



EE323-Fundamentals of Electronic Devices Laboratory (Required Course)

Code and Name: EE323 Fundamentals of Electronic Devices Laboratory.

Credit Hours: 1 (Practical:2)

Textbook:

- Lab manual Given by University.

Other References:

- Microelectronics: Circuit Analysis and Design, D. A. Neamen, Fourth Edition, McGraw-Hill, 2010.
- IEEE journals in Electronic devices.

Course Description:

This course is a basic core course in Electrical Engineering to introduces the topics: Introduction to Basic Electronics, Electronic Devices, Semiconductor Diodes, VI-characteristics of PN-junction diode, Wave shaping Circuits using Diode, Half wave and Full wave rectifiers with and without Filter circuits, Clipping Circuits, Clamping Circuits, Zener Diode Characteristics, Input &output Characteristics of Bipolar Junction Transistors (BJT), and Special types of semiconductor devices.

Pre-requisites: EE 321.

Co-requisites: None.

Course Learning Outcomes:

With relation to ABET Student Outcomes (SOs: 1-7)

1. Recall characteristics of a Diode, a Zener diode, and a BJT. (1)
2. Recall the use of Oscilloscope, AFG, DC Supply, DMM, Com3 board, etc. (6)
3. Lab Procedure. (6)
4. Demonstrate different characteristics and applications of a diode experimentally. (1)
5. Demonstrate different characteristics and applications of a BJT experimentally. (1)
6. Data documentation. (3)

Topics to be covered:

- Introduction to Fundamentals of Electronic Devices Lab, Introduction to Components, Devices, and etc.
- Experiment 1: VI-Characteristics of a PN junction.
- Experiment2: Half Wave Rectifier with & without Filter.
- Experiment 3: Full Wave Rectifier with & without Filter.
- Experiment 4: Clipping Circuits using Diode (Positive, Negative, Both side, with reference).
- Experiment 5: Clamping Circuits using Diode (Positive, Negative, with reference).
- Experiment 6: VI-Characteristics of a Zener Diode using Com-3.
- Experiment 7: Input Characteristics of BJT using Com-3 software.
- Experiment 8: Output Characteristics of BJT using Com-3 software.
- Experiment 9. Emitter Follower Circuit.
- Experiment 10: Darlington Pair.
- Experiment 11: Common Collector/Emitter/Base Configuration of BJT.

Grading Policy: Check

The grading for the course are 60% coursework and 40% Final Exam. The coursework consists of one Midterm Exam, where the midterm exam is worth 20%. It also includes quizzes and lab reports for the remaining 40% that is modified by the course instructor.

