**NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY**
**SERGARH-756060, BALASORE (ODISHA)**
**(Approved by AICTE& affiliated to SCTE&VT, Odisha)**

# LESSON PLAN

## SUBJECT: Th3. ENGINEERING MATHEMATICS – II

| | **CHAPTER WISE DISTRIBUTION OF PERIODS** | | |
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| Sl.No. | Name of the chapter as per the Syllabus | No. of Periods as per the Syllabus | No. of periods actually needed |
| 1 | Vector Algebra | 15 | 15 |
| 2 | Limits and Continuity | 12 | 12 |
| 3 | Derivatives | 21 | 21 |
| 4 | Integration | 15 | 15 |
| 5 | Differential Equation | 12 | 12 |
| | TOTAL | 75 | 75 |

| **Discipline:** COMMON TO ALL | **Semester: 2nd** | **Name of the Teaching Faculty: Mr SUBAS CHANDRA DASH** |
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| **Week** | **Class Day** | **Theory / Practical Topics** |
| **1ST** | **1st** | 1) VECTOR ALGEBRA<br>a) Introduction |
| | **2nd** | b) Types of vectors (null vector, parallel vector , collinear vectors) (in component form ) |
| | **3rd** | b) Types of vectors (null vector, parallel vector , collinear vectors) (in component form ) |
| | **4th** | c) Representation of vector |
| | **5th** | c) Representation of vector |
| **2ND** | **1st** | d) Magnitude and direction of vectors |
| | **2nd** | d) Magnitude and direction of vectors |
| | **3rd** | e) Addition and subtraction of vectors |
| | **4th** | e) Addition and subtraction of vectors |
| | **5th** | f) Position vector |
| **3RD** | **1st** | f) Position vector |
| | **2nd** | f) Position vector |
| | **3rd** | g) Scalar product of two vectors |
| | **4th** | g) Scalar product of two vectors |
| | **5th** | h) Geometrical meaning of dot product |

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| **4TH** | **1st** | h) Geometrical meaning of dot product |
| | **2nd** | i) Angle between two vectors |
| | **3rd** | j) Scalar and vector projection of two vectors |
| | **4th** | j) Scalar and vector projection of two vectors |
| | **5th** | k) Vector product and geometrical meaning (Area of triangle and parallelogram) |
| **5TH** | **1st** | k) Vector product and geometrical meaning (Area of triangle and parallelogram) |
| | **2nd** | LIMITS AND CONTINUITY a) Definition of function, based on set theory |
| | **3rd** | LIMITS AND CONTINUITY a) Definition of function, based on set theory |
| | **4th** | b) Types of functions |
| | **5th** | b) Types of functions |
| **6TH** | **1st** | i) Constant function |
| | **2nd** | i) Constant function |
| | **3rd** | i) Constant function |
| | **4th** | ii) Identity function |
| | **5th** | ii) Identity function |

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| **7TH** | **1st** | ii) Identity function |
| | **2nd** | iii) Absolute value function |
| | **3rd** | iii) Absolute value function |
| | **4th** | iii) Absolute value function |
| | **5th** | iv)The Greatest integer function |
| **8TH** | **1st** | iv)The Greatest integer function |
| | **2nd** | v) Trigonometric function |
| | **3rd** | vi) Exponential function |
| | **4th** | vii) Logarithmic function |
| | **5th** | c) Introduction of limit |
| **9TH** | **1st** | d) Existence of limit |
| | **2nd** | e) Methods of evaluation of limit |
| | **3rd** | e) Definition of continuity of a function at a point and problems based on it |
| | **4th** | DERIVATIVES a) Derivative of a function at a point |
| | **5th** | DERIVATIVES a) Derivative of a function at a point |
| **10TH** | **1st** | b) Algebra of derivative |
| | **2nd** | c) Derivative of standard functions |
| | **3rd** | c) Derivative of standard functions |
| | **4th** | d) Derivative of composite function (Chain Rule ) |
| | **5th** | d) Derivative of composite function (Chain Rule ) |

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| **11TH** | **1st** | e) Methods of differentiation of |
| | **2nd** | i) Parametric function ii) Implicit function |
| | **3rd** | i) Parametric function ii) Implicit function |
| | **4th** | iii) Logarithmic function iv) a function with respect to another function |
| | **5th** | iii) Logarithmic function iv) a function with respect to another function |
| **12TH** | **1st** | iii) Logarithmic function iv) a function with respect to another function |
| | **2nd** | f) Applications of Derivative |
| | **3rd** | f) Applications of Derivative |
| | **4th** | i) Successive Differentiation (up to second order) ii) Partial Differentiation (function of two variables up to second order) |
| | **5th** | i) Successive Differentiation (up to second order) ii) Partial Differentiation (function of two variables up to second order) |
| **13TH** | **1st** | g) Problems based on above |
| | **2nd** | INTEGRATION a) Definition of integration as inverse of differentiation |
| | **3rd** | INTEGRATION a) Definition of integration as inverse of differentiation |
| | **4th** | b) Integrals of standard functions |
| | **5th** | c) Methods of integration i) Integration by substitution ii) Integration by parts |
| **14TH** | **1st** | c) Methods of integration i) Integration by substitution ii) Integration by parts |
| | **2nd** | d) Integration of the following forms |
| | **3rd** | e) Definite integral, properties of definite integrals |
| | **4th** | e) Definite integral, properties of definite integrals |
| | **5th** | f) Application of integration i) Area enclosed by a curve and X – axis ii) Area of a circle with centre at origin |

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| **15TH** | **1st** | f) Application of integration i) Area enclosed by a curve and X – axis ii) Area of a circle with centre at origin |
| | **2nd** | 5) DIFFERENTIAL EQUATION a) Order and degree of a differential equation |
| | **3rd** | 5) DIFFERENTIAL EQUATION a) Order and degree of a differential equation |
| | **4th** | b) Solution of differential equation i) 1st order and 1st degree equation by the method of separation of variables |
| | **5th** | b) Solution of differential equation i) 1st order and 1st degree equation by the method of separation of variables |