

## INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

1. **Name of the Academic Unit:** Electrical Engineering Department
2. **Subject Name:** Basic Electrical Engineering Laboratory **L-T-P:** 0-0-3 **Credits:**2
3. **Pre-requisites:** Nil
4. **Syllabus and reference books:**

**Syllabus:** 1) Characteristics of Linear and Non-linear Loads, 2) Verification of Thevenin and Superposition theorem, 3) Characteristics of Series RLC circuit and series resonance, 4) Measurement of Electrical Energy (kWh) by single phase energy meter, 5) Three phase Power Measurement, 6) Open circuit and short circuit test on single phase Transformer, 7) Parallel operation of 2 single phase transformers, 8) Familiarization with current transformer (CT) and Potential Transformer (PT) for the measurement of power in an AC circuit, 9) No load and blocked rotor test of three phase induction motor, 10) Load test on three phase Induction motor

**Reference Books:**

- 1) . Electrical Technology; Edward Hughes; Longman Scientific and Technical
- 2) Laboratory Manual: [www. http://www.ee.iitkgp.ac.in/electrical\\_technology](http://www.ee.iitkgp.ac.in/electrical_technology)
- 3) NPTEL WEB Course “Basic Electrical Technology URL: <https://nptel.ac.in/courses/108105053>
- 4) Electric Machines; D. P. Kothari, I.J.Nagrath; Tata McGRAW-Hill

**5. Lecture-wise break-up:**

Sl. No.	Topic	No. of lectures
1.	Characteristics of Linear and Non-linear Loads	3
2.	Verification of Thevenin and Superposition theorem	3
3.	Characteristics of Series RLC circuit and series resonance	3
4.	Measurement of Electrical Energy (kWh) by single phase energy meter	3
5.	Three phase Power Measurement	3
6.	Open circuit and short circuit test on single phase Transformer	3
7.	Parallel operation of 2 single phase transformers	3
8.	Familiarization with current transformer (CT) and Potential Transformer (PT) for the measurement of power in an AC circuit	3

<b>9.</b>	No load and blocked rotor test of three phase induction motor	<b>3</b>
<b>10.</b>	Load test on three phase Induction motor	<b>3</b>
<b>Total number of hours</b>		<b>30</b>