KIIT POLYTECHNIC

Department of Electrical Engineering

LESSON PLAN

Session :: Winter – 2022

Course Type :: Theory

Semester/Branch :: 3rd Semester, Electrical Engineering

Subject (with code) :: Circuit and Network Theory (Th-2)

Contacthours/week :: 5 hours

Name of Faculty :: Sunil Kumar Bhatta

SL. NO.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	**MAGNETIC CIRCUITS** Introduction, Magnetizing force, Intensity, MMF, flux and their relations, Permeability, reluctance and permeance	Lecture (Explanation)	Study Material
2	2	Analogy between electric and Magnetic Circuits, B-H Curve	Lecture (Explanation)	Study Material
3	3	Hysteresis loop	Lecture (Explanation)	Study Material
4	4	Series & parallel magnetic circuit.	Lecture (Explanation)	Study Material
5	5	**COUPLED CIRCUITS** Self Inductance and Mutual Inductance Conductively coupled circuit and mutual impedance	Lecture (Explanation)	Study Material
6	6	Dot convention, Coefficient of coupling	Video Presentation	https://nptel.ac.in/courses/108105159
7	7	Series and parallel connection of coupled inductors	Lecture (Explanation)	Study Material
8	8	numerical problems	Lecture (Explanation)	Text Book
9	9	**CIRCUIT ELEMENTS AND ANALYSIS** Active, Passive, Unilateral & bilateral, Linear & Non linear elements	Lecture (Explanation)	Study Material
10	10	Mesh Analysis, Mesh Equations by inspection	Lecture (Explanation)	Study Material
11	11	Quiz Test-1		
12	12	Super mesh Analysis	Lecture (Explanation)	Study Material
13	13	Nodal Analysis, Nodal Equations by inspection	Video Presentation	https://nptel.ac.in/courses/108105159
14	14	Super node Analysis.	Lecture	Study Material

			(Explanation)	
15	15	Source Transformation Technique	Lecture (Explanation)	Study Material
16	16	Solve numerical problems (With Independent Sources Only)	Lecture (Explanation)	Text Book
17	17	Solve numerical problems (With Independent Sources Only)	Lecture (Explanation)	Text Book
18	18	Practice Test-1		
19	19	**NETWORK THEOREMS** Star to delta and delta to star transformation	Lecture (Explanation)	Study Material
20	20	Super position Theorem	Lecture (Explanation)	Study Material
21	21	Thevenin's Theorem	Lecture (Explanation)	Study Material
22	22	Norton's Theorem	Video Presentation	https://nptel.ac.in/courses/108105159
23	23	Maximum power Transfer Theorem.	Lecture (Explanation)	Study Material
24	24	Solve numerical problems (With Independent Sources Only)	Lecture (Explanation)	Text Book
25	25	Solve numerical problems (With Independent Sources Only)	Lecture (Explanation)	Text Book
26	26	**AC CIRCUIT AND RESONANCE** A.C. through R-L, R-C & R-L-C Circuit	Lecture (Explanation)	Study Material
27	27	Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.	Lecture (Explanation)	Study Material
28	28	Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits	Lecture (Explanation)	Study Material
29	29	Power factor & power triangle.	Lecture (Explanation)	Study Material
30	30	Deduce expression for active, reactive, apparent power.	Lecture (Explanation)	Study Material
31	31	Numerical Problems on AC series & parallel circuit	Lecture (Explanation)	
32	32	Derive the resonant frequency of series resonance and parallel resonance circuit	Lecture (Explanation)	Study Material
33	33	Define Bandwidth, Selectivity & Q-factor in series circuit.	Lecture (Explanation)	Study Material
34	34	Solve numerical problems	Lecture (Explanation)	Text Book
35	35	Quiz Test-2		
36	36	**POLYPHASE CIRCUIT:** Concept of poly-phase system and phase sequence, Relation between phase and line quantities in star connection.	Lecture (Explanation)	Study Material
37	37	Relation between phase and line quantities in delta connection.	Lecture (Explanation)	Study Material
38	38	Power equation in 3-phase balanced circuit.	Lecture (Explanation)	Study Material

		Solve numerical problems		
39	39	Numerical Problems on Star & Delta	Lecture (Explanation)	Text Book
40	40	Measurement of 3-phase power by two wattmeter method, Solve numerical problems.	Lecture (Explanation)	Study Material
41	41	**TRANSIENTS:** Steady state & transient state response.	Lecture (Explanation)	Study Material
42	42	Response to R-L, R-C & RLC circuit under DC condition.	Lecture (Explanation)	Study Material
43	43	Solve numerical problems on RL,RC	Lecture (Explanation)	Text Book
44	44	Review class	Recap/Summarize	Text Book
45	45	**TWO-PORT NETWORK:** Open circuit impedance (z) parameters	Video Presentation	https://nptel.ac.in/courses/108105159
46	46	Short circuit admittance (y) parameters	Lecture (Explanation)	Study Material
47	47	Transmission (ABCD) parameters	Lecture (Explanation)	Study Material
48	48	Hybrid (h) parameters.	Lecture (Explanation)	Study Material
49	49	Inter relationships of different parameters.	Lecture (Explanation)	Study Material
50	50	T and π representation.	Lecture (Explanation)	Study Material
51	51	Solve numerical problems	Lecture (Explanation)	Text Book
52	52	Review Class	Recap/Summarize	Text Book
53	53	Practice Test-2		
54	54	**FILTERS:** Define filter, Classification of pass Band, stop Band and cut-off frequency.	Lecture (Explanation)	Study Material
55	55	Classification of filters.	Lecture (Explanation)	Study Material
56	56	Constant – K low pass filter.	Lecture (Explanation)	Study Material
57	57	Constant – K high pass filter.	Lecture (Explanation)	Study Material
58	58	Constant – K Band pass filter.	Lecture (Explanation)	Study Material
59	59	Constant – K Band elimination filter.	Lecture (Explanation)	Study Material
60	60	Solve Numerical problems	Lecture (Explanation)	Text Book

Signature of Concern Teacher

REFERENCE BOOKS:

1. Network Analysis and Synthesis- B.R.Gupta
2. Circuit and Networks- Sakhija & Nagsarkar
3. CIRCUIT & NETWORKS- A. Sudhakar & Shyam Mohan
4. Introduction to Circuit and Network- Gargi Basu