

Devi Ahilya University, Indore, India				II Year B.E. (Electronics and Instrumentation Engg.)			
Institute of Engineering & Technology				(Full Time)			
Subject Code & Name	Instructions Hours per Week			Credits			
EIR3L1	L	T	P	L	T	P	Total
ELECTRONIC WORKSHOP-I	0	0	1	0	0	1	1
Duration of Theory Paper:							

Learning Objectives:

This course gives the basic introduction of electronic hardware systems and provides hands-on training with familiarization, identification, testing, assembling, dismantling, fabrication and repairing such systems by making use of the various tools and instruments available in the Electronics Workshop.

List of Exercises / Experiments (Minimum of 8 mandatory)

1. Familiarization/Identification of electronic components with specification (Functionality, type, size, colour coding, package, symbol, cost etc. [Active, Passive, Electrical, Electronic, Electro-mechanical, Wires, Cables, Connectors, Fuses, Switches, Relays, Crystals, Displays, Fasteners, Heat sink etc.]
2. Drawing of electronic circuit diagrams using BIS/IEEE symbols and introduction to EDA tools, Interpret data sheets of discrete components and IC's, Estimation and costing.
3. Familiarization/Application of testing instruments and commonly used tools. [Multimeter, Function generator, Power supply, CRO etc.] [Soldering iron, De-soldering pump, Cutters, Wire strippers, Screw drivers, Hot air soldering and desoldering station etc.]
4. Testing of electronic components [Resistor, Capacitor, Diode, Transistor, UJT and JFET using multimeter.]
5. Inter-connection methods and soldering practice. [Bread board, Soldering - types - selection of materials and safety precautions, soldering practice in connectors and general purpose PCB, Crimping.]
6. Printed circuit boards (PCB) [Types, Single sided, Double sided, Processing methods, Design and fabrication of a single sided PCB for a simple circuit with manual etching (Ferric chloride) and drilling.]
7. Assembling of electronic circuit/system on general purpose PCB, test and show the functioning (**Any Four circuits**)
 - A. Fixed voltage power supply with transformer, rectifier diode, capacitor filter, zener/IC regulator.
 - B. LED blinking circuit using a stable multi-vibrator with transistor BC 107.
 - C. Square wave generation using IC 555 timer in IC base.
 - D. Sine wave generation using IC 741 OP-AMP in IC base.
 - E. RC coupled amplifier with transistor BC 107.

Learning Outcomes: Student can identify the active and passive electronic components. Student gets hands-on assembling, testing, assembling, dismantling, fabrication and repairing systems by making use of the various tools and instruments available in the Electronics Workshop.