

## BASIC ELECTRICAL ENGINEERING LABORATORY

Semester	: I/II	CIE Marks	: 40
Course Code	: 18EEL17/27	SEE Marks	: 60
Teaching Hours/week (L:T:P)	: 0:0:2	Exam Hours	: 03
Credits : 01			

### Course Objectives:

- To provide exposure to common electrical components such as Resistors, capacitors and inductors, types of wires and measuring instruments.
- To measure power and power factor measurement of different types of lamps and three phase circuits.
- To explain measurement of impedance for R-L and R-C circuits.
- To determine power consumed in a 3 phase load.
- To determine earth resistance and explain methods of controlling a lamp from different places.

### Orientation class for an exposure to:

- Resistors, capacitors, inductors, rheostats, diodes, transistors, types of wires, measuring instruments – voltmeter, ammeter, wattmeter, multi-meter, Regulated power supply, Function generator, oscilloscope, transformer, dc motor, synchronous generator, three phase induction motor etc.
- Basic safety precautions while dealing with electricity.

### LIST OF EXPERIMENTS

1. Verification of KCL and KVL for DC circuits.
2. Measurement of current, power and power factor of incandescent lamp, fluorescent lamp, and LED lamp.
3. Measurement of resistance and inductance of a choke coil using 3 voltmeter method.
4. Determination of phase and line quantities in three phase star and delta connected loads.
5. Measurement of three phase power using two wattmeter method.
6. Two way and three way control of lamp and formation of truth table.
7. Measurement of earth resistance.
8. Study of effect of open and short circuit in simple circuits.



**Demonstration Experiments (for CIE only):**

1. Demonstration of fuse and MCB separately by creating a fault.
2. Demonstration of cut-out sections of electrical machines (DC machines, Induction machines and synchronous machines).
3. Understanding ac and dc supply. Use of tester and test lamp to ascertain the healthy status of mains.
4. Understanding of UPS.

Revised Bloom's Taxonomy Levels L<sub>1</sub>- Remembering, L<sub>2</sub>- Understanding, L<sub>3</sub>- Applying, L<sub>4</sub>-Analysing

**Course Outcomes:**

At the end of the course the student will be able to:


- Identify the common electrical components and measuring instruments used for conducting experiments in the electrical laboratory.
- Compare power factor of lamps.
- Determine impedance of an electrical circuit and power consumed in a 3 phase load.
- Determine earth resistance and understand two way and three way control of lamps.

**Graduate Attributes (As per NBA):** Engineering Knowledge, Problem Analysis, Individual and Team work, Communication

**Conduct of Practical Examination:**

1. All laboratory experiments are to be included for practical examination.
2. Breakup of marks and the instructions printed on the cover page of answer script to be strictly adhered by the examiners.
3. Students can pick one experiment from the questions lot prepared by the examiners.
4. Change of experiment is allowed only once and 15% Marks allotted to the procedure part shall be made zero.

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