

<b>Course Title</b>	<b>Electrical Technology and Design</b>
<b>Course Code</b>	<b>EE2200</b>
<b>No. of Credit Hrs (Lecture + Tutorial/Lab)</b>	<b>2 (1+0+1)</b>
<b>No. of Contact Hrs (Lecture + Tutorial/Lab)</b>	<b>3 (1+0+2)</b>
<b>Level-Year</b>	<b>3-2</b>
<b>Prerequisite (if any)</b>	<b>---</b>

### 1) Course Objectives:

The objective of this course is to prepare students to be familiar with laboratory work. The experiments are designed to illustrate phenomena in different areas of workshop and to expose student to use different instruments. Conduct the job with interest and an attitude of learning. By the completion of this course, the students will be able to

- Analyze basic electric and electronic schematic representations
- Handle basic electrical and electronics equipment
- Understand domestic wiring procedures practically
- Understand all the fundamental concepts involving electrical engineering
- Assemble / Disassemble a desktop computer

### 2) Expected Learning Outcomes:

By the end of this course the student will be able to:

1. Identify and differentiate basic circuit schematic symbols and wiring layouts of electrical and electronic equipment. PLO1 [1]
2. Demonstrate proper use of LCR meter, Clamp meter, EMF meter, and safe soldering techniques for circuit assembly. PLO4
3. Analyze and solve basic residential wiring problems such as one-way, two-way, and staircase wiring. PLO2 [2]
4. Apply resistor color codes to determine resistance and verify using a multimeter. PLO1 [1]
5. Compare practical measurements with theoretical values to validate basic electrical laws. PLO3 [6]
6. Interpret data and create structured lab reports to communicate experimental findings. PLO8 [3]

### 3) Course Contents

1. Introduction to basic electrical and electronic schematic circuit representations. Introduction to Breadboard, Soldering, Wiring joints, Preparation (Shielding) of cables using Workstation.
2. Resistor Color Codes and its Verification using Digital Multimeter and LCR Meter. Measurement of RLC series and parallel connections through breadboard connections using LCR Meter.
3. Measurement of Load Current, Leakage Current and Cable Continuity (Breakage) of a LIVE wire using Clamp Meter. Field Radiation Level Measurement using Electro-Magnetic Field Meter for different electronic devices.
4. Soldering of N-Channel transistor level circuitry.
5. Assembling / Disassemble of Desktop Computer.
6. One way wiring controlled by one switch. Two Way wiring controlled by two switch with a socket outlet.



7. Staircase / Go-down Wiring. Fluorescent Lamp wiring
8. Residential House wiring

#### 4) Teaching Methods:

- Lectures
- Videos
- Discussion
- Self-learning
- Laboratory experiments

#### 5) Mode of Evaluation:

##### Course Assessment Methods

- Quizzes , Assignment, Homeworks, Reports, Presentations etc.
- Lab Work
- Mid Exam
- Final Exam

##### Evaluation

No	Assessment Activities *	Percentage
1.	Assignments/Quizzes/HomeWorks/Mini-Projects/Presentations/Reports+Quizzes	15%
2.	Mid Exam	25%
3.	Lab/Tutorial (Lab Exam)	10%
4.	Lab/Tutorial (Lab Reports)	10%
5.	Final Exam	40%

#### 6) Textbook(s):

- A textbook of Electrical Workshop Practices”, Umesh rathore and Naresh Kumar Sharma, S.K.Kataria and Sons publishers, 1<sup>st</sup> edition 2019.
- Lab Manual designed specifically for the course

#### 7) References:

- “Electrical Workshop: Safety, Commissioning, Maintenance and testing of Electrical Equipment”, R.P Singh, 3<sup>rd</sup> Edition, 2012.