COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCES		
ACADEMIC UNIT	PHYSICS DEPARTMENT		
LEVEL OF STUDIES	GRADUATE		
COURSE CODE	**M311**	**SEMESTER**	**1**
COURSE TITLE	DIDACTICS OF 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**
	3	5
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*	General background
PREREQUISITE COURSES:	
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*

It is expected that upon completion of the course, students

1. To have acquired the basic knowledge about the Teaching of Physics for the Secondary Education
2. Be aware of the importance of alternative ideas of students to the concepts of physics.
3. To utilize the practical significance of the experiment in teaching physics
4. To apply the constructive model of teaching physics
5. Be aware the directions of the modern research in Science Teaching

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…*
	…….

Will promote the free, creative and deductive way of thinking combined with specific teaching methods of physics such as project method, action research.

(3) SYLLABUS

The course syllabus includes:

- The nature of science and learning in teaching practice.
- The methodological strategies of teaching in physics.
- To constructive learning model.
- The role of the experiment in conceptual change.
- The teaching with experiments
- Pre-existing ideas of students to various concepts of physics. Examples of constructive teaching approach for students of classes of school.
- Modern research in the teaching of natural sciences

(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 internet in interactive teaching, in class applications and team work**
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	39
Study and analysis of bibliography	36
Project	25
Essay writing	25
Course total	***125***

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,*	Project and public presentation.

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.*	

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

- Δήμητρα Σπυροπούλου - Κατσάνη: *Διδακτικές και παιδαγωγικές προσεγγίσεις στις φυσικές επιστήμες. Θεωρίες μάθησης, αναλυτικά προγράμματα και πρότυπα/μοντέλα διδασκαλίας, διδακτική αξιοποίηση του πειράματος*, Τυπωθήτω, 2008.
- Παναγιώτης Β. Κόκκοτας, Διδακτική των φυσικών επιστημών, Σύγχρονες προσεγγίσεις στη διδασκαλία των φυσικών επιστημών: Η εποικοδομητική προσέγγιση της διδασκαλίας και της μάθησης, Εκδόσεις Γρηγόρη**, 2008**

- Related academic journals:

- International Journal of Science Education
- International Journal of Science and Mathematics Education
- Journal of Research in Science Teaching
- Research in Science Education
- Research in Science & Technological Education
- Science & Education
- Science Education