

## House wiring

**Name** : House wiring  
**Sector** : Electrical  
**Code** : ELE203  
**Entry Qualification** : 8<sup>th</sup> Standard 14 years and Above  
**Duration** : 120 hrs  
**Terminal competency:** MES Modules on Basic Electrical Training

**Terminal competency:** The participant will be able to
 

1. Observe the safety precautions while working
2. List of necessary hand tools and their uses
3. Cater and maintenance of wiring tools
4. Draw and describe simple electrical circuits.
5. Understand the different system of wiring used for domestic installation.
6. Understand the necessity of good earthing in an electrical installation.
7. Do the domestic installation testing before energizing a domestic installation.

### Course Contents:

Underpinning Knowledge (Theory)	Practical Competencies
Safety precaution	<ul style="list-style-type: none"> <li>• Safety precaution</li> </ul>
Safety equipments that should be available with an electrician working on line electrical installation.	<ul style="list-style-type: none"> <li>• Common hand tools, their uses, care and maintenance.</li> </ul>
ISI rules related to wiring (General)	<ul style="list-style-type: none"> <li>• Identify the wiring accessories as per symbols.</li> </ul>
Introduction to electricity Conductor & Insulator. Joints in Electrical Conductor	<ul style="list-style-type: none"> <li>• Make simple twist joints</li> <li>• Make married joint in stranded conductors.</li> <li>• Make tee joint in stranded conductor.</li> </ul>
Diagram and systems used in domestic wiring installation	<ul style="list-style-type: none"> <li>• Prepare T.W Board for fixing Flush type accessories.</li> <li>• Make the wiring layout for a bed room of a house with 6 points.</li> <li>• Carryout the wiring in PVC casing and capping as per layout.</li> </ul>
Earthing – Types. Earthing domestic installation I E rule for Energy meter Installation.	<ul style="list-style-type: none"> <li>• Carryout pipe earthing pipe earthing as per I E rule.</li> <li>• Prepare arc mount energy meter board</li> <li>• Carryout domestic installation testing</li> </ul>

## Tools & Equipemnts:

1. Screw Driver 8" 10", 12"
2. Combination Pliers 6", 8"
3. Neon Tester
4. Round Nose Plier 15 cm
5. Electrician Knife 10 cm
6. Heavy Duty Screw Driver 10", 12"
7. Nose Pliers 6"
8. B.P.Hammer 1/2Kg, 1/4Kg
9. Cold Chisel 15 cm
10. Tri Square 30 cm
11. Fermer chisel 14cm, 20cm, 25cm
12. Pocker 15cm
13. Power drilling Machine 6 mm
14. Hacksaw 30 cm
15. Wire shipper 10 cm
16. Measuring tape 5 meters

## MODULES

### Basic Electrical Training

**Name** : Basic Electrical Training  
**Sector** : Electrical  
**Code** : ELE101  
**Entry Qualification** : 5th Standard & 14 years and Above  
**Duration** : 120 Hrs

**Terminal competency: The participant will be able to**

- State what is an accident, the probable causes and safe attitude
- Rescue a person who is in contact with a live wire
- Understand the general safety of Tools and Equipments
- Describe electricity, conductor, insulator, voltage, current, resistance, P.D., and inter relation between Voltage, Current, and Resistance etc.
- Connect volt meter, watt meter, ammeter, energy meter, multimeter, materials in simple electric circuits and measure the units.
- Do various connections like series, parallel etc.
- Explain the difference between AC & DC
- Describe the purpose of Earthing and Types of Earthing.

#### Course contents:

<b>Underpinning Knowledge (Theory)</b>	<b>Practical Competencies</b>
<ul style="list-style-type: none"> <li>• Safety practice –               <ul style="list-style-type: none"> <li>○ Lifting and handling loads.</li> <li>○ Heavy Equipments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Safety practices – lifting and handling.</li> </ul>
<ul style="list-style-type: none"> <li>• Safety practice –               <ul style="list-style-type: none"> <li>○ Fire extinguishers</li> <li>○ Types of fire extinguishers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Safety practices – Fire fighting</li> </ul>
<ul style="list-style-type: none"> <li>• General safety of tools and equipments</li> </ul>	<ul style="list-style-type: none"> <li>• Nature of working of tools and equipments.</li> </ul>
<ul style="list-style-type: none"> <li>• Electrical safety               <ul style="list-style-type: none"> <li>○ Rescue a person who is in contact with live wire.</li> <li>○ Treat a person for electric shock/injury.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Electrical safety practice               <ul style="list-style-type: none"> <li>○ Rescue a person who is in contact with live wire.</li> <li>○ Treat a person for electric shock/injury.</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Introduction to Electricity</li> <li>• Conductors and types of conductors</li> <li>• Insulators and types of insulators</li> <li>• Crimping &amp; crimping tool</li> <li>• Soldering</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare Terminations               <ul style="list-style-type: none"> <li>○ Skinning Different types of cable ends</li> <li>○ Make various joints in cable</li> <li>○ Crimping cable ends.</li> <li>○ Soldering the cable lugs</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Define simple electrical terms like voltage, current, resistance and their units.</li> </ul>	<ul style="list-style-type: none"> <li>• Simple electrical connections using resistance, voltmeter, and ammeter, multimeter</li> </ul>
<ul style="list-style-type: none"> <li>• Simple series and parallel circuits</li> </ul>	<ul style="list-style-type: none"> <li>• Connecting number of lamps in series connection.</li> <li>• Connecting number of lamps in parallel connection.</li> </ul>
<ul style="list-style-type: none"> <li>• Direct current and testing the polarity</li> <li>• Alternating current and identifying phase, neutral and earth terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Testing the polarity of DC supply.</li> <li>• Identification of phase and neutral in single phase supply</li> </ul>
<ul style="list-style-type: none"> <li>• Purpose of Earthing</li> <li>• Types of Earthing.               <ul style="list-style-type: none"> <li>○ Pipe Earthing</li> <li>○ Plate Earthing</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Carry out of pipe earthing</li> <li>• Carry out of plate earthing</li> </ul>
<ul style="list-style-type: none"> <li>• Simple house wiring circuit.</li> </ul>	<ul style="list-style-type: none"> <li>• Repairing of house wiring faults.</li> </ul>

