COURSE OUTLINE

(1) GENERAL

SCHOOL	SCHOOL OF SCIENCE		
ACADEMIC UNIT	PHYSICS		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**23**	**SEMESTER**	**2**
COURSE TITLE	LABORATORY COURSES IN MECHANICS		

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**
	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, 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)	http://ecource.uoi.gr/cource/view.php?id=1007

(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 course provides the student knowledge plan an experiment on mechanics, carry-out the experiment, acquisition of experimental data, analysis of data and writing a paper. More specifically after the successful attendance of the course students should be in position to:

- **Plan an experiment on mechanics**
- **To be in position to select the suitable instruments, To carry-out the experiment**
- **To be able to analyse the experimental data, to calculate various quantities, use tables and graphs**
- **To be able to present the data of the experiment in a paper**

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 experimental data using the necessary technology
- Working independently
- Improvement of free, creative and inductive consideration

(3) SYLLABUS

Experiments concerning the kinematics and dynamics of motion. First, second and third law of Newton. Measuring of mechanical work and mechanical energy, principle of conservation of mechanical energy. Measuring the momentum, principle of conservation of momentum, collisions. Study of motion of solids, Measuring of moment of inertia. Periodic motion, Measuring of the period as function of mass and the spring constant, damped harmonic motion. Circular motion. Experimental Measuring of density of solids and liquids, use of buoyant, Motion of solids in liquids, measurement of coefficient of viscosity

(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 the e-course learning system, with uploaded notes, exercises for practice and 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*	

Activity	*Semester workload*
Lectures	39
Preparation	26
Study of bibliography	30
Non-directed study	25
Writing paper	30
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.*	Tests (40%), paper writing 60%

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:
- Related academic journals:

Bibliography

- Εισαγωγή στην ανάλυση πειραματικών μετρήσεων. Απλά πειράματα Μηχανικής-θερμότητας, Εκδόσεις, Πανεπιστήμιο Ιωαννίνων (2013)
- Εισαγωγή στα πειράματα φυσικής, Χ. Παπαγεωργόπουλου, Εκδόσεις Πανεπιστήμιο Ιωαννίνων.