II B.Tech – I Semester
(17EE313) ELECTRICAL TECHNOLOGY & NETWORKS ANALYSIS LAB

Int. Marks	Ext. Marks	Total Marks		L	T	P	C
60	40	100		-	-	3	2

Pre-Requisites: None

Course Objectives:
- To determine resonance frequency, Q-factor of RLC network.
- To analysis time response of first orders RC/RL network for non-sinusoidal inputs.
- To estimate parameters of two port networks
- To understand the concept network theorems in network reduction of electrical networks.
- To determine efficiency of dc shunt machine with actual loading.
- To analyse performance of 3 phase induction motor
- To understand the significance of regulation of an alternators through synchronousimpedance method.

List of Experiments:
 PART – A

Any five experiments are to be conducted from each part
1. Series and Parallel Resonance – Timing, Resonant frequency, Bandwidth and Q-factor determination for RLC network.
2. Time response of first order RC/RL network for periodic non-sinusoidal inputs – timeconstant and steady state error determination.
3. Two port network parameters – Z-Y Parameters, chain matrix and analytical verification.
4. Verification of Superposition and Reciprocity theorems.
5. Verification of maximum power transfer theorem. Verification on DC, verification on ACwith Resistive and Reactive loads.
6. Experimental determination of Thevenin's and Norton's equivalent circuits and verificationby direct test.

PART – B
1. Magnetization characteristics of D.C. Shunt generator. Determination of critical field resistance.
2. Speed control of D.C. Shunt motor by Armature & flux control methods
3. Brake test on DC shunt motor. Determination of performance characteristics.
4. OC & SC tests on Single-phase transformer (Predetermination of efficiency and regulationat given power factors and determination of equivalent circuit).
5. Brake test on 3-phase Induction motor (performance characteristics).
6. Regulation of alternator by synchronous impedance method

Course Outcomes:
After successful completion of the course, the students can be able to:

S.No	Course Outcome	BTL
1.	Estimate parameters of two port networks	L2
2.	Understand the concept network theorems in network reduction of electrical networks.	L2
3.	Determination of efficiency of dc shunt machine with actual loading.	L2
4.	Analyse performance of 3 phase induction motor	L2
5.	Predetermination of efficiency and regulation of single phase transformer	L2
6.	determination of magnetization characteristics of D.C. Shunt generator	L2

Correlation of COs with POs & PSOs:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2
CO 1	3	2	2	2	-	1	-	-	2	2	-	-	2	3
CO 2	3	2	3	2	-	1	-	-	2	2	-	-	2	3
CO 3	1	3	3	2	-	1	-	-	2	2	-	-	2	3
CO 4	1	3	3	2	-	1	-	-	2	2	-	-	2	3
CO 5	1	3	3	2	-	1	-	-	2	2	-	-	2	3
CO 6	1	3	3	2	-	1	-	-	2	2	-	-	2	3