LESSION PLAN FOR THE ACADEMIC SESSION 2024-25

Discipline:- Electrical Engineering	Semester:- 3rd	Name of the teaching faculty:- TUKURAJ SOREN, LECTURER
Subject:- Circuit and Network Theory	No. of days/ per week class allotted:-5	From 01.07.2024 TO 16.12.2024
Week	Class day	Theory/Topic to be covered
1st	1st	1. **MAGNETIC CIRCUITS** 1 . 1 Introduction
	2nd	1 . 2 Magnetizing force, Intensity, MMF, flux and their relations
	3rd	1 . 3 Permeability, reluctance and permeance
	4th	1 . 4 Analogy between electric and Magnetic Circuits
	5th	1 . 5 B-H Curve
3rd	1st	1 . 6 Series & parallel magnetic circuit.
	2nd	1 . 7 Hysteresis loop
	3rd	2. **COUPLED CIRCUITS:** 2 . 1 Self Inductance and Mutual Inductance
	4th	2 . 2 Conductively coupled circuit and mutual impedance 2 . 3 Dot convention
	5th	2 . 4 Coefficient of coupling
5th	1st	2 . 5 Series and parallel connection of coupled inductors.
	2nd	2 . 6 Solve numerical problems
	3rd	**CIRCUIT ELEMENTS AND ANALYSIS:** 3.1 Active, Passive,Unilateral & bilateral,Linear & Non linear elements
	4th	3 . 2 Mesh Analysis, Mesh Equations by inspection 3 . 3 Super mesh Analysis
	5th	3 . 4 Nodal Analysis, Nodal Equations by inspection
4th	1st	3 . 5 Super node Analysis.
	2nd	3 . 6 Source Transformation Technique
	3rd	3 . 7 Solve numerical problems (With Independent Sources Only)
	4th	4. **NETWORK THEOREMS:** 4.1 Star to delta and delta to star transformation
	5th	4.2 Super position Theorem
5th	1st	4.2 Super position Theorem
	2nd	4.3 Thevenin's Theorem
	3rd	4.3 Thevenin's Theorem
	4th	4.4 Norton's Theorem
	5th	4.5 Maximum power Transfer Theorem.
6th	1st	4.6 Solve numerical problems (With Independent Sources Only)
	2nd	5. **AC CIRCUIT AND RESONANCE:** 5.1 A.C. through R-L, R-C & R-L-C Circuit
	3rd	5.2 Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
	4th	5.3 Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits
	5th	5.4 Power factor & power triangle.
7th	1st	5.5 Deduce expression for active, reactive, apparent power.
	2nd	5.6 Derive the resonant frequency of series resonance and parallel

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		resonance circuit
	3rd	5.7 Define Bandwidth, Selectivity & Q-factor in series circuit.
	4th	5.8 Solve numerical problems
	5th	6. **POLYPHASE CIRCUIT** 6.1 Concept of poly-phase system and phase sequence
8th	1st	6.2 Relation between phase and line quantities in star & delta connection
	2nd	6.3 Power equation in 3-phase balanced circuit.
	3rd	6.4 Solve numerical problems
	4th	6.5 Measurement of 3-phase power by two wattmeter method.
	5th	6.6 Solve numerical problems.
9th	1st	**TRANSIENTS:** 7.1 Steady state & transient state response.
	2nd	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	3rd	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	4th	7.3 Solve numerical problems
	5th	8. **TWO-PORT NETWORK:** 8.1 Open circuit impedance (z) parameters
10th	1st	. 8.1 Open circuit impedance (z) parameters
	2nd	8.2 Short circuit admittance (y) parameters
	3rd	8.2 Short circuit admittance (y) parameters
	4th	8.3 Transmission (ABCD) parameters
	5th	8.4 Hybrid (h) parameters.
11th	1st	8.4 Hybrid (h) parameters.
	2nd	8.5 Inter relationships of different parameters.
	3rd	8.6 T and π representation.
	4th	8.6 T and π representation.
	5th	8.7 Solve numerical problems
12th	1st	9 **FILTERS:** 9.1 Define filter
	2nd	9.2 Classification of pass Band, stop Band and cut-off frequency
	3rd	9.2 Classification of pass Band, stop Band and cut-off frequency
	4th	9.3 Classification of filters.
	5th	9.4 Constant – K low pass filter.

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13th	1st	9.5 Constant – K high pass filter
	2nd	9.6 Constant – K Band pass filter.
	3rd	9.7 Constant – K Band elimination filter.
	4th	9.8 Solve Numerical problems
	5th	9.8 Solve Numerical problems
14th	1st,2nd ,3rd,4th,5th	REVISION
15th	1st,2nd ,3rd,4th,5th	REVISION

Signature of Teaching Faculty

Signature of HOD 19/07/2024