LESSON PLAN

DEPARTMENT OF ELECTRICAL ENGINEERING, ITT, CHOUDWAR

SUBJECT: Circuit Network Theory **Periods:** 4+1 per week **SEMESTER:** 3rd

NAME OF FACULTY: Satyajit Pani **No. of weeks:** 15

Week	Period	Theory / Practical Topics
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	Tutorial
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
	5th	Tutorial
3rd	1st	2 . 2 Conductively coupled circuit and mutual impedance 2 . 3 Dot convention 2 . 4 Coefficient of coupling
	2nd	2 . 5 Series and parallel connection of coupled inductors.
	3rd	2 . 6 Solve numerical problems (Contd.)
	4th	2 . 6 Solve numerical problems
	5th	Tutorial
4th	1st	3. CIRCUIT ELEMENTS AND ANALYSIS: 3 . 1 Active, Passive, Unilateral & bilateral, Linear &Non linear elements
	2nd	3 . 2 Mesh Analysis, Mesh Equations by inspection
	3rd	3 . 3 Super mesh Analysis
	4th	3 . 4 Nodal Analysis, Nodal Equations by inspection
	5th	Tutorial
5th	1st	3 . 5 Super node Analysis. 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
	5th	Tutorial
6th	1st	4.3 Thevenin's Theorem
	2nd	4.4 Norton's Theorem
	3rd	4.5 Maximum power Transfer Theorem.
	4th	4.6 Solve numerical problems (With Independent Sources Only)(Contd.)
	5th	Tutorial
7th	1st	4.6 Solve numerical problems (With Independent Sources Only)(Contd.)
	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.
	5th	Tutorial
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
	5th	Tutorial
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
	5th	Tutorial
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.
	5th	Tutorial
11th	1st	7. TRANSIENTS 7.1 Steady state & transient state response. (Contd.)
	2nd	7.1 Steady state & transient state response
	3rd	7.2 Response to R-L, R-C & RLC circuit under DC condition. (Contd.)
	4th	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	5th	Tutorial
12th	1st	7.3 Solve numerical problems(Contd.)
	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
	5th	Tutorial
13th	1st	8.3 Transmission (ABCD) parameters
	2nd	8.4 Hybrid (h) parameters.
	3rd	8.5 Inter relationships of different parameters.
	4th	8.6 T and π representation.
	5th	Tutorial
14th	1st	8.7 Solve numerical problems
	2nd	8.7 Solve numerical problems
	3rd	9. FILTERS: 9.1 Define filter 9.2 Classification of pass Band, stop Band and cut-off frequency
	4th	9.3 Classification of filters. 9.4 Constant – K low pass filter. 9.5 Constant – K high pass filter.
	5th	Tutorial
15th	1st	9.6 Constant – K Band pass filter.
	2nd	9.7 Constant – K Band elimination filter.
	3rd	9.8 Solve Numerical problems
	4th	9.8 Solve Numerical problems
	5th	Tutorial

Teaching Faculty