

II B.Tech I Sem

15AEC03-ELECTRONIC DEVICES AND CIRCUITS LABORATORY

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Objectives: This Lab provides the students to get an electrical model for various semiconductor devices. Students can find and plot V-I characteristics of all semiconductor devices. Student learns the practical applications of the devices. They can learn and implement the concept of the feedback and frequency response of the small signal amplifier

PART A: Electronic Workshop Practice

1. Identification, Specifications, Testing of R, L, C Components (Colour Codes), Potentiometers, Coils, Gang Condensers, Relays, Bread Boards.
2. Identification, Specifications and Testing of active devices, Diodes, BJTs, JFETs, LEDs, LCDs, SCR, UJT.
3. Soldering Practice- Simple circuits using active and passive components.
4. Study and operation of Ammeters, Voltmeters, Transformers, Analog and Digital Multimeter, Function Generator, Regulated Power Supply and CRO.

PART B: List of Experiments**(For Laboratory Examination-Minimum of Ten Experiments)**

3. P-N Junction Diode Characteristics
 - a. Germanium Diode (Forward bias & Reverse bias)
 - b. Silicon Diode (Forward bias only)
2. Zener Diode Characteristics
 - a. V-I Characteristics
 - b. Zener Diode act as a Voltage Regulator
3. Rectifiers (without and with c-filter)
 - a. Half-wave Rectifier
 - b. Full-wave Rectifier
4. BJT Characteristics(CE Configuration)
 - a. Input Characteristics
 - b. Output Characteristics
5. FET Characteristics(CS Configuration)
 - a. Drain (Output) Characteristics
 - b. Transfer Characteristics
6. SCR Characteristics
7. UJT Characteristics
8. Transistor Biasing
9. CRO Operation and its Measurements
10. BJT-CE Amplifier
11. Emitter Follower-CC Amplifier
12. FET-CS Amplifier

PART C: Equipment required for Laboratory

1. Regulated Power supplies
2. Analog/Digital Storage Oscilloscopes
3. Analog/Digital Function Generators
4. Digital Multimeters
5. Decade Résistance Boxes/Rheostats
6. Decade Capacitance Boxes
7. Ammeters (Analog or Digital)
8. Voltmeters (Analog or Digital)
9. Active & Passive Electronic Components
10. Bread Boards
11. Connecting Wires
12. CRO Probes etc.

Outcomes: Students able to learn electrical model for various semiconductor devices and learns the practical applications of the semiconductor devices

