

Electronic Devices and Circuits Lab

(Only for ECE during I B.Tech., II Semester)

Course Code: EC2L2

Credits: 2

Internal assessment: 25 marks

Lab : 3 periods/week

Semester end examination: 50 marks

Course Objectives:

- To study basic electronic components
- To observe characteristics of electronic devices

Learning Outcomes:

At the end of the course the students can able to

- Measure voltage, frequency and phase of any waveform using CRO.
- Generate sine, square and triangular waveforms with required frequency and amplitude using function generator.
- Analyze the characteristics of different electronic devices such as diodes, transistors etc., and simple circuits like rectifiers.

LIST OF EXPERIMENTS:

PART A : (Only for viva voce Examination)

Electronic Workshop Practice (in 6 lab sessions) :

1. Identification, Specifications, Testing of R, L, C Components (Color Codes), Potentiometers, Switches(SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards.
2. Identification, Specifications and Testing of Active Devices, Diodes, BJTs, Low power JFETs, MOSFETs, Power Transistors, LEDs, LCDs, Optoelectronic Devices, SCR, UJT, DIACs, TRIACs, Linear and Digital ICs.
3. Soldering practice – Simple Circuits using active and passive components.
4. Single layer and Multi layer PCBs (Identification and Utility).
5. Study and operation of
 - Millimeters (Analog and Digital)
 - Function Generator
 - Regulated Power Supplies
 - Study and Operation of CRO.

PART B : (For Laboratory examination – Minimum of 10 experiments)

1. PN Junction diode characteristics A. Forward bias B. Reverse bias.(cut-in voltage & Resistance Calculations)
2. Zener diode characteristics and Zener as a regulator
3. Transistor CB characteristics (Input and Output) & h Parameter calculations
4. Transistor CE characteristics (Input and Output) & h Parameter calculations
5. Rectifier without filters (Full wave & Half wave)
6. Rectifier with filters (Full wave & Half wave)
7. FET characteristics
8. SCR Characteristics
9. UJT Characteristics
10. CE Amplifier
11. CC Amplifier (Emitter Follower)