LESSON PLAN
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA

Name of the Faculty:Satyananda Gadtia & Bhubaneswari Mishra	Academic Year: **2021-22**
Course No.: **TH-3**	Course Name: **MATHEMATICS-I**
Programe: Diploma	Branch: **Civil, Mechanical, Electrical, Etc and IT**
Year/Sem: I	Section: A,B,C,D,E,F

WEEK	Chapter	PERIOD	Topic to be Covered
1	Chapter-1	1	**MATRICES AND DETERMINANTS--** Types of matrices
		2	Algebra of matrices, Equality of matrices ,Addition of matrices, Substraction of matrices.
		3	Properties of matrices
		4	Product of a Matix and a Scalar, Matrix Multiplication and its example solutions
		5	Properties of matrix multiplication and Identity matrix of multiplication
		6(Tutorials)	Math Tutorials, problem solving of matrices
2	Chapter-1	7	**DETERMINANTS:** Determinant ,types of Determinant
		8	Minor and Cofactor
		9	Properties of determinant(property 1 to 6) with its example
		10	Expansion of determinants, Adjoint of matrices
		11	Inverse of a matrices(second and third order
		12(Tutorials)	Math Tutorials, problem solving of inverse matrices
3	Chapter-1	13	Questions of inverse matrices (second order matrix)
		14	Example solving of inverse matrices (third order)
		15	Cramer's rule
		16	Properties of Cramer's rule and Example of Cramer 's rule
		17	Solution of simultaneous equations by matrix inverse method
		18(Tutorials)	Math Tutorials, problem solving of matrix method and Cramer 's rule.
4	Chapter-01	19	Solution of simultaneous equations by matrix inverse method (Question should be on two variables)
		20	Prove determinants without Expansion and its example
		21	Exercise question solving of matrix and determinants

	Chapter-02	22	**TRIGONOMETRY-**: Introduction of trigonometry, Measurement of an angle, Sexagesimal system, Centesimal system, Circular system
		23	Trigonometric ratios, Trigonometric functions
		24(Tutorials)	Math Tutorials, problem solving .
5	Chapter-02	25	Trigonometry Identity, and its example
		26	Signs of T-Ratios, ASTC-Rule, Trigonometric Ratio of Selected Angles
		27	Limits of the values of T-ratios, its example
		28	Values of T-ratios$(-\theta)$ of allied angles 1. T-ratios of in terms of , for all values of .
		29	T-ratio of$(90- \theta), (90+ \theta), (180 - \theta), (180 + \theta),(270- \theta)$ $(270+ \theta), (360 - \theta), (360+ \theta)$ $in\ terms\ of\ \theta, for\ all\ value\ of \theta$
		30(Tutorials)	Math Tutorials, problem solving.
6	Chapter-02	31	Some example solving, even function and odd function
		32	Addition theorem and substraction Theorem and its example
		33	Transformation of a Product into a Sum or Difference, and Vice-versa and its example
		34	Compound angles, find sin18,cos18,tan18,sin36,cos36,etc ,Multiple angles
		35	sub-multiple angles
		36(Tutorials)	Math Tutorials, problem solving.
7	Chapter-02	37	Define inverse circular functions, theorem
		38.	Properties of inverse trigonometric function
		39.	Properties from 6 to 10 with its example
		40.	Question and example solving of inverse trigonometric function
	Chapter-03	41.	**Two-dimensional Geometry:** Introduction of geometry in two dimension
		42. (Tutorials)	Math Tutorials, problem solving .
8	Chapter-03	43.	Distance formulae, division formulae
		44	Area of a triangle
		45	Define slope of a line, find slope
		46	Angle between two lines
		47	Condition of Perpendicularity and parallelism.
		48(Tutorials)	Math Tutorials, problem solving of Area of a triangle.

9	Chapter-03	49	Different forms of straight lines
		50	Different forms of straight lines (only formulae) i) One point form (ii) two point form (iii) slope form
		51	(iv) intercept form(v) Perpendicular form
		52	Equation of a line passing through a point and (i) parallel to a line
		53	Equation of a line passing through a point and (ii) Perpendicular to a line
		54(Tutorials)	Math Tutorials, problem solving and doubt clear in two dimension geometry.
10	Chapter-03	55	Equation of a line passing through the intersection of two lines
		56	Distance of a point from a line
		57	Distance between two parallel lines
	Chapter-04	58	**Circle :** Equation of circle
		59	Center point and radius of the circle
		60(Tutorials)	Math Tutorials, problem solving of plane
11	Chapter-04	61	Equation of circle if center point and radius is given
		62	General equation of a circle
		63	Circle passing through three points
		64	Equation of circle if end points of the diameter is given
		65	Different questions solving of circle
		66(Tutorials)	Math Tutorials, problem solving
12	Chapter-05	67	CO-ORDINATE GEOMETRY IN THREE DIMENSIONS : Introduction of co-ordinate geometry in three dimension
		68	Distance formulae and its question
		69	Section formulae and its imp questions
		70	direction ratio, direction cosine of a line.
		71	Angle between two lines (condition of parallelism and perpendicularity)
		72(Tutorials)	Math Tutorials, problem solving
13	Chapter-05	73	Equation of a plane
		74	Equation of a plane in general form

	Chapter-05	75	Equation of plane passing through three given points and Equation of a plane parallel to a give plane
		76	Equations of Plane in different forms
		77	Angle between two planes
		78(Tutorials)	Math Tutorials, problem solving
14		79	perpendicular distance of a point from a plane
		80	Equation of a plane passing through a point
		81	Equation of a plane passing through a point and parallel to a plane and perpendicular to a plane
	Chapter-06	82	**SPHERE :** Introduction of Sphere, Equation of a sphere
		83	Equation of sphere passing through origin, equation of sphere with centre point and a point is given.
		84(Tutorials)	Math Tutorials, problem solving
15	Chapter-06	85	Center point and radius of the sphere
		86	Equation of a sphere in general form
		87	Sphere passing through four points
		88	Sphere with two end points of a diameter form
		89	Question and exercise solving of sphere.
		90(Tutorials)	Math Tutorials, problem solving

25/10/2021   25.10.21   25.10.21