EC-156	ELECTRONICS ENGINEERING WORKSHOP	L	T	P	C
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COURSE OBJECTIVES:

1. To identify the active and passive elements.
2. To get hands-on experience in testing, assembling, and dismantling systems by making use of the various tools and instruments.
3. To get familiarize with laboratory instruments (Oscilloscope, Function Generator, Voltmeter, Ammeter, Digital Multimeter, DC Power supply)

COURSE OUTCOMES:

After successful completion of the course, the students will able to

1. demonstrate working of Ammeter, Voltmeter, digital multimeter, DC power supply, function generator, and CRO.
2. measure voltage, frequency, and phase of different waveforms using CRO.
3. experimentally verify the basic electronic circuits operation.
4. function effectively as an individual member and as a member of the team to test the electronic circuits and analyze the results.

List of Experiments / Exercises :

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, Pliers, Cutters, Wire strippers, Screw drivers, Tweezers, Crimping tool, Hot air soldering and de- soldering 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, Wrapping, Crimping, 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, PTH, Processing methods, Design and fabrication of a single sided PCB for a simple circuit with manual etching (Ferric chloride) and drilling.]

Assembling of electronic circuit / system on general purpose PCB, test and show the functioning

7. Fixed voltage power supply with transformer, rectifier diode, capacitor filter, zener/IC regulator.
8. LED blinking circuit using a stable multi-vibrator with transistor BC 107.
9. Square wave generation using IC 555 timer in IC base.
10. Sine wave generation using IC 741 OP-AMP in IC base.

Familiarization of electronic systems

11. Setting up of a PA system with different microphones, loud speakers, mixer etc.
12. Assembling and dismantling of desktop computer / laptop / mobile phones.
13. Screen printing and PCB pattern transfer.

Note:

A minimum of 10(Ten) experiments have to be performed and recorded by the candidate to attain eligibility for Semester End Practical Examination.