KIIT POLYTECHNIC, BHUBANESWAR

LESSON PLAN
Session (2022-2023)

Discipline: Electrical	**Semester: 3rd**	**Name of the Faculty:** Sunil Kumar Bhatta Lecturer **Email ID:** sunilbhattafel@kp.kiit.ac.in
Subject: Circuit and Network Theory	**No. of Days/week:** 05	**Start Date:** 14/09/2022 **End Date:** 21/01/2023

Week	Class Day	Theory Topics
1st	1st	**MAGNETIC CIRCUITS** Introduction, Magnetizing force, Intensity, MMF, flux and their relations, Permeability, reluctance and permeance.
	2nd	Analogy between electric and Magnetic Circuits,
	3rd	B-H Curve, Hysteresis loop
	4th	Series & parallel magnetic circuit.
	5th	**Tutorial-1**
2nd	1st	**COUPLED CIRCUITS** Self-Inductance and Mutual Inductance
	2nd	Conductively coupled circuit and mutual inductance
	3rd	Dot convention, Coefficient of coupling, Series and parallel connection of coupled inductors
	4th	numerical problems
	5th	**Tutorial-2**

3rd	1st	**CIRCUIT ELEMENTS AND ANALYSIS** Active, Passive, Unilateral & bilateral, Linear & Non linear elements
	2nd	Mesh Analysis, Mesh Equations by inspection
	3dr	Super node Analysis.
	4th	Source Transformation Technique
	5th	**Tutorial-3**
4th	1st	Solve numerical problems (With Independent Sources Only)
	2nd	Solve numerical problems (With Independent Sources Only)
	3rd	**NETWORK THEOREMS** Star to delta and delta to star transformation
	4th	Super position Theorem
	5th	**Tutorial-4**
5th	1st	Thevenin's Theorem
	2nd	Norton's Theorem
	3rd	Maximum power Transfer Theorem.
	4th	Solve numerical problems (With Independent Sources Only)
	5th	**Tutorial-5**
6th	1st	Solve numerical problems (With Independent Sources Only)
	2nd	**AC CIRCUIT AND RESONANCE** A.C. through R-L, R-C & R-L-C Circuit
	3rd	Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra method.
	4th	Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits
	5th	**Tutorial-6**
7th	1st	Power factor & power triangle, Deduce expression for active, reactive, apparent power.
	2nd	Numerical Problems on AC series & parallel circuit

	3rd	Numerical Problems on AC series & parallel circuit
	4th	Derive the resonant frequency of series resonance and parallel resonance circuit
	5th	**Tutorial-7**
8th	1st	Define Bandwidth, Selectivity & Q-factor in series circuit.
	2nd	Solve numerical problems
	3rd	**POLYPHASE CIRCUIT:** Concept of poly-phase system and phase sequence
	4th	Relation between phase and line quantities in star connection.
	5th	**Tutorial-8**
9th	1st	Relation between phase and line quantities in delta connection.
	2nd	Power equation in 3-phase balanced circuit. Solve numerical problems
	3rd	Numerical Problems on Star & Delta
	4th	Measurement of 3-phase power by two wattmeter method, Solve numerical problems.
	5th	**Tutorial-9**
10th	1st	**TRANSIENTS:** Steady state & transient state response.
	2nd	Response to R-L, R-C & RLC circuit under DC condition.
	3rd	Solve numerical problems on RL,RC
	4th	Solve numerical problems on RL,RC
	5th	**Tutorial-10**
11th	1st	**TWO-PORT NETWORK:** Open circuit impedance (z) parameters
	2nd	Solve Numerical Problems
	3rd	Short circuit admittance (y) parameters
	4th	Transmission (ABCD) parameters

	5th	**Tutorial-11**
12th	1st	Hybrid (h) parameters.
	2nd	Inter relationships of different parameters.
	3rd	Solve numerical problems
	4th	Solve numerical problems
	5th	**Tutorial-12**
13th	1st	**FILTERS:** Define filter, Classification of pass Band, stop Band and cut-off frequency.
	2nd	Classification of filters
	3rd	Constant – K low pass filter.
	4th	Constant – K high pass filter
	5th	**Tutorial-13**
14th	1st	Constant – K Band pass filter.
	2nd	Constant – K Band elimination filter.
	3rd	Solve Numerical problems
	4th	Solve Numerical problems
	5th	**Tutorial-14**
15th	1st	Expected Questions Discussion & Practice Test 1
	2nd	Expected Questions Discussion & Practice Test 2
	3rd	Expected Questions Discussion & Practice Test 3
	4th	Expected Questions Discussion & Practice Test 4
	5th	**Tutorial-15**