

Discipline Branch Electrical	Semester 2nd	Name of Faculty S. Borkh
Subject Circuit of Network Theory	no. of days per week 4+1=5	Semester from 1-10-21 to - 08-01-22 No. of weeks = 18

Month	Weeks	class day	Topics
OCTOBER			① <u>Magnetic Circuits</u>
	1st	1st	1.1 Introduction
		2nd 3rd	1.2 Magnetizing force, Intensity, MMF, flux and their relations
		4th	1.3 Permeability, reluctance and permeance
		5th	1.4 Analogy between electric and Magnetic Circuits.
	2nd	① 1st	1.5 B-H Curve
		2nd	1.6 series & parallel magnetic circuit
		3rd	1.7 Hysteresis loop
			② <u>Coupled Circuit</u>
		1st	2.1 Self Inductance and

	2nd	Mutual Inductance.
	3rd	2.2 Conductively coupled circuit and Mutual impedance.
	4th	2.3 Dot convention
	5th	2.4 Coefficient of coupling
3rd	1st	2.5 Series and parallel connection of coupled inductors.
	2nd	2.6 solve numerical problems.
		<u>③ Circuit Elements and Analysis</u>
	3rd	3.1 Active, passive, unilateral & bilateral, Linear & Non linear elements.
4th	4th 5th	3.2 Mesh Analysis, Mesh Equations by impedance
	1st	3.3 Super mesh Any Analysis
	2nd 2nd	3.4 Nodal Analysis, Nodal Equations by inspection
	4th	3.5 Super node Analysis

		5th	3.6 Source Transformation Technique.
NOVEMBER	1st	1st	3.7 Solve numerical problems (with Independent Sources Only)
			<u>④ Network Theorems</u>
		2nd 3rd	4.1 Star to delta and delta to star transformation
		4th	4.2 Super position Theorem
		5th	4.3 Thevenin's Theorem
	2nd	1st	4.4 Norton's Theorem
		2nd	4.5 Maximum power Transfer Theorem.
		3rd 4th	4.6 Solve numerical problem (With Independent Sources Only)
			<u>⑤ AC Circuit and Resonance</u>
		5th	5.1 AC through R-L, R-C & R-L-C circuit
	3rd	1st	5.2 solution of problems of AC through R-L & R-C

		2nd	& R-L-C series circuit by complex algebra method.		2nd	6.2 Relation between phase and line quantities in star & delta connection
		3rd	s.3 solution of problem of AC through R-L, R-C &		3rd	6.3 Power equation in 3-phase balanced circuit
		4th	R-L-C parallel & composite circuit		4th	6.4 Solve numerical problems.
		5th	s.4 Power factor & power triangle		5th	6.5 Measurement of 3-phase power by two wattmeter method
11th		6th	s.5 Deduce expression for active, reactive, apparent power.	2nd	6th	6.6 Solve numerical problem
		2nd	s.6 Derive the resonant frequency of series resonance and parallel resonance circuit.			(7) Transients
		3rd	s.7 Define Bandwidth, selectivity & Q-factor in series circuit.		2nd	7.1 steady state & transient state response.
		4th			3rd	7.2 Response to R-L & R-C circuit under DC condition
		5th	s.8 Solve numerical problems		4th	7.3 solve numerical problems.
			(6) Polyphase circuit	3rd	5th	(8) Two-port Network
DECEMBER	1st	4th	6.1 Concept to poly-phase system and phase sequence.		2nd	8.1 Open circuit impedance (z) parameters
					3rd	8.2 short circuit admittance (y) parameters.

		1 st	8.3 Transmission (ABCD) parameters
		5 th	8.4 Hybrid (h) parameters
	4 th	1 st 2 nd	8.5 Inter relationships of different parameters
		3 rd	8.6 T and π representation.
		4 th	8.7 solve numerical problems
			(9) <u>Filters</u>
		5 th	9.1 Define filters
JANUARY	1 st	1 st 2 nd	9.2 classification of pass Band, stop Band and cut-off frequency.
		3 rd	9.3 classification of filter
		4 th	9.4 constant-k low pass filter
		5 th	9.5 constant-k high pass filter
	2 nd	1 st	9.6 constant-k Band pass filter
		2 nd	9.7 constant-k Band elimination filter
		3 rd	9.8 solve numerical problems