

LESSON PLAN

| Discipline / All Branches | Semester-1st | Name of the teaching faculty:- Miss Riturani Dash Lect in Mathematics, Math. & Sc. Deptt., GP, Bolangir |
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| Subject:- Engg. Math-I | No. of days/per week- 05 | Semester from date : 25.10.2022 to 31.01.2023 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 in verse 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 | Crammer's rule, for 2nd & 3rd order determinants |
| | 2nd | Solving of system of linear equations by using Crammer'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 |
| | 1st | Problem discussion |

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| 5th | 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 |
| | 1st | Equation of circle and point of diameter term |

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| 10th | 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, co planarity 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 and points of diameter are given, illustrative fo examples |
| | 2nd | Problem discussion with doubt clearing |
| | 3rd | Exercise problem discussion |
| | 4th | Problem practice |
| | 5th | Problem practice |