

## BASIC ELECTRICAL ENGINEERING LAB

<b>I B. TECH- I SEMESTER</b>								
Course Code	Category	Hours / Week			Credits	Maximum Marks		
		L	T	P		C	CIE	SEE
A4EE02	ESC	-	-	2	1	30	70	75
<b>COURSE OBJECTIVES:</b>								
<b>The course should enable the students to:</b>								
<ol style="list-style-type: none"> <li>1. Get an exposure to common electrical components and their ratings.</li> <li>2. Make electrical connections by wires of appropriate ratings.</li> <li>3. Understand the usage of common electrical measuring instruments.</li> <li>4. Understand the basic characteristics of transformers and electrical machines.</li> </ol>								
<b>COURSE OUTCOMES:</b>								
<ol style="list-style-type: none"> <li>1. Get an exposure to basic electrical laws.</li> <li>2. Demonstrate different types of electrical circuits to different excitations.</li> <li>3. Calculate the relation between the basic electrical parameters.</li> <li>4. Analyze the basic characteristics of transformers and electrical machines.</li> </ol>								
<b>LIST OF EXPERIMENTS</b>								
<b>WEEK-1</b>	<b>INTRODUCTION AND USE OF MEASURING INSTRUMENTS &amp; SAFETY PRECAUTIONS</b>							
To study the usage of electrical instruments and the required precautions to be taken.								
<b>WEEK-2</b>	<b>KIRCHOFF'S LAWS( KVL &amp; KCL)</b>							
To verify kvl and kcl								
<b>WEEK-3</b>	<b>SUPERPOSITION THEOREM</b>							
To verify superposition theorem								
<b>WEEK-4</b>	<b>THEVENIN'S AND NORTON'S THEOREM</b>							
To obtain equivalent circuit of a complex network								
<b>WEEK-5</b>	<b>STEADY STATE AND TRANSIENT RESPONSE OF R-L, R-C &amp; R-L-C CIRCUITS</b>							
To find the steady and transient response of r-l, r-c & r-l-c circuits for step input.								
<b>WEEK-6</b>	<b>OPEN CIRCUIT, SHORT CIRCUIT &amp; LOAD TEST ON SINGLE PHASE TRANSFORMER</b>							
To calculate the efficiency of single phase transformer.								
<b>WEEK-7</b>	<b>CUT OUT VIEW OF DC MACHINE</b>							
Demonstration on constructional and cut out view of dc machine								
<b>WEEK-8</b>	<b>CUT OUT VIEW OF INDUCTION MOTOR</b>							
Demonstration on constructional and cut out view of single phase induction motor								
<b>WEEK-9</b>	<b>MAGNETIZATION CHARACTERISTICS OF DC SHUNG GENERATOR</b>							
To find the magnetization characteristics of dc shunt generator								
<b>WEEK-10</b>	<b>BRAKE TEST ON DC SHUNT MOTOR</b>							
To find the torque-speed characteristics of dc shunt motor.								
<b>WEEK-11</b>	<b>THREE PHASE TRANSFORMER CONNECTIONS</b>							
To calculate the relation between phase and line voltages								
<b>WEEK-12</b>	<b>BRAKE TEST ON 3-PHASE INDUCTION MOTOR</b>							
To find the torque-slip characteristics of induction motor								
<b>REFERENCE BOOKS:</b>								

1. Department Lab Manual
2. Chakrabarthy, " Circuit Theory", Dhanpat Rai Publications, 6<sup>th</sup> Edition,2006
3. V K Mehta, Rohit Mehta, "Principles of Electrical Machines", S Chand Publications, 1<sup>st</sup> Edition,2006
4. Nagrath & DP Kothari, "Electrical Machines", Mcgraw Hill Education Publications, 4<sup>th</sup> Edition, 2010.

**WEB REFERENCES:**

1. <http://www.ee.iitkgp.ac.in>
2. <http://www.citchennai.edu.in>