



Philadelphia University

Faculty of Engineering - Department of Communications and
Electronics Engineering

Course Details:

- Title:** Electronics I (0650242)
- Prerequisite:** Electric Circuits I (0610211)
- Credit Hours:** 3 credit hours (16 weeks per semester, approximately 48 contact hours)
- Textbook:** R. Boylestad and Louis Nashelsky, Electronic Devices and Circuit Theory, 11th edition, Pearson, 2012
- C. Savant, M. Roden and G. Carpenter, Electronic Design Circuits and Systems, 2nd edition, Benjamin-Cummings Pub Co, 1990.
 - J. Millman, Microelectronics, McGraw-Hill, 1990
 - T. Floyd, Electronic Fundamentals, Maxwell Macmillan, 1991
- References:**
- A. Sedra and K. Smith, Microelectronic Circuits, 5th edition, Oxford University Press, 2004.
 - D. A. Neamen, Electronic Circuit Analysis and Design, 2nd edition, 2001, McGraw-Hill

Course Description: The course aims to provide the students with the ability of applying the electronics components and ICs in the implementation of different communication circuits and Electronics systems. In addition to analyzing and designing different electronics devices.

Course Outlines:

Week	Topic
1	Course Introduction; Semiconductors Physical Meaning
2	Diode Structure
3-5	Diode Circuit Analysis and Applications
6,7	Bipolar Junction Transistor Structure
7-9	Bipolar Junction Transistor Structure as an Amplifiers
10,11	Field Effect Transistor Structure
12-14	Field Effect Transistor as an Amplifiers
15, 16	Operational Amplifiers Design and Applications

Course Learning Outcomes with reference to ABET Student Outcomes:

Upon successful completion of this course, student should be able to:

1.	Understand the operation and structure of electronic devices such as diodes and transistors.	[a]
2.	Understand the use of diodes in electronic circuits such as rectifying, clipping, clamping, switching, and regulation circuits.	[e, k]
3.	Design and analyze different types of transistor amplifiers.	[c, e]
4.	Analyze and use operational amplifiers in different electronic applications.	[a, k]
5.	Model and simulate electronic circuits and components in addition to ICs using computer aided design (CAD) tools.	[c, e, k]

Assessment Guidance:

Evaluation of the student performance during the semester (total final mark) will be conducted according to the following activities:

Sub-Exams: The students will be subjected to two scheduled written exams, first exam and second exam during the semester. Each exam will cover materials given in lectures in the previous 3-4 weeks.

Quizzes: (3-5) quizzes of (10-15) minutes will be conducted during the semester. The materials of the quizzes are set by the lecturer.

Homework: Tutorials sheets will be handed out to the students and homework should be solved individually and submitted before or on a set agreed date. Student may be assigned to present project(s).

Cheating by copying homework from others is strictly forbidden and punishable by awarding the work with zero mark.

Projects: At least one project will be given to students; the students are required to work in a small groups to design an electronic circuit and use simulation CAD tools to verify their results, such as WORKBENCH, SPICE.

Final Exam: The students will undergo a scheduled final exam at the end of the semester covering the whole materials taught in the course.

Grading policy:

First Exam	20%
Second Exam	20%
Homework and Quizzes	20%
Projects	10%
Final Exam	30%

Total: 100%

Attendance Regulation:

The semester has in total 45 credit hours. Total absence hours from classes and tutorials must not exceed 15% of the total credit hours. Exceeding this limit without a medical or emergency excuse approved by the deanship will prohibit the student from sitting the final exam and a zero mark will be recorded for the course. If the excuse is approved by the deanship the student will be considered withdrawn from the course.