ACADEMIC SESSION : 2025-26
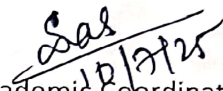
Discipline: Electrical Engineering	Semester: 3RD	Name of the Teaching Faculty: Tilu Behera	
Subject: Electrical Circuits	No. of days / week class allotted	Semester From date: 14/07/2025 to 15/11/2025 Nos. of Weeks per semester : 15	
Week	Class Day	Theory/ Practical Topics	
1ST	1st	Introduction to Electrical Circuits – Importance, Applications	
	2nd	Generation of Alternating Voltage, Frequency, Cycle	
	3rd	Phasor Representation of Sinusoidal Quantities	
2ND	1st	R, L, C Circuit Elements: Voltage and Current Responses	
	2nd	R-L, R-C, R-L-C Series Circuits	
	3rd	Impedance, Reactance, Impedance Triangle	
3RD	1st	Power Factor, Active, Reactive, Apparent Power	
	2nd	Power Triangle and Vector Diagram	
	3rd	Resonance in Series Circuits, Bandwidth	
4TH	1st	Quality Factor, Voltage Magnification in R-L, R-C, R-L-C Circuits	
	2nd	R-L, R-C, R-L-C Parallel Circuits – Introduction	
	3rd	Impedance Triangle and Phasor Diagram in Parallel Circuits	
5TH	1st	Power in Parallel Circuits: Active, Reactive, Apparent Power	
	2nd	Resonance in Parallel Circuits	
	3rd	Bandwidth and Quality Factor in Parallel Circuits	
6TH	1st	Three Phase Supply: Phasor and Complex Representation	
	2nd	Phase Sequence and Polarity	
	3rd	Types of 3-Phase Connections (Star & Delta)	
7TH	1st	Phase and Line Quantities in Star and Delta Systems	
	2nd	Balanced and Unbalanced Loads	
	3rd	Neutral Shift in Unbalanced Load	
8TH	1st	Power in 3-Phase Systems (Active, Reactive, Apparent)	
	2nd	Class Test / Assessment – I	
	3rd	Revision of Units I to III	
9TH	1st	Network Reduction Techniques: Source Transformation	
	2nd	Star-Delta and Delta-Star Transformation	
	3rd	Mesh Analysis – Introduction and Examples	
10TH	1st	Node Analysis – Introduction and Examples	
	2nd	Superposition Theorem – Explanation and Solving Examples	
	3rd	Thevenin's Theorem – Explanation with Problems	
11TH	1st	Norton's Theorem – Theory and Application	
	2nd	Maximum Power Transfer Theorem – Practical Relevance	
	3rd	Reciprocity Theorem – Application in Network Analysis	
12th	1st	Summary and Numerical Solving of All Network Theorems	
	2nd	Two-Port Network – Open Circuit Impedance Parameters (Z)	
	3rd	Short Circuit Admittance Parameters (Y) and Examples	

13th	1st	Transmission (ABCD) Parameters	
	2nd	Hybrid (h) Parameters and Interrelation of Two-Port Parameters	
	3rd	Interconnection of Two-Port Networks (Series, Parallel, Cascade)	
14th	1st	Class Test / Assignment – II	
	2nd	Revision of Units IV to VI	
	3rd	Doubt Solving Session	
15th	1st	Final Summary – Important Formulas & Concepts	
	2nd	Solving Previous Year Questions / Mock Test	
	3rd	Feedback & Wrap-up / Project or Viva if applicable	

10/07/2025
Prepared By
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10.7.25
Head of the Department
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