# LESSON PLAN(2023-24(W))

| Discipline –All Branches | Semester-1st | Name of the teaching faculty:- Sri Debadatta Kar, Guest Faculty in Mathematics, Math.& Sc. Deptt., GP, Sonopur | |
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| Subject – Engg. Math-I | No.of days/per week-05 | Semester from date:16.08.23 to 11.12.2023 No.of weeks :-16 (excluding vacation & Holidays) | |
| Week | Class Day | Chapter | Theory |
| 1 | 1st | Matrix & Determinants | 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 |
| 2 | 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 variablesbycrossmultiplication |
| 3 | 1st | | Crammer's rule, for 2nd & 3rd order determinants |
| | 2nd | | Solving of system of linear equations byusingCrammer's rule |
| | 3rd | | Properties of determinants & its application |
| | 4th | | Problem discussion |
| | 5th | | Problem discussion & doubt clearing |
| 4 | 1st | Trigonometry | 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 | | Continue |
| | 5th | | Continue |
| 5 | 1st | | ASTC rule and its application |
| | 2nd | | Continue |
| | 3rd | | Even function, odd function, periodic function |
| | 4th | | Problem discussion |
| | 5th | | Addition, differences formula of trigonometry and their transformations to products |
| 6 | 1st | | Problem discussion |
| | 2nd | | Problem discussion |

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| | 3rd | | Trigonometrical ratios of angle 2A, 3A |
| | 4th | | Trigonometrical ratios of sub-multiple angle i.e .A/2 |
| | 5th | | Continue |
| 7 | 1st | | Illustrative examples |
| | 2nd | | Conditional trigonometric identities with illustrative examples |
| | 3rd | | Continue |
| | 4th | | Problem discussion |
| | 5th | | Exercise problem discussion |
| 8 | 1st | | Introduction to inverse trigonometric ratios |
| | 2nd | | Properties of inverse trigonometric functions |
| | 3rd | | Continue |
| | 4th | | Continue |
| | 5th | | Problem discussion |
| 9 | 1st | | Problem discussion |
| | 2nd | **Coordinate Geometry in 2D** | Introduction to geometry in two dimension |
| | 3rd | | Distance formula, division formula and their application |
| | 4th | | Area of triangle, area of polygon, |
| | 5th | | problem discussion |
| 10 | 1st | | Slope of a line, angle between two lines, condition for perpendicularity and parallelism |
| | 2nd | | Straight lines, different form of straight lines, slope-intercept form, one-point form, two-point form. |
| | 3rd | | Intercept form normal form with illustrative examples |
| | 4th | | Equation of a line passing through a point and i)parallel to a line<br>ii)perpendicular to a line |
| | 5th | | Equation of circle and point of diameter term |
| 11 | 1st | | General equation of circle, illustrative examples |
| | 2nd | | Problem discussion with doubt clearing |
| | 3rd | | Problem discussion |
| | 4th | **Coordinate Geometry in 3D** | Introduction to three dimensional geometry |
| | 5th | | Distance formula, section formula |
| 12 | 1st | | Direction ratios, direction cosines of a line |
| | 2nd | | Angle between two lines, condition of parallelism & perpendicularity |
| | 3rd | | Problem discussion |
| | 4th | | Problem discussion with doubt clearing |

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| | 5th | Introduction to plane, general equation of plane |
| 13 | 1st | Problem discussion with doubt clearing |
| | 2nd | Equation of plane in intercept form, normal form |
| | 3rd | Transformation of plane from general to intercept& Normal form |
| | 4th | Problem discussion with doubt clearing |
| | 5th | Plane passing through three non-collinear points, co planarity of four points, illustrative examples. |
| 14 | 1st | Exercise Problem discussion with doubt clearing |
| | 2nd | Angle between two planes, condition of perpendicularity & parallelism of planes, distance between two parallel planes. |
| | 3rd | Problem discussion with doubt clearing |
| | 4th | 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 |
| | 5th | Problem discussion with doubt clearing |
| 15 | 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 |
| 16 | 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 |

Debadatta Kar 29/07/23

Prepared by

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