COURSE OUTLINE

(1) GENERAL

SCHOOL	**UNIVERSITY OF THESSALY**		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	ΓΚ00202	**SEMESTER**	2
COURSE TITLE	Physics II		

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**
The main objective is that the student has an advanced knowledge of the principles of physics, to be able to describe simple or more complex natural phenomena, to be able to identify the parameters that play a key role in the phenomenon and to choose the appropriate equations to describe them. Be able to explain the various natural phenomena based on known natural laws, be able to study a complex problem and draw conclusions. Be able to apply what knowledge he has acquired in different contexts by making the appropriate calculations. Upon successful study of the course, the student will be aware of the application of the laws of physics in the various areas of physics in order to more effectively reinforce the content of their specialty courses, while at the same time being able to understand the principles of operation of newer techniques that may use later in their studies or career.	4	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*	General Background
PREREQUISITE COURSES:	Physics I
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
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*

Upon successful completion of the course the student will be able to: • Know and understand in depth the basic concepts, principles and laws related to electrostatics, magnetic fields, electromagnetic waves, current, geometrical optics, Lasers, radioactivity. • Apply the knowledge gained in solving complex problems. • To evaluate, analyze and correlate this knowledge. • Develop critical thinking skills to interpret everyday reality phenomena. • Collaborate harmoniously and productively with other classmates in problem solving as well as work assignments.

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…
…….

(3) **SYLLABUS**

Solids, liquids, gases.
Hydrostatic pressure. Hydrodynamics/aerodynamics. Motion of fluids.
Temperature and molecular energy.
Ideal and real gases.
Heat. Heat transfer. Thermodynamics.
Laws of Thermodynamics. Entropy
Applications of physics in various areas

(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*	Examples and exercises.
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* Courses — 56 hours Exercises Study — 71 hours Exams preparation — 20 Exams — 3 hours Course total — *150 hours*
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.*	Written exams 100%

(5) ATTACHED BIBLIOGRAPHY

-Suggested bibliography: (In Greek)

- ΘΕΡΜΙΚΗ ΦΥΣΙΚΗ, STEPHEN J. BLUNDELL, KATHERINE M. BLUNDEL
- Εισαγωγή στη Θερμότητα και τη Θερμοδυναμική, Γραμματικάκης Ιωάννης
- ΘΕΡΜΟΤΗΤΑ ΚΑΙ ΘΕΡΜΟΔΥΝΑΜΙΚΗ, MARK W. ZEMANSKY, RICHARD M.DITTMAN
- Φυσική:Βασικές αρχές, Halliday David, Resnick Robert,Walker Jearl(Γενική επιστ.επιμ. Στυλιάρης Ευστάθιος)
- ΦΥΣΙΚΗ ΓΙΑ ΕΠΙΣΤΗΜΟΝΕΣ ΚΑΙ ΜΗΧΑΝΙΚΟΥΣ: ΜΗΧΑΝΙΚΗ, ΤΑΛΑΝΤΩΣΕΙΣ ΚΑΙ ΜΗΧΑΝΙΚΑ ΚΥΜΑΤΑ, ΘΕΡΜΟΔΥΝΑΜΙΚΗ, ΣΧΕΤΙΚΟΤΗΤΑ, RAYMOND A. SERWAY, JOHN W. JEWETT
- Θερμοδυναμική, Borgnakke Claus, Sonntag Richard E. (Συγγρ.) - Σκόδρας Γιώργος, Παναγιωτοπούλου Παρασκευή