



Course Syllabus

Course Code ECE-103	Course Title Electric Circuits II Lab	ECTS Credits 2
Prerequisites ECE-101	Department Engineering	Semester Fall, Spring
Type of Course Required	Field Engineering	Language of Instruction English
Level of Course 1 st Cycle	Lecturer(s) Andreas Serghiou	Year of Study 1 st
Mode of Delivery Face-to-face	Work Placement N/A	Corequisites ECE-102

Course Objectives:

The main objectives of the course are to:

- Introduce the student to the analysis, design and experimentation with ac electric circuits.
- Bridge the gap between the idealized situations presented in the class and the real world of the laboratory.
- Further elaborate on electronic measurement techniques and instrumentation.
- Help the students to enhance their understanding of test equipment while stressing its use, application, maintenance and calibration.
- Provide the student with the basic knowledge of how computer simulation and methods are used for the analysis of the experimental data.
- Improve the student's ability to present experimental results and findings in a proper format of scientific report.
- Teach the students how to integrate accumulated knowledge and practical skills in an assigned project.

Learning Outcomes:

After completion of the course students are expected to be able to:

- Design, set up, analyze and troubleshoot simple ac circuits.
- Integrate accumulated knowledge and practical skills in an assigned project.
- Use computer simulation and apply computer techniques to the analysis of experimental data.
- Validate models, laws and theorems through laboratory experimentation.

- Analyze experimental results.
- Demonstrate the ability to safely work with electricity and effectively use and calibrate laboratory equipment and instruments.
- Demonstrate the ability to work in teams and effectively communicate with others.

Course Content:

1. Digital electronic meters.
2. The digital oscilloscope.
3. Experiments on:
 - Operational Amplifiers
 - R-C Response to a Square-Wave input
 - Frequency Response of R, L and C Components
 - The Oscilloscope and Phase Measurements
 - Thevenin's Theorem and Maximum Power Transfer (ac)
 - Series Resonant Circuits
 - Filters
 - The Transformer
 - Currents and Voltages in Balanced Three-Phase Systems (demonstration)
 - Power Measurements in Three-Phase Systems (demonstration)
4. Project

Learning Activities and Teaching Methods:

The student is given a direct contact with the instructor, and thus the advantages of close direction and personal discussion of ideas, experimental methods and techniques.

Assessment Methods:

Methodology reports, final exam.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Experiments in Circuit Analysis to Accompany Introductory Circuit Analysis	Boylestad and Kousourou	Prentice Hall	2011	0132196158

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Introductory Circuit Analysis	Robert L. Boylestad	Prentice Hall	2007	0131988263