ETY101 - Physics I

COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ETY101	**SEMESTER**	1
COURSE TITLE	PHYSICS I		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*	**WEEKLY TEACHING HOURS**	**CREDITS**
Lectures / Case Studies	4	4
Add rows if necessary. The organization of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialized general knowledge, skills development*	Specialized general knowledge
PREREQUISITE COURSES:	NO
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.
Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

The primary goal of the course is to train the student in the basic principles and concepts of mechanics so that he is able to understand the effect of applied forces on solids (deformed bodies) and their results.

At the end of the course the student should have the ability to understand the basic concepts and phenomena: Linear motion, flat motion, Newton's laws of motion, Applications of Newton's laws, Work and kinetic energy, Conservation of energy, Momentum and impulse, Rotational motion, Dynamics of rotational motion and Equilibrium elasticity, Gravity, Periodic motion, Fluid mechanics, Mechanical waves, Overlap and normal oscillation modes, Sound, Relativistic Mechanics. and apply these techniques to field problems related to the science of materials engineering

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Production of free, creative and inductive thinking
- Team work
- Decision-making
- Adapting to new situations
- Project planning and management
- Criticism and self-criticism

(3) SYLLABUS

Linear motion, Flat motion, Newton's laws of motion, Applications of Newton's laws, Work and kinetic energy, Conservation of energy, Momentum and impulse, Rotational motion, Dynamics of rotational motion and Equilibrium elasticity, Gravity, Periodic motion, Fluid mechanics, Mechanical waves, Overlap and normal oscillation modes, Sound, Relativistic Mechanics.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face in the class
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	
TEACHING METHODS *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*	
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* *Specifically-defined evaluation criteria are given, and if and where they are accessible*	LANGUAGE OF EVALUATION: Greek METHOD OF EVALUATION: Written examination

Activity	*Semester workload*
Lectures	39
Homework	48
Field Exercises	13
Course total	100

to students.	

(5) ATTACHED BIBLIOGRAPHY

Suggested bibliography:

- Φυσική: Μηχανική και Θερμοδυναμική, Τόμος Α, Η. Young, Παπαζήσης, 1994, Αθήνα
- • Φυσική, Τόμος Α, D.Halliday-R. Resnick-J. Walker, Γ. Δάρδανος & ΣΙΑ Ο.Ε., 2012, Αθήνα
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