ATME College of Engineering

Department of EEE
Emitting Elite Energy

Department of Electrical & Electronics Engineering

Lesson Plan & Work-done Diary for AY:2024-25, ODD Semester

	Course with Code: Electric Circuit Analysis –BEE302				Faculty: Dr. Parthasarathy L		Semester & Section: III	
Class No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date of Conduction (DD/MM)**	**Topics Covered**	**TLP Executed**	**Remarks if any deviation**
	MODULE-3							
1.		Introduction about the subject, discussion of course module, Lesson Plan,	ICT, Chalk & Talk					
2.		Mode of conduction of assessment (CIE,SEE), Prerequisite of the course, application of the course in current trends.	ICT, Chalk & Talk					
3.		**Fundamentals** Basics and pre-requisite on DC/AC	ICT, Chalk & Talk					
4.		Basics and pre-requisite on DC/AC - continued	ICT, Chalk & Talk					
5.		Basics and pre-requisite on V-I-P and Energy	Chalk & Talk					
6.		Pre-requisite theory - continuation	ICT, Chalk & Talk					

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	MODULE-3							
7.		**Module 3a - Resonant Circuits -** Introduction, Application and numerical example	ICT, Chalk & Talk					
8.		Series resonance curve, variation of reactances, impedance and Series resonant frequency derivation.	ICT, Chalk & Talk					
9.		Q-factor of series resonant circuit, Frequencies for maximum voltage across L & C. Bandwidth Problems on Series resonant circuit.	ICT, Chalk & Talk					
10.		Parallel Resonance and Derivation of RL parallel with C & RL parallel with RC	Chalk & Talk					
11.		Problems on Parallel resonant circuit.	ICT, Chalk & Talk					

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	MODULE-5a,1a, 5b							
12.		**Module-5a: Unbalanced Three Phase Systems:** Introduction, Analysis of three phase systems	ICT, Chalk & Talk					
13.		Calculation of real and reactive Powers by direct application of mesh analysis.	ICT, Chalk & Talk					
14.		Calculation of real and reactive Powers by direct application of nodal analysis.	ICT, Chalk & Talk					
15.		Calculation of real and reactive Powers by direct application of nodal analysis	ICT, Chalk & Talk					
16.		**Module-1a: Basic Concepts:** Introduction, Active and passive elements, Concept of ideal and practical sources.	ICT, Chalk & Talk					
17.		Concept of dependent and independent sources. KCL, KVL.	ICT, Chalk & Talk					
18.		Source transformation	ICT, Chalk & Talk					
19.		**Module-5b:Two Port networks:** Definition, Open circuit impedance parameter and the evaluation for simple circuits.	ICT, Chalk & Talk					
20.		Short circuit admittance parameter and the evaluation for simple circuits.	ICT, Chalk & Talk					

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	MODULE-3b							
21.		Transmission parameter and the evaluation for simple circuits	ICT, Chalk & Talk					
22.		Relationships between Z & Y Parameters,	ICT, Chalk & Talk					
23.		Relationships between Z & T Parameters,	ICT, Chalk & Talk					
24.		Relationships between T & Y Parameters	ICT, Chalk & Talk					

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	MODULE-1							
25.		Quiz conduction-SRS	ICT, Chalk & Talk					
26.		**Module-3b:Transient Analysis:** Transient analysis of RL circuits under DC excitations : Behaviour of circuit elements under switching action (t=0 & t=∞)	ICT, Chalk & Talk					
27.		Numericals	ICT, Chalk & Talk					
28.		Numericals	ICT, Chalk & Talk					
29.		Transient analysis of RC circuits under DC excitations: Behaviour of circuit elements under switching action (t=0 & t=∞)	Chalk & Talk					
30.		Numericals	Chalk & Talk					
31.		**Module-1:**Analysis of networks by (i) Network reduction method including star – delta transformation derivation.	ICT, Chalk & Talk					
32.		Numerical on star – delta transformation.	ICT, Chalk & Talk					
33.		Mesh analysis of DC networks with independent and dependent sources.	ICT, Chalk & Talk					
34.		Numericals	ICT, Chalk & Talk					

