



Course Code ECE-101	Course Title Electric Circuits I Lab	ECTS Credits 2
Department Engineering	Semester Fall, Spring	Prerequisites None
Type of Course Required	Field Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 1 st	Lecturer(s) Andreas Serghiou
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites ECE-100

Objectives of the Course:

The main objectives of the course are to:

- Introduce the student to the analysis, design and experimentation with dc electric circuits.
- Bridge the gap between the idealized situations presented in the class and the real world of the laboratory.
- Introduce the student to the fundamentals of electronic measurement techniques and instrumentation.
- Help the future engineer develop an understanding of test equipment while stressing its use, application, and maintenance.
- Provide the student with the basic knowledge of error detection and analysis.
- Teach the student the required safety precautions when working with electricity.
- Prepare the student for further scientific research.
- Teach the students how to present experimental results and findings in a proper format of scientific report.

Learning Outcomes:

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

- Design, set up, analyze and troubleshoot simple dc circuits.
- 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.
- Report experimental results and findings in a proper scientific format.

Course Contents:

1. Safety precautions.

2. Report writing.
3. Multimeters, Power Supplies and Function Generators.
4. The analogue oscilloscope.
5. Measuring methods.
6. Error detection and analysis.
7. Experiments on:
 - Resistors
 - The DC power supply and DC meters (Ohm's Law)
 - Series-Parallel DC circuits
 - Rheostats and potentiometers
 - Wheatstone Bridge
 - The Oscilloscope, Sinusoidal Waveforms, Pulse Waveforms
 - Superposition Principle (dc)
 - Thevenin's Theorem and Maximum Power Transfer (dc)
 - Design of a dc Ammeter and Voltmeter and meter Loading effects
 - Capacitors

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 and conduct during execution of the experiment, Lab reports, Final exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Boylestad and Kousourou	Experiments in Circuit Analysis to Accompany Introductory Circuit Analysis	Prentice Hall	2007	0132196158

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Robert L. Boylestad	Introductory Circuit Analysis	Prentice Hall	2007	0131988263