1.1.1 Physics for Engineers

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΓΕΝ003	**SEMESTER**	1st
COURSE TITLE	Physics for Engineers		

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**
	5	6
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific Background
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	http://teachers.teicm.gr/vozikis/Physics/index.html

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*

Upon completing this course students should be able to approach a problem qualitatively, analyze and interpret what is happening, plan the solution based on basic principles and mathematical tools, verify the results and identify possible improvements.

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

The course promotes the following skills:
- Working independently
- Team work
- Decision-making
- Criticism and self-criticism
- Production of free, creative and inductive thinking

SYLLABUS

Theory topics
Mathematical background, Material point engineering, Introduction to oscillations, Solid state mechanics, Heat and temperature.
Laboratory exercises aim to introduce students to the essence and correct practices of the experimental process, finding and correcting measurement errors, processing the results and deriving conclusions.

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*	Webpage for the course, E-learning platform for educational material
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*	

Activity	***Semester workload***
Lectures	40
Practice/exercises	19
Practice/exercises	6
Project(s)	9
Individual study	82
Course total (26 hours workload per ECTS credit)	***156***

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 to students.*	Theory examination (90%) - mid-term exmams: open ended questions, problem solving questions (30%) - final exams: open ended questions, problem solving questions (60%) Laboratory exams (10%) Written assignment for every laboratory exercise.

ATTACHED BIBLIOGRAPHY

[In Greek]. Young H., Freedman R., University Physics with Modern Physics – Vol A, Papazisi (Ed), 2009, ISBN:978-960-02-2338-5
[In Greek]. Halliday D., Resnick R., Walker J., Physics – Vol A, Gutenberg (Ed.), 2012, ISBN:978- 960-01-

1493-5
[In Greek]. Fragiadakis, I., Physics and Technology, Ziti (Ed.) 2006, ISBN:960-431-854-3
[In Greek]. Mylonas, N, David, K, Physics, Engineering and Electromagnetism, Tziolas (Ed.) 2019, ISBN: 978-960-418-837-6
[In Greek]. Kleidis, K. Vozikis, C., Physics – Engineering, TEI Central Macedonia 2017, http://teachers.teicm.gr/vozikis/Physics/theory/Physics-notes.pdf