

Branch Name:	Electrical Engineering
Program Code:	ET403
Course Name:	Electrical Workshop Practices
Course Code:	2ET4030101
Pre-requisite Course:	

Course Objectives:

1. Identify various types of tools used for electrification.
2. Remembering various types of electrical and electronics symbols.
3. Use and connect various measuring instruments to measure electrical parameters.
4. Categorize various types of wire and cables.
5. Understand importance of earthing and safety.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				Total (Marks)
Lecture	Tutorial	Practical	Credit	Theory		Practical		
				University Assessment	Continuous Assessment	University Assessment	Continuous assessment	
-	-	4	2	-	-	-	50	50

Subject Contents:

Sr. No	Topics	Total Hours	Weightage (%)
1	Electrical Tools Pliers, nose plier, cutter, screw driver, tester, test lamp etc. Ammeter, voltmeter, wattmeter, clip on meter, Multimeter, Megger, etc.	16	20
2	Cables and Switches Single core cable, multicore cable, single strand wire, multi strand wire, shielded wire, different types of light sources etc.; Toggle switch, Rotary switch, Push button switch, micro switch, MCB, ELCB, etc.	18	25
3	Resistors Rheostat, wire wound resistor, Carbon film resistor, Carbon composition resistor, fixed and variable potentiometer etc.	06	10
4	Capacitors Paper capacitor, electrolytic capacitor, ceramic capacitor, polyester, gang capacitor	06	10
5	Earthing and Electrical Safety Pipe earthing, plate earthing, Electrical safety tools Electrical safety rules , I.E. rules for electrical hazards and accidents	06	15
6	Different faults in domestic appliances Automatic iron, mixture, Oven, washing machine and repairing of the same. Application of Tester and Test Lamp for fault finding in Electrical Systems	04	20

LIST OF REFERENCES:

1. Handbook of Electrical Engineering by Bhatia, S.L. Khanna Publication
2. Electrical engineering drawing I&II by Singh, Surjit, S.K. Kataria & sons
3. Electrical engineering materials & semiconductor devices by Gupta, J.B. & Gupta, Renu, S.K. Kataria & sons
4. Electrical Engineering Materials by Mithal, G.K., Khanna Publication

LIST OF PRACTICAL:

SR NO	PRACTICALS/EXPERIMENTS
1	Identify and understand various tools used for wiring.
2	Identify the symbols used in electrical circuit diagrams.
3	Identify and connect various electrical measuring instruments and measure various electrical parameters like current, voltage, power.
4	Use common testing instruments used in electrical workshops: 1. Test lamp. 2. line tester. 3. Multimeter. 4. Clamp-on meter. 5. Megger.
5	Connect different domestic appliances to power supply and measure current drawn by them using 1) Ammeter. 2) Tong tester. 3) Multimeter.
6	Identify and understand different types of domestic wirings.
7	Identify and specify different types of wires, cables, cable joints used for different current and voltage ratings.
8	Identify different types of light sources, open circuit, closed circuit and short circuit.
9	Identify and specify different types of switches used for different applications as per current and voltage ratings.
10	Identify and specify different types of sockets and plugs used for different current and voltage ratings.
11	Understand the working of various electrical circuit protective devices like fuse, MCB etc.
12	Prepare a meter board for lighting and power installation using MCB, energy meter, fuse unit, DP switch, indicators and bus bars.
13	Identify and specify different types of resistors and capacitors as per standard color code practice.
14	Solder various resistors, capacitors and electronic components on PCB.
15	Conduct mock artificial respiration and first aid exercises to learn about safety procedures of first aid in case of electrical hazards.
16	Understand the importance of earthing in electrical installations.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Identify various types of tools used for electrification.	1 Remembering, 2 Understanding
CLO2	Identify various types of electrical and electronics symbols.	2 Understanding, 1 Remembering
CLO3	Use and connect various measuring instruments to measure electrical parameters.	3 Applying, 4 Analyze
CLO4	Identify various types of wire and cables.	1 Remembering, 2 Understanding
CLO5	Understand domestic protective devices.	2 Understanding, 3 Applying
CLO6	Understand importance of earthing and safety.	4 Analyze, 3 Applying, 2 Understanding

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	H				M			L		L			H	M	L
CLO2	L				M								H	L	L
CLO3	M												L		M
CLO4					L			L					M		M
CLO5		M			L								M		
CLO6													L	L	

H:High, M:Medium, L:Low