

DISCIPLINE: ELECTRICAL ENGINEERING	SEMESTER: 3RD	NAME OF THE TEACHING FACULTY: RAJIV RATAN PATEL
SUBJECT: CIRCUIT & NETWORK THEORY	NO OF DAYS/PER WEEK CLASS ALLOTTED:	SEMESTER FROM DATE: 15/09/2022 TO DATE: 21.01.2023 NO OF WEEKS:
WEEK	CLASS DAY	THEORY TOPICS
1ST	1ST	Magnetic circuits :Introduction Magnetizing force, Intensity, MMF, flux and their relations
	2nd	Permeability, reluctance and permeance
	3rd	Analogy between electric and Magnetic Circuits B-H Curve
	4th	Hysteresis loop
	5th	Series & parallel magnetic circuit.
2nd	1ST	COUPLED CIRCUITS: Self Inductance and Mutual Inductance
	2nd	Conductively coupled circuit and mutual impedance
	3rd	Dot convention
	4th	Coefficient of coupling
	5th	Series and parallel connection of coupled inductors.
3rd	1ST	Solve numerical problems
	2nd	CIRCUIT ELEMENTS AND ANALYSIS: Active, Passive, Unilateral & bilateral, Linear & Non linear elements
	3rd	Mesh Analysis, Mesh Equations by inspection
	4th	Super mesh Analysis
	5th	Nodal Analysis, Nodal Equations by inspection
4th	1ST	Super node Analysis, Source Transformation Technique Solve numerical problems (With Independent Sources Only)
	2nd	
	3rd	NETWORK THEOREMS: Star to delta and delta to star transformation
	4th	Super position Theorem
	5th	Thevenin's Theorem
5th	1ST	Norton's Theorem
	2nd	Maximum power Transfer Theorem.
	3rd	Solve numerical problems (With Independent Sources Only)
	4th	AC CIRCUIT AND RESONANCE: A.C. through R-L, R-C & R-L-C Circuit
	5th	Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
	1ST	Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits

6th	2nd	Power factor & power triangle. Deduce expression for active, reactive, apparent power.
	3rd	Derive the resonant frequency of series resonance and parallel resonance circuit
	4th	Define Bandwidth, Selectivity & Q-factor in series circuit.
	5th	Solve numerical problems
	1ST	Concept of poly-phase system and phase sequence
7th	2nd	Relation between phase and line quantities in star & delta connection
	3rd	Power equation in 3-phase balanced circuit.
	4th	Solve numerical problems
	5th	Measurement of 3-phase power by two wattmeter method.
	1ST	Solve numerical problems
8th	2nd	Solve numerical problems
	3rd	Steady state & transient state response.
	4th	Response to R-L, R-C & RLC circuit under DC condition.
	5th	Solve numerical problems
	1ST	Solve numerical problems
9th	2nd	Open circuit impedance (z) parameters
	3rd	Open circuit impedance (z) parameters
	4th	Short circuit admittance (y) parameters
	5th	Short circuit admittance (y) parameters
	1ST	Transmission (ABCD) parameters
10th	2nd	Transmission (ABCD) parameters
	3rd	Hybrid (h) parameters
	4th	Hybrid (h) parameters
	5th	Inter relationships of different parameters.
	1ST	Inter relationships of different parameters.
11th	2nd	T and $\pi$ representation.
	3rd	Solve numerical problems
	4th	Solve numerical problems
	5th	Solve numerical problems
	12th	1ST
2nd		Classification of pass Band, stop Band and cut-off frequency.
3rd		Classification of pass Band, stop Band and cut-off frequency.

	4th	Classification of filters, Constant – K low pass filter
	5th	Constant – K high pass filter.
13th	1ST	Constant – K Band pass filter
	2nd	Constant – K Band elimination filter
	3rd	Solve Numerical problems
	4th	Solve Numerical problems
	5th	Solve Numerical problems
14th	1ST	Solve Numerical problems
	2nd	Solve Numerical problems
	3rd	Solve Numerical problems
	4th	Solve Numerical problems
	5th	Revision
15th	1ST	Revision
	2nd	Revision
	3rd	Revision
	4th	Revision
	5th	Revision