

DISCIPLINE: <b>EE</b>	SEMESTER: <b>3rd</b>	NAME OF THE TEACHING FACULTY: Pritee Prava Minz, Sr. Lecturer (EE)
SUBJECT: <b>Circuit and Network Theory</b>		NO. OF DAYS/ WEEK CLASS ALLOTTED-75
WEEK	CLASS DAY	THEORY TOPICS
1 <sup>ST</sup>	01	<b>MAGNETIC CIRCUITS</b> Introduction to magnetic circuit through suitable example
	02	Magnetizing force, Intensity, MMF, flux and their relations
	03	Permeability, reluctance and permeance
	04	Analogy between electric and Magnetic Circuits
	05	B-H Curve
2 <sup>ND</sup>	06	Series & parallel magnetic circuit.
	07	Hysteresis loop
	08	<b>COUPLED CIRCUITS:</b> Self Inductance and Mutual Inductance
	09	Conductively coupled circuit and mutual impedance
	10	Dot convention, Coefficient of coupling
3 <sup>RD</sup>	11	Series and parallel connection of coupled inductors.
	12	Solve numerical problems on magnetic circuit
	13	<b>CIRCUIT ELEMENTS AND ANALYSIS:</b> Active, Passive, Unilateral & bilateral, Linear & Nonlinear elements
	14	Mesh Analysis, Mesh Equations by inspection
	15	Super mesh Analysis
4 <sup>TH</sup>	16	Nodal Analysis, Nodal Equations by inspection
	17	Super node Analysis.
	18	Source Transformation Technique
	19	<b>NETWORK THEOREMS:</b> Star to delta and delta to star transformation
	20	Super position Theorem
5 <sup>TH</sup>	21	Solve numerical problems on Super position Theorem
	22	Thevenin's Theorem
	23	Maximum power Transfer Theorem.
	24	Solve numerical problems on Thevenin's Theorem And Maximum power Transfer Theorem.
	25	Norton's Theorem
6 <sup>TH</sup>	26	Solve numerical problems on Norton's Theorem
	27	<b>AC CIRCUIT AND RESONANCE:</b> A.C. through R-L, R-C & R-L-C Circuit
	28	Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
	29	Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits
	30	Power factor & power triangle.
7 <sup>TH</sup>	31	Deduce expression for active, reactive, apparent power.
	32	Derive the resonant frequency of series resonance and parallel Resonance circuit
	33	Define Bandwidth, Selectivity & Q-factor in series circuit

	34	Solve numerical problems on series resonance and parallel resonance circuit
	35	<b>POLYPHASECIRCUIT</b> Concept of poly-phase system and phase sequence
8 <sup>TH</sup>	36	Relation between phase and line quantities in star & delta connection
	37	Power equation in 3-phase balanced circuit.
	38	Solve numerical problems
	39	Measurement of 3-phase power by two wattmeter method.
	40	Solve numerical problems.
9 <sup>TH</sup>	41	<b>TRANSIENTS:</b> Steady state & transient state response.
	42	Response to R-L circuit under DC condition.
	43	Response to R-C circuit under DC condition.
	44	Response to RLC circuit under DC condition.
	45	Solve numerical problems.
10 <sup>TH</sup>	46	Solve numerical problems.
	47	<b>TWO-PORTNETWORK:</b> Open circuit impedance (z) parameters
	48	Short circuit admittance (y) parameters
	49	Transmission (ABCD) parameters
	50	Hybrid (h) parameters.
11 <sup>TH</sup>	51	Interrelationships of different parameters.
	52	T and $\pi$ representation.
	53	Solve numerical problems.
	54	Solve numerical problems.
	55	<b>FILTERS:</b> Define filter Classification of pass Band, stop Band and cut-off frequency.
12 <sup>TH</sup>	56	Classification of filters. Constant -K low pass filter.
	57	Constant -K high pass filter.
	58	Constant-K Band pass filter.
	59	Constant-K Band elimination filter.
	60	Solve Numerical problems
13 <sup>TH</sup>	61	Revision of chapter1.
	62	Revision of chapter2.
	63	Revision of chapter2
	64	Revision of chapter3
	65	Revision of chapter3
14 <sup>TH</sup>	66	Revision of chapter4
	67	Revision of chapter4
	68	Revision of chapter5
	69	Revision of chapter5
	70	Revision of chapter6
15 <sup>TH</sup>	71	Revision of chapter6
	72	Revision of chapter7
	73	Revision of chapter8
	74	Revision of chapter8
	75	Revision of chapter9