Year Semester: III - II **L T P C**

Code: 20EE6112 **0 0 3 2**

ELECTRICAL MEASUREMENTS & INSTRUMENTATION

Preamble: This lab course gives the emphasis for students about the different electrical measurement methods for the electrical parameter's measurement and instrumentation for non-electrical measurements quantities.

Course Objectives: students are supposed

1. To understand the correct function of electrical parameters
2. To understand calibration of voltage, current, single phase & three phase power and energy
3. To understand measurement of electrical characteristics of resistance, inductance and capacitance of bridges.
4. To understand the measurement of non-electrical quantities using electrical transducers

Course Outcomes: At the end of the course, the students can able

1. Student will be able to measure accurately the electrical parameters voltage, current, power, energy, and electrical characteristics of Resistance, inductance, capacitance.
2. To be able to test transformer oil for its effectiveness
3. To be able to measure three phase active and reactive powers
4. To be able to measure non-electrical quantities.

CO – PO & CO – PSO Mapping:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3		2									3	3	3
CO2	3	2	3										3	2	2
CO3	3	3	2	2									3	2	2
CO4	3	2	2										3	3	2

*1 – Weak, 2 – Moderate and 3 – Strong

S.No **List of Experiments**

1. Calibration and testing of single-phase Energy meter.
2. Calibration of dynamometer wattmeter using phantom loading UPF.
3. Kelvin's double bridge-measurement of resistance.
4. Capacitance measurement using Schering's Bridge.
5. Inductance measurement using Anderson's bridge.
6. Calibration of LPF wattmeter by Direct loading.
7. Measurement of three phase power with single phase wattmeter and 2 no's of C.T.
8. Measurement of three phase reactive power using single phase wattmeter for balanced loading
9. Measurement of Temperature with RTD in LabVIEW
10. Measurement &calibration of displacement with LVDT in LabVIEW

Additional Experiments

11. Calibration of dynamometer wattmeter using phantom loading UPF
12. Crompton's D.C Potentiometer-Calibration of PMMC ammeter and PMMC voltmeter.

Text Books:

1. Shawney A.K., Electrical Measurements, Khanna Publisher.

Reference Books:

1. Electrical Measurements by David. A. Bell Oxford Publications, 5th edition.
2. Electrical Measurements by R. K. Rajputh, S. Chand Publications, 2nd Edition.
3. Electrical Measurements & Measuring Instruments by J.Amarnath, S.K.Kataria & Sons.