: Elect/CSE/ Mett./ Civil/Mechanical Engg.      Semester: 2nd**

**Subject: Engg. Mathematics-II**

**Name of the Teaching Faculty: Mr. Rajaram Sahu**

Subject: Eng. Mathematics-II No. of Days/per week class allotted 02

Semester From Date: 20.3.2023 To Date: 24.6.2023 No. of Weeks: 14

Week	Class Day	Theory/Practical Topics
1st	1	Introduction, Definition of vector quantity and scalar quantity with examples
	2	Types of Vectors; Null vector, unit vector, parallel vector, collinear vector
2nd	1	Representation of a vector, Magnitude and direction of a vector.
	2	coinitial vector, like vector, unlike vector, equal vector
3rd	1	operation in vector, Addition parallelogram law of vector addition.
	2	commutative law, associative law with respect to addition, Subtraction
4th	1	Multiplication of a vector by scalar, parallel vector properties of scalar multiplication
	2	Position vector, vector w.r.t. Position vector, component vector, Examples.
5th	1	Position vector of a point in space, Magnitude, unit vector
	2	Addition, Subtraction, Scalar multiplication of a component vector
6th	1	Scalar or dot product of a vector, Angle between 2 vectors
	2	Condition of perpendicular and parallel vectors related to dot product.

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Subject: Eng. Mathematics - II No. of Days/per week class allotted 09

Semester From Date: 20.3.2023 To Date: 24.6.2023 No. of Weeks: 14

Week	Class Day	Theory / Practical Topics
7 <sup>th</sup>	1	Geometrical meaning of dot product, scalar and vector projection
	2	Vector product or cross product, Angle between two vectors, condition of perpendicular, parallel vectors.
8 <sup>th</sup>	1	Properties of vector product, geometrical meaning of vector product.
	2	Area of triangle, parallelogram
9 <sup>th</sup>	1	Differential equation, Types of differential equation, formation of diff. equation.
	2	Initial condition, initial value problem of differential equation.
10 <sup>th</sup>	1	order and degree of differential equation, Examples
	2	Solution of a differential equation, General and particular solution
11 <sup>th</sup>	1	General and particular solution of 1st order and 1st degree diff. eqn by variable separable method.
	2	Initial value problem, particular solution.
12 <sup>th</sup>	1	Linear and Non-linear differential equation
	2	General solution of 1st order linear differential equation.

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