UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
ECE-211	Electronics I Lab	2
Prerequisites	**Department**	**Semester**
ECE-101	Engineering	Fall, Spring
Type of Course	**Field**	**Language of Instruction**
Required	Engineering	English
Level of Course	**Lecturer(s)**	**Year of Study**
1st Cycle	Prof. Anastasis Polycarpou	1st
Mode of Delivery	**Work Placement**	**Corequisites**
Face-to-Face	N/A	ECE-210

Course Objectives:

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 simple electronic devices and circuits;
- Relate large and small-signal models of diodes, bipolar transistors and JFETs/MOSFETs 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 be able 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 device parameters that allow accurate results and sufficient detail suitable for further circuit 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 Content:

- Laboratory safety guidelines and procedures
- Effective technical report writing techniques
- Overview and demonstration of circuit analysis software

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/MOSFET 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 / Readings:

Title	Author(s)	Publisher	Year	ISBN
Theodore F. Bogart James W. Brown	Experiments in Electronic Devices and Circuits	Prentice Hall	2004	978-0130173898
Instructor's notes				

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Theodore F. Bogart, Jeffrey S. Beasley, Guillermo Rico	Electronic Devices and Circuits	Pearson Education	2003	978-0131111424
A. S. Sedra, K. C. Smith	Microelectronic Circuits	Oxford University Press	2014	978-0199339136