**LESSON PLAN**

|  |  |  |
| --- | --- | --- |
| **Discipline:**  All | **Semester:**  Second (2nd) | **Name Of The Faculty:** Mr Sanjaya kumar Pradhan/ Mrs. Sudha Dharatri Lenka |
| **Subject:**  Engg. Mathematics-II | **No. of days/ week class allotted:**  Six (6) | **Semester from date:** 29.01.2024 **to Date:** 14.05.2024  **No. of weeks:** 15 |
| **WEEK** | **CLASS DAY** | **THEORY TOPICS** |
| 1st | 1st | **Chapter No.- 1: Chapter no-01(VECTOR ALGEBRA)**  Introduction, Types of vectors(null vector, parallel vector, Collinear vectors in component form) |
| 2nd | Representation of Vector |
| 3rd | Magnitude and direction of vectors |
| 4th | Addition and subtraction of vectors |
| 5th | Position vector |
| 6th | Scalar/dot product of two vectors |
| 2nd | 1st | Geometrical meaning of dot product |
| 2nd | problems |
| 3rd | Angle between two vectors |
| 4th | Scalar and vector projection of two vectors |
| 5th | problems |
| 6th | Vector product and geometrical meaning |
| 3rd | 1st | Area of triangle and parallelogram |
| 2nd | problems |
| 3rd | ***Possible Question Answer Discussion*** |
| 4th | **Chapter no.-02(LIMITS AND CONTINUITY)**  Variable, constant, Definition of function based on set Theory Define types of function Constant function, Identity function |
| 5th | Absolute value function,Greatest integer function, |
| 6th | Trigonometric function, Exponential function  Logarithmic function |
| 4th | 1st | ***Monthly Test- 1*** |
| 2nd | Introduction of limit of a function, LHL, RHL |
| 3rd | Existence of Limit |
| 4th | Methods of evaluation of limit (formulae) |
| 5th | Fundamental theorem on limits |
| 6th | Proof of Theorems |
| 5th | 1st | Cont. |
| 2nd | Definition of Continuity of a function at a point |
| 3rd | Cont. |
| 4th | Problem based on it |
| 5th | ***Possible Question Answer Discussion*** |
| 6th | **Chapter no.-03(Derivatives)**  Derivative of a function at a given point Geometrical and physical meaning of derivative, Diff. coefficient, Diff operator |
| 6th | 1st | Algebra of derivative (Addition, Subtraction, product and quotient rule of derivative ) |
| 2nd | problems |
| 3rd | Derivative of Standard functions from first principle |
| 4th | Cont. |
| 5th | Derivative of composite functions- (chain rule) |
| 6th | problems |
| 7th | 1st | ***Monthly Test- 2*** |
| 2nd | Methods of differentiation of Logarithmic functions |
| 3rd | Problems |
| 4th | Diff of parametric functions |
| 5th | Problems |
| 6th | Diff of implicit functions, |
| 8th | 1st | Problems |
| 2nd | Diff of a function w.r.t. another function |
| 3rd | Cont... |
| 4th | Application of Derivative Successive diff up to 2nd order |
| 5th | Cont. |
| 6th | Partial diff of a fun. of two variables up to 2nd order |
| 9th | 1st | Cont. |
| 2nd | problems |
| 3rd | ***Monthly Test- 3*** |
| 4th | ***Possible Question Answer Discussion*** |
| 5th | **Chapter no.-04 (Integral Calculus)**  Definition of integration as inverse of Differentiation  Indefinite integration, Integral of standard functions |
| 6th | Problems |
| 10th | 1st | Methods of integration by decomposition of Integrand , Integration by substitution |
| 2nd | Problems |
| 3rd | Integration by parts |
| 4th | Problems |
| 5th | Integration of different forms and its proof |
| 6th | Cont. |
| 11th | 1st | Problems |
| 2nd | Definite integrals, properties of definite integral |
| 3rd | Cont... |
| 4th | ***Monthly Test- 4*** |
| 5th | problem |
| 6th | Application of Integration-Area enclosed by a curve and X-axis. Area of a circle with Centre at origin. |
| 12th | 1st | problems |
| 2nd | ***Possible Question Answer Discussion*** |
| 3rd | **Chapter-05**  Differential equation, Order & degree of D.E |
| 4th | Problems |
| 5th | Formation of differential equation |
| 6th | problems |
| 13th | 1st | Solution of 1st order and 1st degree equation by the method of separation of variables. |
| 2nd | Cont. |
| 3rd | Problems |
| 4th | Solution of linear diff equation |
| 5th | Continue |
| 6th | Problems |
| 14th | 1st | ***Possible Question Answer Discussion*** |
| 2nd | Review Class for Chapter No.- 01 |
| 3rd | Review Class for Chapter No.- 01 |
| 4th | Review Class for Chapter No.- 02 |
| 5th | Review Class for Chapter No.- 02 |
| 6th | Review Class for Chapter No.- 03 |
| 15th | 1st | Review Class for Chapter No.- 03 |
| 2nd | Review Class for Chapter No.- 04 |
| 3rd | Review Class for Chapter No.- 04 |
| 4th | Review Class for Chapter No.- 05 |
| 5th | Previous Year (S- 21) Question Answer Discussion |
| 6th | Previous Year (S- 22) Question Answer Discussion |

*Chapters covered up to IA****: 1, 2 & 3.***