



GOVERNMENT POLYTECHNIC BARGARH

LESSON PLAN

Winter-2022

CIRCUIT AND NETWORK THEORY

SEMESTER- 3RD

BRANCH- ELECTRICAL ENGINEERING

PREPARED BY

SMT. PRITEE PRAVA MINZ

SR. LECT.(ELECTRICAL)



DISCIPLINE: ELECTRICAL	SEMESTER: 3rd	NAME OF THE TEACHING FACULTY: Pritee Prava Minz, Sr. Lecturer (EE)
SUBJECT: Th2. Circuit and Network Theory	NO. OF DAYS/ WEEK CLASS ALLOTTED - 5	SEMESTER FROM DATE 15.09.2022 to 22.12.2022
WEEK	CLASS DAY	THEORY TOPICS
1 ST	01	MAGNETIC CIRCUITS 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 ND	06	Series & parallel magnetic circuit.
	07	Hysteresis loop
	08	COUPLED CIRCUITS: Self Inductance and Mutual Inductance
	09	Conductively coupled circuit and mutual impedance
	10	Dot convention, Coefficient of coupling
3 RD	11	Series and parallel connection of coupled inductors.
	12	Solve numerical problems on magnetic circuit
	13	CIRCUIT ELEMENTS AND ANALYSIS: Active, Passive, Unilateral & bilateral, Linear & Non linear elements
	14	Mesh Analysis, Mesh Equations by inspection
	15	Super mesh Analysis
4 TH	16	Nodal Analysis, Nodal Equations by inspection
	17	Super node Analysis.
	18	Source Transformation Technique
	19	NETWORK THEOREMS: Star to delta and delta to star transformation
	20	Super position Theorem
5 TH	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 TH	26	Solve numerical problems on Norton's Theorem
	27	AC CIRCUIT AND RESONANCE: 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 TH	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

8 TH	34	Solve numerical problems on series resonance and parallel resonance circuit
	35	POLYPHASE CIRCUIT Concept of poly-phase system and phase sequence
	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.
9 TH	40	Solve numerical problems.
	41	TRANSIENTS: 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 TH	46	Solve numerical problems.
	47	TWO-PORT NETWORK: Open circuit impedance (z) parameters
	48	Short circuit admittance (y) parameters
	49	Transmission (ABCD) parameters
	50	4 Hybrid (h) parameters.
	51	Inter relationships of different parameters.
11 TH	52	T and π representation.
	53	Solve numerical problems.
	54	Solve numerical problems.
	55	FILTERS: Define filter Classification of pass Band, stop Band and cut-off frequency.
	56	Classification of filters. Constant – K low pass filter.
12 TH	57	Constant – K high pass filter.
	58	Constant – K Band pass filter.
	59	Constant – K Band elimination filter.
	60	Solve Numerical problems
	61	Revision of chapter 1.
13 TH	62	Revision of chapter 2.
	63	Revision of chapter 2
	64	Revision of chapter 3
	65	Revision of chapter 3
	66	Revision of chapter 4
14 TH	67	Revision of chapter 4
	68	Revision of chapter 5
	69	Revision of chapter 5
	70	Revision of chapter 6
	71	Revision of chapter 6
15 TH	72	Revision of chapter 7
	73	Revision of chapter 8
	74	Revision of chapter 8
	75	Revision of chapter 9
	Signature of Subject Teacher	