

1/4 B.Tech - SECOND SEMESTER

EC2L3

Electronic Devices and Circuits Lab

Credits: 2

Lecture : -----

Lab : 3 periods/week

Internal assessment: 25 marks

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, amplifiers etc.,

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 (Colour Codes), Potentiometers, Switches (SPDT, DPDT, and DIP), Coils, Gang Condensers, Relays, Bread Boards.
2. Identification, Specifications and Testing of Active Devices, Diodes, BJTs, Lowpower 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
 - Multimeters (Analog and Digital)
 - Function Generator
 - Regulated Power Supplies
 1. Study and Operation of CRO.

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

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