

Discipline-Electrical Engg.	Semester-3 rd	Name of the teaching faculty-Er. Siba Ranjan Nayak
Subject- Circuit and Network Theory	No of days/week class allotted-5	Semester from- No of weeks-15
Week	Class day	Theory topic
1	1 st	Magnetic circuit introduction
	2 nd	Magnetizing force, magnetic intensity
	3 rd	Emf, flux and the irritation
	4 th	Analogy between magnetic circuit and electric circuit
	5 th	Numerical on magnetic circuit
2	1 st	Series and parallel magnetic circuit and problem solve
	2 nd	Complete numerical on magnetic circuit
	3 rd	BH curve and hysteresis loop
	4 th	Coupled circuit
	5 th	Self-inductance and mutual inductance
3	1 st	Coefficient of coupling
	2 nd	Series connection of coupled coils
	3 rd	Modeling of coupled circuit
	4 th	Dot convention
	5 th	Parallel connection of coupled circuit
4	1 st	Electrical equivalents of magnetic coupled circuit
	2 nd	Solve numerical
	3 rd	Circuit elements and analysis
	4 th	Active passive unilateral bilateral linear and nonlinear
	5 th	Mesh analysis, mesh equations
5	1 st	Solve numerical on mesh analysis
	2 nd	Super mesh analysis and solve problems
	3 rd	Nodal analysis, nodal equations by inspection
	4 th	Super nodal analysis
	5 th	Solve numerical
6	1 st	Source transformation techniques and solve numerical

	2 nd	Network Theorems Definition of bilateral network
	3 rd	Star to delta and delta to star conversion
	4 th	Superposition Theorem
	5 th	Solve numerical on superposition theorem
7	1 st	Thevenin's Theorem
	2 nd	Solve numerical
	3 rd	Norton's Theorem and solve numerical
	4 th	Maximum Power transfer theorem
	5 th	AC Circuit and Resonance —AC through RL, RC, RLC circuit
8	1 st	Solution of problems of AC through RL, RC, RLC series circuit
	2 nd	Solution of problems of AC through RL, RC, RLC parallel and composite circuit
	3 rd	Power factor and power triangle
	4 th	Expression for active, reactive and apparent power
	5 th	Derive the expression for series and parallel resonance
9	1 st	Bandwidth, Selectivity and Q factor in series resonance
	2 nd	Solve numerical
	3 rd	Poly phase Circuit —Concept of poly phase system and phase sequence
	4 th	Relation between phase and line in star and delta conversion
	5 th	Power equation in three phase circuit
10	1 st	Solve numerical on three phase power, star delta
	2 nd	Measurement of three phase power—Two wattmeter method
	3 rd	Solve numerical
	4 th	Transient —Steady state and transient response
	5 th	Transient response of series RL circuit having DC excitation
11	1 st	Transient response of series RC circuit having DC excitation
	2 nd	Transient response of series RLC circuit having DC excitation
	3 rd	Transient response of series RLC circuit having AC excitation
	4 th	Additional Examples
	5 th	
12	1 st	Two Port Network — Network Elements (Linear, Nonlinear, Active, Passive, Bilateral)
	2 nd	Network Configuration

13	3 rd	Z parameters (Equation, Matrix form)
	4 th	Y Parameters
	5 th	Transmission Parameters (A B C D parameters)
	1 st	Hybrid Parameters and solve numerical
	2 nd	Condition for Reciprocal and symmetry
14	3 rd	Inter Relationships between parameters (Z in terms of A B C D, Y, h)
	4 th	Inter Relationships between parameters (Y in terms of A B C D, Z, h)
	5 th	Inter Relationships between parameters (A B C D in terms of Z, Y, h)
	1 st	Solve Numerical
	2 nd	Solve Numerical and Doubt Clear
15	3 rd	Filters – Define filter
	4 th	Classification of Filters – BPF, BSF, LPF, HPF
	5 th	Difference between active and passive filter
	1 st	Cutoff frequency
	2 nd	Constant K – LPF and HPF
	3 rd	Constant K – BPF and BSF
	4 th	Solve numerical
	5 th	Solve numerical and Doubt Clear

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