SUNDARGARH ENGINEERING SCHOOL, KIREI

LESSON PLAN

Subject : CIRCUIT AND NETWORK THOERY

Discipline : ELECTRICAL ENGINEERING

Faculty : UDAYA SHNAKAR BEHERA

Semester : 3RD

Week	Week Day	Theory
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
2nd	1st	1 . 5 B-H Curve
	2nd	1 . 6 Series & parallel magnetic circuit.
	3rd	1 . 7 Hysteresis loop
	4th	2. **COUPLED CIRCUITS:** 2 . 1 Self Inductance and Mutual Inductance
3rd	1st	2 . 2 Conductively coupled circuit and mutual impedance 2 . 3 Dot convention
	2nd	2 . 4 Coefficient of coupling
	3rd	2 . 5 Series and parallel connection of coupled inductors.
	4th	2 . 6 Solve numerical problems

4th	1st	**CIRCUIT ELEMENTS AND ANALYSIS:** 3 . 1 Active, Passive, Unilateral & bilateral, Linear &Non linear elements
	2nd	3 . 2 Mesh Analysis, Mesh Equations by inspection 3 . 3 Super mesh Analysis
	3rd	3 . 4 Nodal Analysis, Nodal Equations by inspection
	4th	3 . 5 Super node Analysis.
5th	1st	3 . 6 Source Transformation Technique
	2nd	3 . 7 Solve numerical problems (With Independent Sources Only)
	3rd	4. **NETWORK THEOREMS:** 4.1 Star to delta and delta to star transformation
	4th	4.2 Super position Theorem
6th	1st	4.2 Super position Theorem
	2nd	4.3 Thevenin's Theorem
	3rd	4.3 Thevenin's Theorem
	4th	4.4 Norton's Theorem
7th	1st	4.5 Maximum power Transfer Theorem.
	2nd	4.6 Solve numerical problems (With Independent Sources Only)
	3rd	5. **AC CIRCUIT AND RESONANCE:** 5.1 A.C. through R-L, R-C & R-L-C Circuit

	4th	5.2 Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
8th	1st	5.3 Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits
	2nd	5.4 Power factor & power triangle.
	3rd	5.5 Deduce expression for active, reactive, apparent power.
	4th	5.6 Derive the resonant frequency of series resonance and parallel resonance circuit
9th	1st	5.7 Define Bandwidth, Selectivity & Q-factor in series circuit.
	2nd	5.8 Solve numerical problems
	3rd	6. **POLYPHASE CIRCUIT** 6.1 Concept of poly-phase system and phase sequence
	4th	6.2 Relation between phase and line quantities in star & delta connection
10th	1st	6.3 Power equation in 3-phase balanced circuit.
	2nd	6.4 Solve numerical problems
	3rd	6.5 Measurement of 3-phase power by two wattmeter method.
	4th	6.6 Solve numerical problems.
11th	1st	**TRANSIENTS:** 7.1 Steady state & transient state response.
	2nd	7.1 Steady state & transient state response.

	3rd	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	4th	7.2 Response to R-L, R-C & RLC circuit under DC condition.
12th	1st	7.3 Solve numerical problems
	2nd	7.3 Solve numerical problems
	3rd	8. **TWO-PORT NETWORK:** 8.1 Open circuit impedance (z) parameters
	4th	8.2 Short circuit admittance (y) parameters
13th	1st	8.3 Transmission (ABCD) parameters
	2nd 3rd	8.4 Hybrid (h) parameters.
	4th	8.5 Inter relationships of different parameters.
14th	1st	8.5 Inter relationships of different parameters.
	2nd	8.6 T and π representation. 8.7 Solve numerical problems
	3rd	CHAPTER #9 **FILTERS:** 9.1 Define filter
	4th	9.2 Classification of pass Band, stop Band and cut-off frequency.

HOD, Electrical Department Principal