

DHABALESWAR INSTITUTE OF POLYTECHNIC, ATHGARH

LESSON PLAN

**Discipline-** Diploma Engg      **Semester-** 2nd      **Name of Faculty-** Ashisha Panda

**Subject-** Engg. Math-II      **No. of day for week class allotted-** 06

**Semester -** From Dt. 14.03.2022 To Dt. 18.06.2022 .      **No. of week-** 14

Week	Class Day	Theory Topics
1 <sup>st</sup>	1 <sup>st</sup>	Discussion on 1st semester question & doubt clearance
	2 <sup>nd</sup>	Brief discussion on Trigonometry
	3 <sup>rd</sup>	Brief discussion on inverse trigonometric function
	4 <sup>th</sup>	Brief discussion on geometry ( 2D and 3D)
2 <sup>nd</sup>	1 <sup>st</sup>	Brief discussion on geometry ( St. line and Plane)
	2 <sup>nd</sup>	Introduction of vector and scalar with definition and type of vector.
	3 <sup>rd</sup>	Representation of vector, Magnitude and direction of vector. Addition , subtraction and scalar multiplication of vectors
	4 <sup>th</sup>	Position vector. Vector in compound form and problem
	5 <sup>th</sup>	Scalar product (or dot product) of two vectors. Geometrical meaning of dot product. Scalar projection & vector projection.
	6 <sup>th</sup>	Dot product in component form
3 <sup>rd</sup>	1 <sup>st</sup>	Angle between two vectors. scalar and vector projection in component form
	2 <sup>nd</sup>	Condition of perpendicularity and parallelism in component form
	3 <sup>rd</sup>	Vector product of two vectors and its geometrical meaning.
	4 <sup>th</sup>	Vector product in component form
	5 <sup>th</sup>	Area of triangle and parallelogram with given two sides. Area of parallelogram with given diagonals
4 <sup>th</sup>	1 <sup>st</sup>	Scalar triple product in component form
	2 <sup>nd</sup>	Problem
	3 <sup>rd</sup>	Revision and doubt clearance
	4 <sup>th</sup>	Defining set theory and the function based on set theory.
	5 <sup>th</sup>	Type of function(constant, identity, absolute,greatest integer,Trigonometry, exponential,logarithmic,inverse,odd & even etc..)
5 <sup>th</sup>	1 <sup>st</sup>	Type of function continue.
	2 <sup>nd</sup>	Introduction to limit
	3 <sup>rd</sup>	Steps to evaluate the limit of a function
	4 <sup>th</sup>	Formula of the limit
6 <sup>th</sup>	1 <sup>st</sup>	Left hand limit and right hand limit and existence of limit
	2 <sup>nd</sup>	Definition of continuity of a function at a point and problem based on it.

	3 <sup>rd</sup>	Problem on limit and continuity
	4 <sup>th</sup>	Defining derivative of a function at a point
	5 <sup>th</sup>	Derivative of standard function by using definition
	6 <sup>th</sup>	Algebra of derivative (Addition, Subtraction, Mul, Div)
7 <sup>th</sup>	1 <sup>st</sup>	Derivative of composite function (Chain rule)
	2 <sup>nd</sup>	Derivative of parametric function
	3 <sup>rd</sup>	Derivative of implicit function
	4 <sup>th</sup>	Derivative using logarithm
	5 <sup>th</sup>	Derivative of a function with respect to another function
	6 <sup>th</sup>	Successive differentiation (upto 2nd order)
8 <sup>th</sup>	1 <sup>st</sup>	Partial differentiation (function of two variables upto 2nd order)
	2 <sup>nd</sup>	Problem
	3 <sup>rd</sup>	Revision & Doubt clearance
	4 <sup>th</sup>	Definition of integration as inverse of differentiation. Formula for integration of standard function.
	5 <sup>th</sup>	Integration by substitution.
9 <sup>th</sup>	1 <sup>st</sup>	Integration by parts
	2 <sup>nd</sup>	Problem using by parts
	3 <sup>rd</sup>	Integration of the function like $x^2+a^2$ , $x^2-a^2$ , $a^2-x^2$
	4 <sup>th</sup>	Problem of above
	5 <sup>th</sup>	Definite integral and its problem
	6 <sup>th</sup>	Properties of definite integral with example
10 <sup>th</sup>	1 <sup>st</sup>	Problem of above
	2 <sup>nd</sup>	Area enclosed by a curve and x-axis or y-axis
	3 <sup>rd</sup>	Area of a circle with centre at origin
	4 <sup>th</sup>	Revision and doubt clearance of integration
	5 <sup>th</sup>	Definition of differential equation. order and degree of the differential equations
11 <sup>th</sup>	1 <sup>st</sup>	Solution of the 1st order and 1st degree differential equation by method of variable separation.
	2 <sup>nd</sup>	Problem on above
	3 <sup>rd</sup>	Solution of linear differential equation $dy/dx+Py=Q$
	4 <sup>th</sup>	Problem on above
	5 <sup>th</sup>	Revision and doubt clearance of differential equation.
12 <sup>th</sup>	1 <sup>st</sup>	Revision of vector
	2 <sup>nd</sup>	Revision of vector product
	3 <sup>rd</sup>	Revision of limit
	4 <sup>th</sup>	Revision of continuity
	5 <sup>th</sup>	Revision of differentiation (by definition)
13 <sup>th</sup>	1 <sup>st</sup>	Revision of derivative
	2 <sup>nd</sup>	Revision of derivative continue
	3 <sup>rd</sup>	Revision of partial differential equation

	4 <sup>th</sup>	Revision of Integration
	5 <sup>th</sup>	Revision of Integration by parts
	6 <sup>th</sup>	Revision of Definite integral
14 <sup>th</sup>	1 <sup>st</sup>	Revision of application of Integration
	2 <sup>nd</sup>	Revision of differential equation
	3 <sup>rd</sup>	Revision of linear differential equation
	4 <sup>th</sup>	Sample paper discussion