

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering		
ACADEMIC UNIT	Department of Naval Architecture		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	NAOE1110	SEMESTER	2 ^o
COURSE TITLE	PHYSICS II		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS (ECTS)
Lectures		3	6
Laboratory		2	
Total		5	
COURSE TYPE <i>general background, specialbackground, specialised general knowledge, skills development</i>	General background		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/NA201/ https://eclass.uniwa.gr/courses/NAFP135/		

(2) COURSE GOALS / LEARNING OUTCOMES

<p>The aim of the course is to educate the student and acquire knowledge on basic principles and concepts of Physics such as:</p> <p>Waves, Electric Fields, Current and Resistance, Circuits, Magnetic Fields, Electromagnetic Oscillations and Alternating Current.</p> <p>Learning outcomes:</p> <p>By attending the course successfully, the students will have acquired the knowledge and will have understood the basic principles and laws of electricity, magnetism and electromagnetism, and will be able to analyze and interpret phenomena where associated with electromagnetism.</p> <p>Knowledge of the methodology and skills they will have developed, will give them the ability to solve problems.</p> <p>They will become familiar with the equipment and techniques used in a scientific laboratory: laboratory procedures and practices, data analysis.</p> <p>They will be able to design experiments.</p> <p>They will be able to analyze and present experimental results using elements of error theory</p>

and graphs.

They will be able to combine and interpret results extracted by analyzing experimental data.

General Competences

Search, analyze and synthesize data, using the necessary technologies.

Working independently and team work.

Promote free, creative and inductive thinking.

(3) COURSE CONTENT / SYLLABUS

Waves. The wave equation. The Principle of Superposition for Waves. Standing Waves and Resonance.

Coulomb's law. Electric Fields, Gauss' Law. Electric Potential. Current and Resistance. Ohm's Law Circuits. RC Circuits. Magnetic Fields. Magnetic Fields Due to Currents. Electromagnetic Oscillations and Alternating Current. The Series RLC Circuit.

Laboratory: Experiments in electromagnetism. Electric current, resistance measurement. Alternating current. RC, RL, RCL circuits.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	Use of ICT in Teaching and Laboratory Education. Use of the e-course learning system, with uploaded notes, exercises for practice and communication with students.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	Activity	Workload (hours)
	Lectures	39
	Laboratory exercises	26
	Homework assignments	26
	Study of Lectures	65
	Course total	156
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure</i>	Assessment Language: Greek Written final exam (60%)	

<i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i>	Laboratory Exercises (40%) Assessment criteria are defined and presented to the students at the beginning of the course.
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(5) ATTACHED BIBLIOGRAPHY

- 1) Πανεπιστημιακή φυσική με σύγχρονη φυσική, Β ΤΟΜΟΣ 2η ελληνική έκδοση / 2010 Young H., Freedman R. ISBN: 978-960-02-2473-3
- 2) ΗΛΕΚΤΡΙΣΜΟΣ ΚΑΙ ΜΑΓΝΗΤΙΣΜΟΣ, Edward M. Purcell έκδοση 1η/2004 ISBN: 960-254-649-2
- 3) Φυσική για Επιστήμονες και Μηχανικούς, Τόμος Β, Giancoli 4η έκδοση/2011 ISBN: 978-960-418-376-0