

BASIC ELECTRONICS LAB

(Core Subject)

Course Code:	10B17EC217	Semester:	2nd Semester, B. Tech (ECE, CSE & IT)
Credits:	1	Contact Hours:	L-0, T-0,P-2

Course Objectives

The objectives are to study

1. To provide students basic experimental experiences in analyzing Diodes, BJTs, FETs, and OP-AMPS.
2. To develop skills to design various circuits using electronics devices.

Course Outcomes

After studying this course the students would gain enough knowledge

1. Acquire knowledge of the characteristic curves of normal diodes and of Zener diodes.
2. Acquire ability to design and analyze Clipper and Clamper Circuits.
3. Acquire ability to design and analyze Half and Full Wave Rectifiers.
4. Acquire knowledge of the input and output characteristics of a BJT in different configurations.
5. Acquire knowledge of the drain and transfer characteristics of a FET.
6. Acquire ability to design and analyze basic OP-AMP circuits.

List of Experiments

1. To plot the characteristics of a diode in forward and reverse biased conditions.
2. (a) To plot the zener diode characteristics and find the zener voltage.
(b) To plot its transfer characteristics for a given load.
3. To implement a Half-Wave Rectifier circuit with and without a capacitive filter and to calculate its ripple factor.
4. To implement a full-Wave Rectifier circuit with and without a capacitive filter and to calculate its ripple factor.
5. To implement diode clipper circuits and observe the output waveforms on the CRO
6. To implement diode clampers circuits and observe the output waveforms on the CRO.
7. To plot input and output characteristics of a transistor in Common-Base configuration.
8. To plot input and output characteristics of a transistor in Common-Emitter configuration.
9. To compare the performance of fixed bias, emitter stabilized bias and voltage divider bias circuit.
10. To plot the drain and transfer characteristics of a JFET in common-source configuration.
11. To implement and verify the operation OP-AMP based adder and subtractor circuit using 741 IC.

12. To implement and verify the operation OP-AMP based Integrator and Differentiator circuit using 741 IC.

Evaluation Scheme

1. Mid Sem Evaluation	20 Marks
2. End Sem Evaluation	20 Marks
3. Attendance	20 Marks
4. Class response	20 Marks
5. File	20 Marks
Total Marks	100 Marks

Text Books

1. Boylstad and Nashelsky, "Electronic Devices and Circuit Theory", PHI, 8e, 2001.
2. N N Bhargava, "Basic Electronics and Linear Circuits" McGraw Hill Education, 2nd Edition, 2013.