



Course name: PHYS 104
PHYSICS LABORATORY II

Department: Electrical and Electronics
Engineering

Semester
2

Methods of Education

Credit
(ECTS)

Lecture	Study Time	Quiz	Project	Exam (incl. Prep.)	Total
30	15	0	0	15	60

2

Language

English

Compulsory/Elective

Compulsory

Prerequisites

None

Course Contents

Ohm's Law, Wheatstone bridge, dielectric constant of different materials, charging curve of a capacitor, magnetic field of single coils / Biot-Savart's law, magnetic induction, Earth's magnetic field, transformer

Course Objective

This course aims to:

- Familiarize the first-year students with the laboratory environment
- Provide the students with the ability of using digital multimeter for measuring DC voltage and current
- Construct simple circuits with resistors
- Experimentally test the physical laws of electricity and magnetism
- Applies the fundamental physical laws of electricity and magnetism to the practical problems.

Learning Outcomes and Competences

By the end of this course, a student will be able to:

- determine type of current and voltage used in a circuit
- analyze the charging characteristic of a capacitor
- analyze the dielectric constant of different materials
- analyze the effects of electric and magnetic fields
- observes and analyzes the differences between experimental and theoretical results

Textbook and /or References

Main Textbooks:

1. Young & Freedman, University Physics, Vol. I, (14th Ed.), Pearson
2. Jewett and Serway, Physics for Scientists and Engineers, Vol. I (9th Ed.), Thomson,

Assessment Criteria

	If any, mark as (X)	Percentage (%)
Midterm Exams	X	40
Quizzes		
Homework		
Projects		
Laboratory work		
Other		
Final Exam	X	60

Instructors

Weekly Schedule

Week	Subject
1	Ohm's Law with Cobra3 test kit
2	Wheatstone Bridge
3	Dielectric constant of different materials
4	Dielectric constant of different materials
5	Charging curve of a capacitor
6	Charging curve of a capacitor
7	Magnetic field of single coils / Biot-Savart's law
8	Magnetic field of single coils / Biot-Savart's law
9	Mid-term Exam
10	Magnetic induction
11	Magnetic induction
12	Earth's magnetic field

13	Earth's magnetic field
14	Transformer
15	Transformer