



Department of Physics
Moridhal College

Certificate Course on Repairing and Maintenance of Home Appliances
Duration: 30 Hrs Full Marks: 50 (Theory 30 + Practical 20)

Course Objectives:

- To provide basic knowledge about household electrical and electronic appliances.
- To understand key elements of AC and Refrigerators.
- To understand domestic wiring and layout
- Basic safety practices.

Learning outcomes:

- Repair maintenance of the basic electrical and electronics appliances.
- Identification to protective devices.
- Repair and maintenance of the split AC and refrigerator
- Able to do domestic wiring and maintenance.

Unit-1: Introduction to Electricity (Marks: 3) 1 Class

Electric field and potential, Ohm's law, electronic circuit.

Unit-2: Introduction to Basic Electronics (Marks: 5) 4 Classes

Materials for electronics application; Conductor, Insulator and Semiconductor holes and electronics in semiconductor, intrinsic and extrinsic semiconductor.

Unit-3: Electronic and Electrical Components, Test and Measuring Instruments (Marks: 12) 9 Classes

Introduction to electronic components, passive and active components, Resistor, Capacitor and Inductor, Transformer, Semiconductor devices: Diode, Transistor, Analog ICs, Digital ICs. Basics of Multimeter, Analog and Digital Multimeter, Basics of Cathode Ray Oscilloscope and Function generator.

Unit-4: Soldering/ De-soldering Techniques and Tools (Marks: 6) 2 Classes

Soldering Iron, Soldering wires, Soldering Flux, Soldering method, Zero defect soldering, Desoldering pump, Temperature controlled soldering, Hands-on practices of soldering. Tools for repairing of electronic equipments, Combination pillar, Nose pillar, Wires stripper cum Cutter, Twizzer, Screw Driver set.

Unit-5: Stabilizer, Inverter and Battery (Marks: 16) 13 Classes

Stabilizer, its types and working, Introduction to Constant Voltage transformer. Introduction to Inverter, Rectifier, its type and working principle, Battery charger circuit, DC to AC Converter/ Inverter, Designing and inverter. Battery and its different types, Lead acid battery, Electrochemical reaction, NI-CD battery, Charging-discharging of battery capacity rating, CCA, RC, AH & Power, Factor affecting charging, Cause of battery failure, diagnosis and testing, visual inspection, Heavy load test.

Unit-6: Earthing Marks 2) 1 class

Introduction to earthing and need of earthing. Types of earthing, Advantage of Earthing and working of earthing.

Suggested text:

1. Elementary Electrical Engineering, M.L.Gupta, New Heights.
2. A Text Book in Electrical Technology, B.L.Theraja, S.Chand & Co.

Academic In-charge (Science)
Moridhal College, Moridhal
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