COURSE OUTLINE

(1) GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	Mechanical Engineering		
LEVEL OF STUDIES	*Undergraduate*		
COURSE CODE	ΓΕ0501	**SEMESTER**	2nd
COURSE TITLE	Physics		

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, Practical Exercises	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, specialized general knowledge, skills development*	Core
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No
COURSE WEBSITE (URL)	https://www.mie.uth.gr/?page_id=17740&lang=en

(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 goal of this course is to introduce the students to the theory of the electromagnetic field and classical optics so that they can you it to solve related problems in physics and technology. Upon successful completion of this course, the student will be able to:

- Solve basic problems in Electrostatics, Magnetostatics, Electrodynamics, Propagation of Electromagnetic waves and Optics.
- Have the background to handle and deal with more advanced problems with the usage of the proper bibliography.

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
thinking 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
……
Others…
…….

- Decision Making
- *Excercise judgement and self-evaluation*

- *Development of innovative and inductive thinking*
- Autonomous Work
- Team Work

(3) SYLLABUS

Electrostatics, Magnetostatics, Maxwell Equations, Electromagnetic waves, Wave Optics, Interference and coherence, Diffraction.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY ***Face-to-face, Distance learning, etc.***	In class lectures.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Usage of ICT for education (support of the learning process through the course's website), for research activities (search of bibliographic resources on the web) and communication with students (e-mail)
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: 100 Self-evaluating exercises: Autonomous work: 50 ***Course Total***: ***150***
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.*	I. Written final exam (100%) The evaluation criteria are made known to the students at the beginning of the semester and are posted on the course's website.

(5) **ATTACHED BIBLIOGRAPHY**

- Suggested bibliography:

1. Halliday D., Resnick R., Φυσική, τόμ. ΙΙ, Εκδ. Πνευματικός Griffiths D., Εισαγωγή στην Ηλεκτροδυναμική σε έναν τόμο ή Ι-ΙΙ, Π.Ε.Κ.
2. Young H.D., Πανεπιστημιακή Φυσική, τόμ.Β΄, 1994, Εκδ. Παπαζήση.
3. Berkeley Φυσική, τόμ. Β΄ (ηλεκτρισμός και μαγνητισμός), 2η έκδ., 2004, Πανεπ. Εκδ. Ε.Μ.Π
4. Ασημέλλης Γ., Μαθήματα Οπτικής, 2007, Εκδ. Σύγχρονη Γνώση, Αθήνα.
5. Alonso M., Finn E., Θεμελιώδης Πανεπιστημιακή Φυσική, τόμ. ΙΙ, 1979, Αθήνα.
6 Griffiths D., Εισαγωγή στην Ηλεκτροδυναμική σε έναν τόμο ή Ι-ΙΙ, Π.Ε.Κ.
7. Kraus J., Ηλεκτρομαγνητισμός, Εκδ. Τζιόλα
8. Ohanian H., Φυσική, τόμ. Β΄, Εκδ. Συμμετρία
9. Reitz J., Milford F., Christy R., Τα Θεμέλια της Ηλεκτρομαγνητικής Θεωρίας, 2004, Πανεπ. Εκδ. Ε.Μ.Π.
*10. Serway R., Φυσική για Επιστήμονες και Μηχανικούς, τόμ.ΙΙ-ΙΙΙ, Έκδ. Λ. Ρεσβά**νης.***