



Bhubanananda Orissa School of Engineering, Cuttack
Department of Humanities and Science

LESSON PLAN
Academic Session: 2024-25 (Winter)

Semester: 3rd SEMESTER

Branch: ELECTRICAL Sec: C

Subject: ENGINEERING MATHEMATICS-III

Prepared by: Sunanda Mohapatra

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| Discipline: ELECTICAL Sec:C | Semester:3RD | | Name Of The Teaching Faculty: Sunanda Mohapatra (Faculty in Mathematics) |
| Subject: | No. Of Days /Per Week Class Alloted:4P (TUE,TUE,WED,THU) | | Semester From: Date:22/08/2024 to 08/11/2024 |
| Week | Class Days | Dates | Theory Topics |
| | 1. | 22.08.2024 | Introduction & Syllabus discussion |
| | 2. | 27.08.2024 | UNIT - I:1. Complex Numbers 1.1 Real and Imaginary numbers. |
| | 3. | 27.08.2024 | 1.2 Complex numbers, conjugate complex numbers, Modulus and Amplitude of a complex number. |
| | 4. | 28.08.2024 | Solve problem |
| | 5. | 29.08.2024 | 1.3 Geometrical Representation of Complex Numbers. |
| | 6. | 3.09.2024 | 1.4 Properties of Complex Numbers. |
| | 7. | 3.09.2024 | 1.5 Determination of three cube roots of unity and their properties. |
| | 8. | 4.09.2024 | 1. Complex Numbers 1.6 De Moivre's theorem |
| | 9. | 5.09.2024 | 1.7 Solve problems on $1 \cdot 1 - 1 \cdot 6$ |
| | 10. | 10.09.2024 | 2.Matrices 2.1 Define rank of a matrix 2.2 Perform elementary row transformations to determine the rank of a matrix |
| | 11. | 10.09.2024 | 2.3 State Rouche's theorem for consistency of a system of linear equations in 'n' unknowns |
| | 12. | 11.09.2024 | 2.4 Solve equations in three unknowns testing consistency. |
| | 13. | 12.09.2024 | 3. Linear Differential Equations 3.1. Define homogeneous and non – homogeneous Differential Equations with constant coefficients with examples. |
| | 14. | 17.09.2024 | 3.2. Find general solution of linear equations in terms of C.F. and P.I. |
| | 15. | 17.09.2024 | 3.2. Find general solution of linear equations in terms of C.F. |

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| | | | and P.I. Continue... |
| | 16. | 18.09.2024 | 4. Laplace Transforms 4.1 Define Gamma function and $\Gamma(n + 1) = n!$ and find $\Gamma(1/2) = \sqrt{\pi}$ □ |
| | 17. | 19.09.2024 | 4.2 Define Laplace transform of a function f(t) and inverse Laplace transform |
| | 18. | 24.09.2024 | 4.3 Derive L.T. of standard functions and explain existence conditions of L.T. |
| | 19. | 24.09.2024 | 4.4 Explain linear, shifting property of L.T. |
| | 20. | 25.09.2024 | 4.5 Formulate L.T. of derivatives, integrals, multiplication by t^n and division by t. |
| | 21. | 26.09.2024 | 4.6 Derive formulae of inverse L.T. and explain method of partial fractions |
| | 22. | 01.10.2024 | 5. Fourier Series 5.1 Define periodic functions □ 5.2 State Dirichlet's condition for the Fourier expansion of a function and it's convergence |
| | 23. | 01.10.2024 | 5.3 Express periodic function f(x) satisfying Dirichlet's conditions as a Fourier series. |
| | 24. | 03.10.2024 | 5.4 State Euler's formulae 5.5 Define Even and Odd functions and find Fourier Series in $(0 \leq x \leq 2\pi \text{ and } -\pi \leq x \leq \pi)$ |
| | 25. | 15.10.2024 | 5.6 Obtain F.S of continuous functions and functions having points of discontinuity in $(0 \leq x \leq 2\pi \text{ and } -\pi \leq x \leq \pi)$ □ Solve problems on 5.1 – 5.6 |
| | 26. | 17.10.2024 | 6. Numerical Methods 6.1 Appraise limitation of analytical methods of solution of algebraic equations □ |
| | 27. | 22.10.2024 | 6.2 Derive iterative formula for finding the solutions of algebraic Equations by (a) Bisection method |
| | 28. | 22.10.2024 | |

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| | | | (b) Newton- Raphson method |
| | 29. | 23.10.2024 | 7. Finite difference and interpolation 7.1 Explain finite difference and form table of forward and backward difference |
| | 30. | 24.10.2024 | 7.2 Define shift Operator (E) and establish relation between E & difference operator (Δ). |
| | 31. | 29.10.2024 | 7.3 Solve problems on 7.1- 7.2□ |
| | 32. | 29.10.2024 | 7.4 Derive Newton's forward and backward interpolation formula for equal intervals |
| | 33. | 30.10.2024 | 7.5 state Lagrange's interpolation formula for unequal intervals |
| | 34. | 5.11.2024 | 7.6 Solve problems on 7.3- 7.4 |
| | 35. | 5.11.2024 | 7.7 Explain numerical integration and state |
| | 36. | 6.11.2024 | 7.7.1 Newton's Cote's formula 7.7.2 Trapezoidal rule |
| | 37. | 7.11.2024 | 7.7.3 Simpson's 1/3 rd rule |
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