

SYLLABUS

SEMESTER IV

SEC-2 (SKILL ENHANCEMENT COURSE)

ELECTRONICS

REPAIR AND MAINTENANCE

Credits-3

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3	0	0

1. Tools

Multi-meters: Analogue and Digital multi-meters, Advantages and disadvantages, Auto-ranging multi-meters

Wiring Tools: Wire Cutters, Wire strippers and cutters, Electrical master set, Soldering iron and soldering gun, Screwdrivers: Blade or Flat, Star or Phillip, Precision screwdrivers, Set of insulated screwdrivers

Miscellaneous Tools:

- a) Plier (long, middle nose), Side cutting pliers, Slip joint pliers;
- b) Wrench: Open wrench, closed wrench, Adjustable wrench;
- c) Cathode ray Oscilloscope, Signal generator

2. Basic electrical and electronics component

Passive devices: Resistors, Capacitors, Inductors

Active devices: Diodes and Transistors

- a) Diodes: Rectifier Diodes, Zener Diodes, Light Emitting Diodes (LED)
- b) Transistors: Bi-Polar Junction Transistors (BJT), Field Effect Transistors (FET)

Basic component testing: Continuity test function of Multi-meters, Fuse (Multi-meter indication), Testing Bulb or broken filament lamp, Switch (on-off), testing a good and a defective Transformer, Finding good, bad or defective Resistors

3. Circuit analysis

Circuit Components: Source, Switch, Connecting wires and load

SeriesConnection,Parallelconnection,consequenceofonebulbburning out within the circuit (Series vs. parallel)

PowerSupplyUnit:BlockDiagram,Circuitdiagram

4. Maintenanceprocedure

Safetymeasures:Proper tools,CorrectlycalibratedInstruments,Power isolation, Use of insulated gloves and GFCIs (Ground fault Circuit interpreter)

Mainjob:Maintenance,Servicing,Troubleshooting,Repair

MaintenanceofhardwareandSoftware,Servicingofhardware,Steps for servicing,

5. Troubleshootingandrepair

Symptomrecognition+,verificationandobtainingdescriptiveinformation

Logicalselectionofthelogicalfaultyunit

Inputoutputtestandlocalizationofthefaultyfunctions

Localizingthefaultandreplacement orrepairofthefaultycircuit component.
