2/4 B.Tech. FIRST SEMESTER

EE3L2 **Electronic Devices and Circuits Lab** **Credits: 2**

Lecture*: 3* periods/week **Internal assessment: 25 marks**

Tutorial: 0period /week **Semester end examination: 50 marks**

Course Objectives:

- To study basic electronic componenets
- 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.,

PART A: (Only for viva voce Examination)

ELECTRONIC WORKSHOP PRACTICE (in 2 lab sessions):

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Switches (SPDT, DPDT, and DIP) Bread Boards.
2. Identification, Specifications and Testing of Active Devices, Diodes-(PN diode, Zener, laser, photo , varactor, tunnel, schottkey) ,BJTs, Lowpower JFETs,MOSFETs, Power Transistors, LEDs, LCDs, Optoelectronic Devices, SCR, UJT, DIACs, TRIACs,
3. Single layer and Multi layer PCBs (Design procedure using PCB 123 software).
4. Study and operation of

a) Multimeters (Analog and Digital)
b) Function Generator
c) Regulated Power Supplies
d) Study and Operation of CRO.

PART B: (Any ten experiments)

1. PN Junction diode characteristics A. Forward bias B. Reverse bias.
2. V-I characteristics of Zener diode
3. Transistor CB characteristics (Input and Output)
4. Transistor CE characteristics (Input and Output)
5. Half wave Rectifier with & without filters
6. Full wave Rectifier with & without filters
7. FET characteristics
8. UJT Characteristics
9. CE Amplifier
10. CC Amplifier
11. RC Phase Shift Oscillator
12. Wein bridge oscillator

PART C:

Equipment required for Laboratories:

1. Regulated Power supplies (RPS) - 0-30v
2. CROs - 0-20M Hz.
3. Function Generators - 0-1 M Hz.
4. Multimeters
5. Decade Resistance Boxes/Rheostats
6. Decade Capacitance Boxes
7. Micro Ammeters (Analog or Digital) - 0-20μA, 0-50μA, 0-100μA, 0-200μA
8. Voltmeters (Analog or Digital) - 0-50V, 0-100V, 0-250V
9. Electronic Components - Resistors, Capacitors, BJTs, LCDs, SCRs, UJTs, PN diode, Zener, laser, photo, varacter, tunnel, schottkey, LEDs, MOSFETs, diodes (Ge & Si Type), transistors (NPN & PNP)