

SPINTRONIC TECHNOLOGY AND ADVANCE RESEARCH

SUBJECT: MATHEMATICS-II

LESSON PLAN SESSION: 2024-2025 SEM-2ND

NAME OF THE FACULTY- SUBHRALIN SAHOO

SL NO.	NO OF PERIOD (TOPIC WISE)	TOTAL NO OF PERIOD	CUMULATIVE NO OF PERIOD
1.1	Determinants and Matrices :Elementary properties of determinant up to 3 rd order.	2	2
1.2	Consistency of equations	2	4
1.3	Crammer's Rule, Algebra of matrices	2	6
1.4	Inverse of a matrix, Matrix inverse method to solve a system of linear equations in 3 variables.	2	8
2.1	Integral Calculus :Integration as inverse operation of differentiation	2	10
2.2	Simple integration by substitution	2	12
2.3	Integration by parts	3	15
2.4	Integration by partial fractions(for linear factors only)	2	17
2.5	Use of Reduction formulae for solving problems.	3	20
2.6	Application of integration for(i) Simple problem on evaluation of area bounded by a curve and axes.	2	22
2.7	Application of integration for(ii) Calculation of Volume of a solid formed by revolution of an area about axes .	2	24
3.1	Co-Ordinate geometry : Equation of straight line in various standard forms (without proof)	2	26
3.2	Intersection of two straight lines, Angel between two lines	2	28
3.3	Parallel and perpendicular lines.	2	30
3.4	perpendicular distance formula	2	32
3.5	General equation of a circle and its characteristics	2	34
3.6	To find the equation of a circle, given: ii. Centre and radius, iii. Three points lying on it and iv. Coordinates of end points of a diameter;	2	36
3.7	Definition of conics (Parabola, Ellipse, Hyperbola) their standard equations without proof.	3	39
3.8	Problems on conics when their foci, directories or vertices are given.	2	41
4.1	Vector Algebra :Definition notation and rectangular resolution of a vector	2	43
4.2	Addition and subtraction of vectors.	2	45
4.3	Scalar and vector products of 2 vectors.	3	48
4.4	Simple problems related to work, moment and angular velocity.	2	50

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5.1	Differential Equations: Solution of first order and first degree differential equation by variable separation method (simple problems)	3	53
5.2	MATLAB – Simple Introduction.	2	55
5.3	Revision	3	58
5.4	Previous year questions discussion	2	60

Reference Books:

- **Mathematics-II** by Dr. Garima Singh (Download from <https://ekumbh.aicteindia.org/dbook.php>)
- B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers, New Delhi, 40th Edition, 2007.
- G. B. Thomas, R. L. Finney, Calculus and Analytic Geometry, Addison Wesley, 9th Edition 1995.

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