



Course Code ECE-211	Course Title Electronics I Lab	ECTS Credits 2
Department Engineering	Semester Fall, Spring	Prerequisites ECE-101
Type of Course Required	Field Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 1 st	Lecturer(s) Dr Andreas Michaelides
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites ECE-210

Objectives of the Course:

The main objectives of the course are to:

- Accompany and reinforce concepts introduced during the Electronics I lecture course.
- Provide students with hands-on experience with elementary electronic devices.
- Relate large and small-signal models of diodes, bipolar transistors and JFETs to their actual behavior in practical electronic circuits.
- Develop the necessary practical skills required for constructing electronic circuits and making measurements using various lab instruments.
- Introduce students to common safety and professional practices in electronic engineering.
- Assist students develop written communications skills by writing formal laboratory reports focusing on technical content, organization, completeness, clarity, presentation, accuracy, and promptness.

Learning Outcomes:

After completion of the course students are expected to:

- Demonstrate the ability to use standard laboratory instruments and equipment for building, troubleshooting and measuring the performance of electronic circuits containing semiconductor diodes and transistors.
- Measure and record specific parameters to obtain accurate results containing sufficient details that enable analysis.
- Demonstrate critical reasoning and problem solving abilities through the use of software tools to simulate and troubleshoot the dc operation of fundamental electronic circuits.
- Communicate their experimental work and findings effectively in written form through a scientific laboratory report.
- Exchange and interact effectively with other students in small teams in ways that contribute to developing working relationships and the achievement of common

goals.

- Demonstrate laboratory safety.
- Manage efficiently the use of time and other resources to complete experiments.

Course Contents:

- Laboratory safety guidelines
- Effective technical report writing techniques

Experiments on:

- Diode characteristics
- Zener diodes
- Large-signal diode circuits
- Small-signal diode circuits
- Clipping and clamping circuits
- Half-wave and full-wave rectifiers
- Common base characteristics
- Common emitter/common collector characteristics
- DC biasing for the BJT
- Biasing cascaded transistors
- JFET biasing

Learning Activities and Teaching Methods:

Briefing on the theoretical and technical contents of the experiments, presentation of supplemental information, student discussions, direct instruction and supervision of laboratory work.

Assessment Methods:

Lab reports, lab performance and methodology, final examination.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Theodore F. Bogart James W. Brown	Experiments in Electronic Devices and Circuits	Prentice Hall	2004	0-13111143-4
Instructor's Notes				

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Theodore F. Bogart Jeffrey S. Beasley Guillermo Rico	Electronic Devices and Circuits	Prentice Hall	2004	0131111426
A. S. Sedra, K. C. Smith	Microelectronic Circuits	Oxford University Press	2004	0-19-511663-1