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

## LESSON PLAN

## SUBJECT: ENGINEERING MATHEMATICS-I(TH-3)

**NAME OF THE FACULTY: MISS. BINDUPUSPA SHA**
**SEMESTER: 1ST** **BRANCH: ALL BRANCHES**
**SESSION: 2024-25** **EXAMINATION: 2024(W)**

### CHAPTER WISE DISTRIBUTION OF PERIODS

| SL. NO. | NAME OF THE CHAPTER AS PER SYLLABUS | NO. OF PERIODS AS PER SYLLABUS |
|---|---|---|
| 1 | TRIGONOMETRY | 15 |
| 2 | DIFFERENTIAL CALCULUS | 15 |
| 3 | ALGEBRA: COMPLEX NUMBERS | 10 |
| 4 | PARTIAL FRACTION | 8 |
| 5 | PERMUTATION AND COMBINATION | 4 |
| 6 | BINOMIAL THEOREM | 10 |
| **TOTAL** | | 62 |

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**sign of H.O.D** 13.08.24

| DISCIPLINE:EE /EEE/ME/CE/ AE | SEMESTER:1ST | NAME OF THE FACULTY: MISS. BINDUPUSPA SHA<br>SESSION:2024-25<br>EXAMINATION:2024(W) |
|---|---|---|
| **Week** | **Class Day** | **Topics to be covered** |
| 1st | 1st | **UNIT-I:-TRIGONOMATRY:** Concept of angles |
| | 2nd | Measurement of angles in degrees |
| | 3rd | Grades and radians and their conversions |
| | 4th | t- ratios of allied angles(without proof) |
| 2nd | 1st | sum and difference and their applications(without proof) |
| | 2nd | product formula(transformation of product to sum , difference and vice versa) |
| | 3rd | T-ratios of multiple angles |
| | 4th | sub- multiple angles(2A,3A,A/2) |
| 3rd | 1st | Graphs of Sinx, cosx, tanx |
| | 2nd | trigonometrical ratios |
| | 3rd | compound angles, multiple angles and sub- multiple angles |
| | 4th | compound angles, multiple angles and sub- multiple angles |
| 4th | 1st | Define inverse circular functions and their properties |
| | 2nd | Define inverse circular functions and their properties |
| | 3rd | Problems on concepts of trigonometry |
| | 4th | **UNIT-II:- DIFERENTIAL CALCULUS:** Introduction of differential calculus |
| 5th | 1st | Definitions of functions |
| | 2nd | concept of limit |
| | 3rd | Four standard limits and problems on each standard |
| | 4th | Differentiation by definition |
| 6th | 1st | Differentiation of trigonometric functions |
| | 2nd | Differentiation of algebric functions |
| | 3rd | Differentiation of exponential functions |
| | 4th | Differentiation of sum, difference and quotient of functions |
| 7th | 1st | Differentiation of functions of a function |
| | 2nd | Differentiation trigonometric and inverse trigonometric functions |
| | 3rd | Differentiation of logarithmic functions |
| | 4th | Differentiation exponential functions |
| 8th | 1st | Question discussion on formula for differentiation |
| | 2nd | Question discussion on formula for differentiation |
| | 3rd | **UNIT-III:- ALGEBRA: COMPLEX NUMBERS:-** Algebra of complex numbers |

| Week | Class Day | Topics to be covered |
|---|---|---|
| 8th | 4th | **1st internal assessment** |
| 9th | 1st | Definition of omplex numbers |
| | 2nd | Real and imaginary part of complex numbers |
| | 3rd | Polar and cartesian form of complex numbers |
| | 4th | Representation of complex numbers and conversion of one form to another |
| 10th | 1st | conjugate of a omplex numbers |
| | 2nd | modulus of a complex numbers |
| | 3rd | Amplitude of a complex numbers |
| | 4th | Addition, substraction, multiplication and divison of a complex numbers |
| 11th | 1st | De- movier's theorem |
| | 2nd | **PARTIAL FRACTION:** Definition of polynomial partial fraction |
| | 3rd | Definition of proper and improper partial fraction |
| | 4th | Resolve proper fraction into partial fraction with denominator containing non repeating linear factors |
| 12th | 1st | Resolve proper fraction into partial fraction with denominator containing non repeating linear factors |
| | 2nd | Repeated linear factors and irreducible non repeated quadratic factors |
| | 3rd | Resolve proper fraction into partial fraction with denominator containing non repeating linear factors |
| | 4th | Resolve improper into partial fraction |
| 13th | 1st | Resolve proper fraction into partial fraction |
| | 2nd | **PERMUTATION AND COMBINATION:**Definition of permutation and combination |
| | 3rd | Definition of permutation and combination |
| | 4th | Problems on permutation and combination |
| 14th | 1st | Problems on permutation and combination |
| | 2nd | **BINOMIAL THEOREM:** Explain Binomial Theorem (without proof) |
| | 3rd | Binomial theorem for positive integral index |
| | 4th | Binomial theorem for positive integral index |
| 15th | 1st | Binomial theorem for positive integral index |
| | 2nd | Binomial theorm for any integral index (expansion without proof) |
| | 3rd | Binomial theorm for any integral index (expansion without proof) |
| | 4th | Binomial theorm for any integral index (expansion without proof) |
| 16th | 1st | First and second binomial approimation with application to engineering problems |

| Week | Class Day | Topics to be covered |
|---|---|---|
| | 2nd | **2nd internal assessment** |
| 16th | 3rd | First and second binomial approimation with application to engineering problems |
| | 4th | Problems on binomial theorem |

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