

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN Session-2023-2024

Discipline: Electrical Engg. Semester: 3rd

Subject: circuit & Network Theory

Name of the Teaching Faculty: Bana Bihari Biswal

Subject: Circuit & Network Theory No. of Days/per week class allotted 4

Semester From Date : 01-08-2023. To Date : 30-11-2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
1	1	Introduction , Magnetic effect .
	2.	Magnetising force, intensity, μ , flux
	3.	Permeability , Reluctance & Permeance .
	4.	Analogy. Electric & Magnetic circuit .
2.	5.	B-H curve of magnetic materials
	6.	Series magnetic circuit .
	7.	Parallel magnetic circuit , Hysteresis loop .
	8.	Self & Mutual inductance , coefficient of coupling .
3.	9.	Conductively coupled circuit & mutual impedance .
	10.	Dot convention of coupled circuit .
	11.	Series ; parallel connections of coupled circuits .
	12.	Numerical Problems



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Week	Class Day	Theory / Practical Topics
4.	13.	Active & Passive, Linear & Non-linear, unilateral & Bilateral elements.
	14.	Mesh Analysis, Mesh equations by inspection
	15.	Supers Mesh Analysis
	16.	Nodal Analysis, Nodal Equations by inspection.
5.	17.	Supers node analysis.
	18.	Source transformation, Numerical Problems.
	19.	stars/delta and delta/star transformation.
	20.	Superposition theorem.
6.	21.	Thevenin's theorem.
	22.	Norton's theorem.
	23.	Maximum power transfer theorem.
	24.	Numerical Problems.



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7.	25.	Numerical Problems
	26.	AC through RL, RC & RLC circuit.
	27.	Solutions of Problems of AC through RL, RC & RLC series ckt. by complex algebra method.
	28.	Solutions of Problems of AC through RL, RC & RLC. parallel & composite circuits.
8.	29.	Power factor & Power triangle.
	30.	Expression for Active, Reactive & Apparent power.
	31.	Derive resonance frequency of series & parallel ckt.
	32.	Bandwidth, selectivity & Q factor in series ckt.
9.	33.	Numerical Problems
	34.	concept of polyphase system & phase sequence.
	35.	Relation between phase & line quantities in Y & Δ connections
	36.	Power equation in 3-phase balanced ckt.



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10.	37.	Numerical problems
	38.	Measurement of 3- ϕ power by two wattmeter method.
	39.	Numerical problems.
	40.	Steady state & Transient state Response
11	41	DC response of RL circuit.
	42.	DC response of RC circuit.
	43.	DC response of RLC circuit.
	44.	Numerical problems
12.	45.	Two port Networks , parameters
	46.	Open circuit Impedance (Z) Parameters
	47.	Short circuit Admittance (Y) Parameters.
	48.	Transmission (ABCD) Parameters.



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Week	Class Day	Theory /Practical Topics
13.	49.	Hybrid (h) parameters
	50.	Interrelationships of different parameters.
	51.	combinations of two port networks.
	52.	T & π representations.
14.	53.	Numerical Problems
	54.	Definition. & classification of filters , bands
	55.	constant k low pass filters.
	56.	constant k high pass filters.
15.	57.	constant k band pass filters.
	58.	constant k band stop filters
	59.	Applications, numerical problems
	60.	Numerical Problems



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