COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Engineering
ACADEMIC UNIT	Department of Naval Architecture
LEVEL OF STUDIES	Undergraduate

COURSE CODE	NAOE1102	**SEMESTER**	1°
COURSE TITLE	PHYSICS I		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS (ECTS)**
Lectures	3	5
Laboratory	2	
Total	5	

COURSE TYPE *general background, specialbackground, specialised general knowledge, skills development*	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/NAFP179/ https://eclass.uniwa.gr/courses/NAFP153/

(2) COURSE GOALS / LEARNING OUTCOMES

The aim of the course is to educate the student and to acquire knowledge on basic principles and concepts of Physics such as: motion. force, work, energy, momentum, torque and angular momentum.

Learning outcomes:

By attending the course successfully, the students will have acquired the knowledge and will have understood the basic principles of Mechanics and will be able to analyze and interpret phenomena related to the kinetics and dynamics of the bodies.

Knowledge of the methodology and skills they will have developed, will give them the ability to solve problems.

They will become familiar with the equipment and techniques used in a scientific laboratory: laboratory procedures and practices, data analysis.

They will be able to design experiments.

They will be able to analyze and present experimental results using elements of error theory 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

Measurements, vectors in Physics. Motion in one dimension. Motion in Two and Three Dimensions. Force and Motion. The Newton's laws. Work and energy. The conservation of energy and momentum. Collisions. Rotation. The conservation of angular momentum. Oscillations.

Laboratory: Experiments in mechanics. Measuring of moment of inertia. Measuring of the period as function of mass and the spring constant, damped harmonic motion. Experimental Measuring of density of solids and liquids. Motion of solids in liquids, measurement of coefficient of viscosity.

(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	Activity	Workload (hours)
The manner and methods of teaching are described in detail.	Lectures	39
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.	Laboratory exercises	26
	Homework assignments	26
	Study of Lectures	52
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	Course total	**143**

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *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*	Assessment Language: Greek Written final exam (60%) Laboratory Exercises (40%) Assessment criteria are defined and presented to the students at the beginning of the course.

(5) ATTACHED BIBLIOGRAPHY

- ΜΗΧΑΝΙΚΗ, C. Kittel, W. D. Knight, M. A. Ruderman, A. C. Helmholz, B. J. Moyer, Έκδοση 4η/1998 ISBN: 960-254-531-3

- Πανεπιστημιακή φυσική με σύγχρονη φυσική, Α ΤΟΜΟΣ 2η ελληνική έκδοση /2009 Young H., Freedman R. ISBN: 978-960-02-2338-5

- 3) Φυσική, Halliday David, Resnick Robert, Walker Jearl, Τόμος Α, 1η έκδοση/2012 ISBN: 978-960-01-1493-5 4) Φυσική για Επιστήμονες και Μηχανικούς, Τόμος Α, Giancoli 4η έκδοση/2011