ELECTRICAL HOME APPLIANCES REPAIR TECHNICIAN (HART)
Core Qualification File Syllabus

COURSE CONTENTS:

THEORY: (72 hours) - COURSE CONTENTS:

1. Safety: (4 hrs)

Safety Practices; Fires in electrical Circuits & Precautions, Fire Extinguishers & its Types, General Safety of Tools &equipment, Rescue of person who is in contact with live wire, Treat a person for electric shock/ injury

2. General idea on Various Components (10 Hrs)

Different types of switches, fuse, thermostat, heating elements, conductors, insulators, capacitors, wires and cables (for up to 15 amp) symbol of various components.

3. Maintenance of heating appliances: (18 Hrs)

Identification, working and specification of each part. Repairing for some common problems, replacement of coil, insulators, thermostat etc.for the following:

(a) Room Heater (with/ without variable thermostat)
(b) Electric iron (with/without variable thermostat)
(c) Electric stove, electric kettle, electric rice cocker, electric toaster
(d) Electric immersion heater,
(e) Geyser.

4. Maintenance of motorised appliances

4.1 Maintenance of Ceiling and Table fan (5 Hrs)

Construction, Identification of various parts, electrical diagram, regulator. Connection Wiring of a fan with switch and regulator, maintenance of fan (overhauling), repair of some common problems like low speed, fan not starting, fan rotating in reverse direction, any other as suggested by concerned teacher.

4.2 Maintenance of Domestic Pump motor (5 Hrs)

Identification of pump motor, type & specification, electrical connection, of switch, cable etc. Routine check up of motor (e.g. meggar test, checking of winding resistance.) repairing of some common fault like starting problem, tripping of motor or any other as suggested by concerned teacher.

4.3 Maintenance of domestic Mixer grinder, food processor (10 Hrs)

Identification of various parts, identification of motor used, its type and specification. Study of selector switch and its repairing, thermostat connection and its replacement and operation, repairing for some common fault (e.g. motor not starting, motor abnormal noise etc).

4.4. Maintenance of washing machine (5 Hrs)

Identification of various parts of a **semi-automatic** washing machine like (a) motor, (b) water valve, (f) timer, (g) Brake arrangement, working of all parts for various mode of operation, replacement of various parts of a washing machine. Troubleshooting for various faults.

4.5 Vacuum Cleaner (5 Hrs)

Identification of various constructional parts, motor specification, type, electrical connection. Common faults, repair and maintenance of vacuum cleaner.

5. Maintenance of Other Appliances (10 Hrs)

5.1 Identification of various components and trouble shooting of electric bell, buzzer, emergency light,

PRACTICAL: (96 Hrs):

LIST OF PRACTICALS:

1. To make a chart of different fire extinguishers, and their use
2. To make a chart showing Dos and Don'ts of working with Electricity.
3. To make a chart of different tools used by a Technician and write their respective use. Identify the tools with actual.
4. To make a chart of Different types of switches, fuse, thermostat, heating elements, conductors, insulators, capacitors, wires and cables (for up to 15 amp) symbol of various components. Identify them in actual.
5. Dismantling, re-assembling and troubleshooting of electric room heater (rod type)
6. Dismantling, re-assembling and troubleshooting of ordinary/automatic electric iron, Immersion Heater, kettle etc.
7. Dismantling, re-assembling and troubleshooting of electric geyser
8. Dismantling, re-assembling and troubleshooting of Table fan and Ceiling fan
9. Testing of burnt/faulty motor like (ceiling fan, 3-ph motor and mixer motor).
10. Testing of a domestic pump motor before starting, tracing and testing its wiring / panel.
11. Identify different parts of a semi-automatic washing machine. Testing of its switches, brake arrangement, valves, know the causes of failures.
12. Identify different parts of a vacuum cleaner, testing of different components of it. Know the causes of different failures.

OUTCOMES

Outcomes to be assessed/ NOSs to	Assessment criteria for the outcome
1. Apply safe working practices for electrical maintenance of home appliances.	1.1 Apply the safety Practices. 1.2 Define fires in electrical Circuits & it's Precautions. 1.3 Classify the Fire Extinguishers & its Types. 1.4 Familiarize with General Safety of Tools & equipment 1.5 Know the process of Rescue of a person who is in contact with live wire. 1.6 knows how to Treat a person for electric shock/ injury.
2. Identify Various Components related to home appliances.	2.1 Identify different types of switches, fuse, thermostat, heating elements, conductors, insulators, capacitors, wires and cables (for up to 15 amp).
	2.2 Recognize and be able to draw symbols of various components.
3. Execute the maintenance procedures of heating appliances like Heater, Iron, Kettle, Toaster.	3.1 Identify, explain the working and know the specification of each part of following appliances: a) Room Heater (with/ without variable thermostat) b) Electric iron (with/without variable thermostat) c) Electric kettle, electric rice cooker, electric toaster d) Electric immersion heater.
	3.2 Repairing for some common problems, replacement of coil, insulators, thermostat etc. for the above appliances
	3.3 Identify different parts of a geyser.
	3.4 Troubleshoot some common problems associated with a Geyser
	3.5 Can dismount a geyser, open it and repair some common faults like replacement of coil, insulators, and thermostat.
4. Execute the general	4.1 **Maintenance of Ceiling and Table fan**:

maintenance of motorized domestic appliances like Fan, Pump, Mixer Grinder, Food Processor, Washing Machine, Vacuum Cleaner.	4.1.1. Identify various parts of a ceiling fan and table fan.
	4.1.2 Able to draw the connection diagram of a fan with switch and regulator.
	4.1.3 Knows the regular maintenance procedure of fan (overhauling),
	4.1.4 To be able to repair some common problems like low speed, fan not starting, fan rotating in reverse direction, any other as suggested by the concerned teacher.
	4.2 **Maintenance of Domestic Pump motor**:
	4.2.1 Identify pump motor, type & specification.
	4.2.2 Trace electrical connection of switch, starter, motor for a domestic pump motor
	4.2.3 Perform routine checkup of motor (e.g. meggar test, checking of winding resistance.)
	4.2.4. Perform repairing of some common fault like starting problem, tripping of motor or any other as suggested by the concerned teacher.
	4.3 Maintenance of domestic Mixer grinder, Food processor:
	4.3.1 Identify various parts, motor - its type and specification.
	4.3.2 Test the selector switch and perform its repairing., if found defective
	4.3.3 Test the thermostat connection and replace it if found defective
	4.3.4 Perform repairing for some common faults (e.g. motor not starting, motor abnormal noise etc).
	4.4 Maintenance of Semi-automatic washing machine :
	4.4.1 Identify various parts of a semi-automatic washing machine like (a) motor, (b) water valve, (f) timer, (g) Brake arrangement
	4.4.2 Test working of all parts for various modes of operation, replacement of various parts of a washing machine. Troubleshooting for various faults.
	4.5 **Maintenance of Vacuum Cleaner**:

	4.5.1 Identify various constructional parts.
	4.5.2 Identify the motor specification.
	4.5.3 Identify type of vacuum cleaner.
	4.5.4 Explain electrical connection of vacuum cleaner.
	4.5.5 Troubleshoot for some common faults in vacuum cleaner.
5. Execute the maintenance procedures of other domestic Appliances like electric bell, buzzer, emergency light, Fluorescent Tube.	5.1 Troubleshooting of electric bell, buzzer, emergency light, Fluorescent Tube.