9	Basic Skills on Electronic Equipments	SEC0200903	3

Basic Skills on Electronic Equipments

Objective of the Course:
This course aims at making the students introduced to the working of electronic equipments used in daily life and to repair and maintenance of these equipments.
Course Outcome: At the end of the course, the students shall be able to identify the fault, repair & do maintenance of daily use electronic equipment's.

Credits: 03 (Theory: 01, Lab:02)
Course Outline:

Unit-1: Basic Electronic Components **Lecture: 02**
Introduction to Resistor, Capacitor, Inductor, Diode, Transistor, Transformer, battery / cell (Brief idea, use and application only)

Unit-2: Basic Electronic Circuits **Lecture: 02**
Ohm's Law, Kirchhoff's current & voltage law, series and parallel circuit's connection, rectifier circuit using diode.

Unit-3: Use of laboratory instrument **Lecture: 02**
Use of vernier slide calliper, screw gauge, spherometer, Digital Multi-Meter (DMM), Testers, different type of fuse, electronic balance, breadboard

Unit-4: Soldering Technique **Lecture: 02**
Introduction to Soldering and Desoldering Techniques: Soldering tools, Soldering iron, Solder joint, Dry solder joint, Cold solder joint, Good and bad solder joints.

Unit-5: Electrical switch board, Power Supply and PCB **Lecture: 03**
Circuit design for electrical switch board. Circuit design and principle of regulated power supply (AC to DC). Fabrication of PCB (Printed Circuit Board): Types of PCBs-Steps involved in development of PCB using FeCl3 solution.

Lab Skill: **Lecture: 12**

1. Identification of electronic components (Active or Passive)
    a. Resistor (b) Capacitor (c) Inductor (d) Diode (c) LED (d) Transistor (e) IC
2. Use Multimeter to measure the followings:
    a. AC/DC current (b) AC/DC voltage (c) Resistance (d) capacitance
3. Use Multimeter to check the continuity of the following:
    a. Diode (b) Transistor (c) LED (d) Cable wire
4. Use of vernier slide calliper, screw gauge, spherometer to measure the following physical quantity of given specimen:
    a. Length (b) radius (inner /outer) (c) volume (d) thickness (e) depth
5. Soldering and de-soldering of given circuit board

6. Circuit connection of house hold switch board containing both sockets, plug and switch
7. To convert AC to DC using
    a. Half-wave rectifier (b) full-wave rectifier (c) bridge rectifier
8. Fabrication of printed circuit board (PCB) using FeCl3 solution.

References:

A text of Applied Electronics, R.S. Sedha – S.Chand (2005)
Basic Electronics, B.L Theraja (S.Chand)
EASY Laser Printer Maintenance & Repair By Stephen J. Bioelow