### **Tools and Equipments:**

1. Connector, 6"
2. Screw Driver 8" 10", 12"
3. Cutting Pliers 6", 8"
4. Neon Tester
5. Heavy Duty Screw Driver 10", 12"
6. Nose Pliers 6"
7. Crimping tool
8. Volt meter 0-600 V (MC Type)
9. Volt meter 0-600 V (MI Type)
10. Ammeter 0-5 (MC Type)
11. Ammeter 0-5 (MI Type)
12. Watt meter 0-2.5KW
13. Energy meter 0-10A, 240V
14. Multimeter
15. Megger 500V
16. Line Tester
17. Types of fire extinguishers
18. Common tools used in electrical field.
19. Soldering iron 25W, 250V

## Repair of Home Appliance

**Name** : Repair of Home Appliance  
**Sector** : Electrical  
**Code** : ELE202  
**Entry Qualification** : 8<sup>th</sup> Standard 14 years and Above  
**MES Modules on Basic Electrical Training**

**Duration** : 120 Hrs

**Terminal competency** : The participant will be able to

1. Observe the safety precautions while working
2. Test line cord for continuity with test lamp/multimeter
3. Prepare a heating element for a heater as required specification.
4. Replace the old element for heater, kettle, non –automatic electronic iron, room heaters etc., with a new one
5. Dismantle and reassemble an electric iron, heater, kettle, room heater, toaster, hair dryer, mixie etc.
6. Install a ceiling fan and the regulator.
7. Check a fluorescent lamp chock, starter and install it.

### Course contents:

Underpinning Knowledge (Theory)	Practical Competencies
Safety precaution	<ul style="list-style-type: none"> <li>• Safety precaution</li> </ul>
Install, service and repair all kinds of electrical home appliances	<ul style="list-style-type: none"> <li>• General repair of heating iron, kettle, ceiling fan, table fan, washing machine etc.,</li> <li>• Test the fan capacitors.</li> <li>• Clean and lubricate the bearing of ceiling and table fan, and check the speed.</li> <li>• Regulator of both fan.</li> </ul>
Repair and rectification of an automatic electric iron, servicing and repairing of mixer, ceiling and table fan.	<ul style="list-style-type: none"> <li>• Measure the insulation resistance between the terminals and body of the appliance</li> <li>• Check the oscillator mechanisms of table fan</li> </ul>
Assemble and install a fluorescent lamp.	<ul style="list-style-type: none"> <li>• Select the fuse size according to the load of circuit</li> </ul>
Thermostat heat controls of Automatic electric iron, steam iron, spray irons. Understand home appliances like heater, iron, kettle ceiling fan, table fan, washing machine etc.	<ul style="list-style-type: none"> <li>• Dismantle and reassemble automatic iron, ceiling fan table fan cooking range, storage heater, washing machines, and wet grinders etc.</li> </ul>
Maintenance of decorative serial lamp for a required supply voltage	<ul style="list-style-type: none"> <li>• Determine the number of lamps to be connected in series for particular supply voltage for making decorative serial lamp.</li> </ul>
Assemble, connect and install a twin fluorescent lamp with accessories	<ul style="list-style-type: none"> <li>• Check the internal connections of cooking range selector switch and circuits. connections in different temperature arrangements</li> </ul>
Repair and service technique of cooking range, storage water heater, washing machines, wet grinders. Replace the heating element in a soldering.	<ul style="list-style-type: none"> <li>• Check the simple mechanical timer, small water pump of washing machines and regular service and faults.</li> <li>• Repair of house wiring.</li> </ul>

### **Tools and Equipments:**

1. Electric Heater
2. Electric Iron
3. Electric Kettle
4. Ceiling Fan
5. Table Fan
6. Washing Machine
7. Automatic Iron
8. Cooking Range
9. Storage Heater
10. Wet Grinder
11. Connector, 6"
12. Screw Driver 8" 10", 12"
13. Cutting Pliers 6", 8"
14. Neon Tester
15. Heavy Duty Screw Driver 10", 12"
16. Nose Pliers 6"
17. Soldering iron
18. Multimeter