

LESSON PLAN

JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA

Name of the Faculty: Satyananda Gattia & Bhubaneswari Mishra	Academic Year: 2024-25
Course No.: TH-3	Dept.: Math & Sc.
Program: Diploma	Course Name: MATHEMATICS-II
Year/Sem: 2ND sem(1st Year)	Branch: Civil, Mechanical, Electrical, Etc and IT, Mechatronics, Comp.sc & IOT
Session: SUMMER	Section: C,M(A).M(B),E,IT/ETC,COMP/MCT

WEEK	UNIT	PERIOD	Topic to be Covered
1	UNIT-1	1	DETERMINANTS AND MATRICES :-- Determinant ,types of Determinant, Minor and Cofactor,
		2	Properties of determinant(property 1 to 6) with its example
		3	Expansion of determinants, Determinants of order 3
		4	Minors and Cofactors. Expansions of a determinants in terms of minors and cofactors.
2	UNIT-1	5	Cramer's rule, Properties of Cramer's rule and Example of Cramer's rule
		6	System of Linear Equation in three variable(cramer's rule),
		7	Homogeneous System of Linear Equations. Applications of Determinants.
		8	MATRICES :- Types of matrices, Algebra of matrices, Equality of matrices ,Addition of matrices, Substraction of matrices.
3	UNIT-1	9	Properties of matrices, Product of a Matix and a Scalar, Matrix Multiplication and its example solutions
		10	Transpose of a matrix, Inverse matrix
		11	Solution of system of Linear equation by matrix method
		12	Questions Solving of Determinants and matrices
4	UNIT-2	13	INTEGRATIONS —: Introductions of integrations, indefinite integrations, properties of indefinite integrations
		14	Methods of integrations. I) Intergrations by using standard formula
		15	II)Integrations by Substitution

	UNIT-02	16	III) Integrations by parts
5	UNIT-02	17	Solving of integrations by using by parts.
		18	iv) Integrations by partial fractions
		19	Definite integrations , Common properties of definite integrals
		20	Use of wall's integral formula
6	UNIT-02	21	Applications of Integrations , Area Bounded by a curve and axes
		22	Calculate Volume of a solid formed by Revolution of an area about axes.
		23	Questions Solving of integration
	UNIT-03	24	Co-ordinate Geometry:- Concept of coordinate geometry, Cartesian co-ordinates system, straight line
7	UNIT-03	25	Equation of straight line in various Standard forms
		26	Intersection between two straight lines, angle between two lines
		27	Parallel and Perpendicular lines.
		28	Perpendicular distance formula.
Qu	UNIT-03	29	Distance between two Parallel lines.
		30	Question Solving of distance between two lines, between two parallel lines
		31	Circle – Introductions of Circle, General equations of a circle and its characteristics
		32	To find the equation of a circle given centre and radius, three points lying on it
9	UNIT-03	33	Equation of a circle through three given points.
		34	Equation of circle in diameter form.
		35	Definition of conics(Parabola, Ellipse, Hyperbola)
		36	General equation of a conic
10	UNIT-03	37	Ellipse and its solutions
		38	Questions solving of circle .
	UNIT-04	39	VECTOR ALGEBRA— Introduction of vector algebra, representations of vector
		40	Representation of vector, example of vector, Magnitude and direction of vectors
11	UNIT-05	41	Rectangular resolutions of a vector.
		42	Algebra of Vectors, Properties of vector addition


		43	Types of Vectors
		44	Dot Product or Scalar Product,
12	UNIT-04	45	Angle between two vectors & its questions
		46	Application of Dot Product.
		47	Scalar and vector projection of two vectors & discuss its example
		48	Cross Product or Vector Product of Two vectors .
13	UNIT-04	49	Angle between two vectors, Applications of vector product.
		50	Questions Solving of vectors
	UNIT-05	51	Differential Equations:-- Introduction of differential equations, O.d.e and p.d.e
		52	Order and Degree of a differential Equation.
14	UNIT-05	53	Solution of an ordinary Differential Equation .
		54	Formation of a Differential Equation Whose General Solution is given.
		55	Solution of first order and first degree differential equation by variable separation method.
		56	Question Solving of Differential equation.
15	UNIT-05	57	Introduction of MATLAB , Slient Features of MATLAB.
		58	Basics of MATLAB
		59	Advantages of MATLAB, Disadvantages of MATLAB.
		60	Keyboard Shortcuts for MATLAB, Application of Differential Equation and MATLAB, and Questions solving of MATLAB.

Bhubaneswar Mishra .

4.02/25

Satyamanda Goudra
04-04/02/25

Signature of faculty member


04/02/25
Sr. Lect. (M/Sc)

Engg. School

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Signature of Sr. Lecture

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