

# DHABALESWAR INSTITUTE OF POLYTECHNIC, ATHGARH

## LESSON PLAN

**Discipline-** Diploma Engg      **Semester-** 1st      **Name of Faculty-** Ashisha Panda

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

**Semester -** From Dt. 25.10.2022 To Dt. 31.01.2023 .      **No. of week-** 14

Week	Class Day	Theory Topics
1 <sup>st</sup>	1 <sup>st</sup>	Course introduction
	2 <sup>nd</sup>	Brief discussion on Number system
	3 <sup>rd</sup>	Brief discussion on traditional Geometry
	4 <sup>th</sup>	Brief discussion on Analytical Geometry
	5 <sup>th</sup>	Brief discussion on Trigonometry
2 <sup>nd</sup>	1 <sup>st</sup>	Solution of equations on different method
	2 <sup>nd</sup>	Determinant definition and expansion
	3 <sup>rd</sup>	Properties of determinant
	4 <sup>th</sup>	Problem based on Properties
	5 <sup>th</sup>	Cramer's rule( 2 unknowns & 3 unknowns)
	6 <sup>th</sup>	Problems on determinant
3 <sup>rd</sup>	1 <sup>st</sup>	Matrix definition and type of matrices.
	2 <sup>nd</sup>	Algebra of matrices( Add , Sub & Scalar Multiplication)
	3 <sup>rd</sup>	Multiplication of 2 matrices
	4 <sup>th</sup>	Inverse of a matrix
	5 <sup>th</sup>	Solution of simultaneous equations by Matrix method
4 <sup>th</sup>	1 <sup>st</sup>	Problem on Matrix
	2 <sup>nd</sup>	Revision & Doubt clearance on determinant and matrix
	3 <sup>rd</sup>	Introduction to traditional geometry and analytical geometry
	4 <sup>th</sup>	Coordinate axis & coordinate point on a plane
	5 <sup>th</sup>	Distance and division formula
	6 <sup>th</sup>	Mid point between two point and centroid of a triangle
5 <sup>th</sup>	1 <sup>st</sup>	Area of a triangle and condition for colinearity
	2 <sup>nd</sup>	Slope of a line and angle between two lines.
	3 <sup>rd</sup>	Condition of parallalism & perpendicularity and Problem
	4 <sup>th</sup>	Locus and equation
	5 <sup>th</sup>	Equation of st. line( On the axis &parallal to the axis)
	6 <sup>th</sup>	Equation of line(Slope intercept form,slope point form, two point form,intercept form and normal form
6 <sup>th</sup>	1 <sup>st</sup>	Family or System of line.(parallal and perpendicular to a line)
	2 <sup>nd</sup>	Family of line passing through intersection of two lines
	3 <sup>rd</sup>	Angle between two lines and condition of parallelism, perpendicularity and similarity
	4 <sup>th</sup>	Distance from a point to a line. Distance between two parallal lines
	5 <sup>th</sup>	Problem on Straight line
	6 <sup>th</sup>	Revision and Doubt clearance of straight line.

7 <sup>th</sup>	1 <sup>st</sup>	Circle definition & equation of circle in center- radius form
	2 <sup>nd</sup>	Equation of circle tangent to the axes and end point of diameter form
	3 <sup>rd</sup>	Equation of circle in general form determining center and radius of the circle
	4 <sup>th</sup>	Revision , doubt clearance and problem
	5 <sup>th</sup>	Introduction to 3- dimensional coordinate geometry and point on the space
	6 <sup>th</sup>	Distance & Division formula
8 <sup>th</sup>	1 <sup>st</sup>	Mid point formula and centroid of triangle
	2 <sup>nd</sup>	Direction cosines(dcs) and Direction ratios(drs) of a line
	3 <sup>rd</sup>	Angle between two lines with given dcs and drs
	4 <sup>th</sup>	Condition for parallelism and perpendicularity.
	5 <sup>th</sup>	Equation of plane passing through a point and dcs, drs of the normal to the plane is given
	6 <sup>th</sup>	Equation of plane in intercept form and general form.
9 <sup>th</sup>	1 <sup>st</sup>	Angle between two planes and condition of parallelism and perpendicularity
	2 <sup>nd</sup>	Family or system of planes parallel to a plane
	3 <sup>rd</sup>	Family of planes passing through intersection of two planes
	4 <sup>th</sup>	Distance from a point to a plane and distance between two parallel planes
	5 <sup>th</sup>	Problems
	6 <sup>th</sup>	Revision and doubt clearance
10 <sup>th</sup>	1 <sup>st</sup>	Sphere definition and equation of sphere with given center and radius
	2 <sup>nd</sup>	Equation of sphere with given end point of diameter. general equation of sphere & determining center and radius
	3 <sup>rd</sup>	Problems
	4 <sup>th</sup>	Revision and doubt clearance
	5 <sup>th</sup>	Defining Trigonometry, Trigonometric ratio and Trigonometric identities
	6 <sup>th</sup>	Trigonometry Formula and its Prove
11 <sup>th</sup>	1 <sup>st</sup>	Angle derivation
	2 <sup>nd</sup>	Problem based on angle and basic formula
	3 <sup>rd</sup>	Compound angle formula
	4 <sup>th</sup>	90- , 90+, 180-, 180+ , 270-, 270+, 360-, 360+ formula
	5 <sup>th</sup>	Problem based on above
	6 <sup>th</sup>	Multiple and submultiple angle formula
12 <sup>th</sup>	1 <sup>st</sup>	Problems
	2 <sup>nd</sup>	Problems
	3 <sup>rd</sup>	Revision and doubt clearance of Trigonometry
	4 <sup>th</sup>	Inverse trigonometry formula and proof
	5 <sup>th</sup>	Continue
	6 <sup>th</sup>	Problem on Inverse trigonometric function

13 <sup>th</sup>	1 <sup>st</sup>	Problem on Inverse trigonometric function
	2 <sup>nd</sup>	Revision and Doubt clearance of ITF
	3 <sup>rd</sup>	Revision on Determinant and Matrix
	4 <sup>th</sup>	Revision on Geometry ( Comparison between 2D and 3D)
14 <sup>th</sup>	1 <sup>st</sup>	Revision on Geometry ( Comparison between line & Plane)
	2 <sup>nd</sup>	Revision on Geometry ( Comparison between circle & Sphere)