35.		Node analysis of DC networks with independent and dependent sources.	ICT, Chalk & Talk					

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	MODULE-2							
36.		Numericals.	ICT, Chalk & Talk					
37.		Mesh analysis of AC networks with independent and dependent sources.	ICT, Chalk & Talk					
38.		Numericals	ICT, Chalk & Talk					
39.		Node analysis of AC networks with independent and dependent sources.	ICT, Chalk & Talk					
40.		Numericals.	ICT, Chalk & Talk					
41.		Quiz Conduction-SRS	ICT, Chalk & Talk					
42.		**Network Theorems :** Super Position theorem for DC + Numerical	ICT, Chalk & Talk					
43.		Super Position theorem for DC + Numerical	ICT, Chalk & Talk					
44.		Thevenin’s theorem for DC + Numerical	ICT, Chalk & Talk					
45.		Thevenin’s theorem for DC + Numerical	ICT, Chalk & Talk					

46.	06/11	Norton's theorem for DC+ Numerical	ICT, Chalk & Talk					

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	MODULE-4							
47.		Maximum power transfer theorem DC + Numerical	ICT, Chalk & Talk					
48.		Maximum power transfer theorem DC +Numerical	ICT, Chalk & Talk					
49.		Quiz Conduction-SRS	ICT, Chalk & Talk					
50.		**Network Theorems :** Super Position theorem for AC + Numerical	Chalk & Talk					
51.		Super Position theorem for AC + Numerical	Chalk & Talk					
52.		Thevenin's theorem for AC + Numerical	Chalk & Talk					
53.		Thevenin's theorem for AC + Numerical	Chalk & Talk					
54.		Norton's theorem for AC+ Numerical	Chalk & Talk					
55.		Norton's theorem for AC+ Numerical	Chalk & Talk					
56.		Maximum power transfer theorem AC + Numerical	Chalk & Talk					
57.		Maximum power transfer theorem AC + Numerical	Chalk & Talk					
58.		Quiz Conduction-SRS	Chalk & Talk					
59.		**Laplace Transformation:** Basics of Laplace transformation (LT)	Chalk & Talk					
60.		LT of Impulse, LT of Step. LT of Ramp, Sinusoidal signals.	Chalk & Talk					

61.		LT of Ramp, Sinusoidal signals.	Chalk & Talk					
62.		LT of shifted functions + numerical , Waveform synthesis + numerical	Chalk & Talk					
63.		Initial value theorems	Chalk & Talk					
64.		Final value theorems	Chalk & Talk					
65.		Numericals	Chalk & Talk					
66.		Quiz Conduction-SRS	Chalk & Talk					

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Lab Session No.	**Date planned (DD/MM)**	**Topics to be covered**	**TLP Planned**	**Class No.**	**Date planned (DD/MM)**	Topics to be covered	**TLP Planned**	**Class No.**
	Lab Sessions							
1		**Cycle-1:** Study of the effect of Open and Short circuits in simple circuits.	Practical Session					
2		Determination of resonant frequency, bandwidth, and Q of a series circuit.	Practical Session					
3		Determination of resonant frequency, bandwidth, and Q of a parallel circuit.	Practical Session					
4		Verification of maximum Power transfer theorem.	Practical Session					
		Measurement of power in three phase Circuits using two watt meter method						

5		**Cycle-2**: Power factor correction.	Practical Session					
7		Verification of Norton's theorem.	Practical Session					
8		Verification of Thevenin's theorem.	Practical Session					
9		Measurement of time constant of an RC circuit.	Practical Session					
10		Verification of Superposition theorem.	Practical Session					

	Activity	Planned	Actual	Remarks
1	Theory Classes	66		
2	Assignments/Quizzes/ Self study	5		
3	Tutorials/ Extra classes			
4	Internal Assessments	3		
5	ICT based Teaching (% of usage in Curriculum)	50%		
6	Laboratory Session	10 Practical Sessions/ batch		
Planning			**Execution**	
Faculty Signature:			**Faculty Signature:**	
HoD Signature:			**HoD Signature:**	