

## LESSON PLAN

Discipline / All Branches	Semester-1st	Name of the teaching faculty:- Sri Sarada Ku. Nayak Lect in Mathematics, Math. & Sc. Deptt., GP, Bolangir
Subject:- Engg. Math-I	No. of days/per week- 05	Semester from date : 16.08.19 to 30.11.2019 No. of weeks :- 14 (excluding puja vacation)
Week	Class day	Theory
1st	1st	General introduction, introduction to subject
	2nd	Introduction to topic, matrices & determinants
	3rd	Construction of matrix, equality of matrices
	4th	Types of matrices
	5th	Addition, Subtraction, Multiplication of matrix by scalar
2nd	1st	Multiplication of matrices
	2nd	Multiplicative inverse of a square matrix of order 2 & 3
	3rd	Solving of system of linear equations by matrix method
	4th	Problem discussion with doubt clearing
	5th	Solving of system of linear equations of two unknown variables by cross multiplication
3rd	1st	Cramer's rule, for 2nd & 3rd order determinants
	2nd	Solving of system of linear equations by using Cramer's rule
	3rd	Properties of determinants & its application
	4th	Problem discussion
	5th	Problem discussion & doubt clearing
4th	1st	Discussion about imaginary numbers & cube roots of unity
	2nd	Solution of a determinant having imaginary no. & cube roots of unity as its elements
	3rd	Introduction to trigonometry and trigonometrical ratios
	4th	ASTC rule and its application
	5th	even function, odd function, periodic function

5th	1st	Problem discussion
	2nd	Addition, differences formula of trigonometry and their transformations to products
	3rd	Problem discussion
	4th	Trigonometrical ratios of angle $2A$ , $3A$
	5th	Trigonometrical ratios of sub-multiple angle i.e. $A/2$
6th	1st	Illustratives examples
	2nd	Conditional trigonometric identities with illustrative examples
	3rd	Problem discussion
	4th	Introduction to inverse trigonometric ratios
	5th	Properties of inverse trigonometric functions
7th	1st	Continue
	2nd	Problem discussion
	3rd	Problem discussion
	4th	Introduction to geometry in two dimension
	5th	Distance formula, division formula and their application
8th	1st	Area of triangle, area of polygon, problem discussion
	2nd	Slope of a line, angle between two lines, condition for perpendicularity and parallelism
	3rd	Straight lines, different form of straight lines, slope intercept form, one-point form, two-point form.
	4th	Intercept form normal form with illustrative examples
	5th	Equation of a line passing through a point and i) parallel to a line ii) perpendicular to a line
9th	1st	Equation of a line passing through the intersection to two lines, illustrative examples
	2nd	Distance of a point from a line, perpendicular distance between two parallel lines with examples
	3rd	Problem discussion with doubt clearing
	4th	Problem discussion
	5th	Introduction to circle, equation of circle in centre radius form

10th	1st	Equation of circle and point of diameter term
	2nd	General equation of circle, illustrative examples
	3rd	Problem discussion with doubt clearing
	4th	Problem discussion
	5th	Introduction to three dimensional geometry
11th	1st	Distance formula, section formula
	2nd	Direction ratios, direction cosines of a line
	3rd	Angle between two lines, condition of parallelism & perpendicularity
	4th	Problem discussion
	5th	Problem discussion with doubt clearing
12th	1st	Introduction to plane, general equation of plane
	2nd	Equation of plane in intercept form, normal form, transformation of plane from general to intercept & normal form
	3rd	Plane passing through three non-collinear points, coplanarity of four points, illustrative examples.
	4th	Angle between two planes, condition of perpendicularity & parallelism of planes, distance between two parallel planes.
	5th	Perpendicular distance of a point from a plane, equation of plane passing through a point and parallel to a plane and perpendicular to a plane
13th	1st	Problem discussion with doubt clearing
	2nd	Exercise problem discussion
	3rd	Introduction to sphere, equation of sphere in centre radius form.
	4th	General equation of sphere, how to find centre and radius from general equation
	5th	Equation of a sphere passing through four given points, illustrative examples
14th	1st	Equation of a sphere when end points of diameter are given, illustrative examples
	2nd	Problem discussion with doubt clearing
	3rd	Exercise problem discussion
	4th	Problem practice
	5th	Problem practice