COURSE OUTLINE

1. GENERAL

SCHOOL			
DEPARTMENT	DEPARTMENT OF PHYSICS		
LEVEL OF STUDIES	ISCED level 6 – Bachelor's or equivalent level		
COURSE CODE	E407-2023	**SEMESTER**	4th Semester
COURSE TITLE	History and Evolution of Ideas in Physics		

TEACHING ACTIVITIES If the ECTS Credits are distributed in distinct parts of the course e.g. lectures, labs etc. If the ECTS Credits are awarded to the whole course, then please indicate the teaching hours per week and the corresponding ECTS Credits.	**TEACHING HOURS PER WEEK**	**ECTS CREDITS**
	3	0.0

COURSETYPE Background, General Knowledge, Scientific Area, Skill Development	General Knowledge
PREREQUISITES	
TEACHING & EXAMINATION LANGUAGE:	Greek
COURSE OFFERED TO ERASMUS STUDENTS:	YES
COURSE URL:	https://eclass.emt.duth.gr/courses/PHYSICS214/

2. LEARNING OUTCOMES

Learning Outcomes Please describe the learning outcomes of the course: Knowledge, skills and abilities acquired after the successful completion of the course.
1. The understanding from the perspective of students of the evolutionary process of shaping the concepts of science. 2. The understanding from the perspective of the conditions of development of scientific knowledge, the role of the individual and the collective in this process. 3. The historical development of fundamental theories of physics (Mechanics - Thermodynamics - Quantum Mechanics and Theory of Relativity).

General Skills Name the desirable general skills upon successful completion of the module	
Search, analysis and synthesis of data and information, ICT Use,Adaptation to new situations, Decision making, Autonomous work, Teamwork, Working in an international environment, Working in an interdisciplinary environment, Production of new research ideas	Project design and management Equity and Inclusion Respect for the natural environment Sustainability Demonstration of social, professional and moral responsibility and sensitivity to gender issues Critical thinking Promoting free, creative and inductive reasoning
Search, analysis and synthesis of data and information, ICT Use Autonomous work Teamwork Production of new research ideas Critical thinking Promoting free, creative and inductive reasoning	

3. COURSE CONTENT

1. Why do we study the historical development of physics concepts?
2. Objective conditions of historical development.
3. Factors that influence the historical development of physics concepts.
4. The role of the scientist in the development of science.
5. The history of Mechanics.
6. The history of Thermodynamics.
7. The history of Quantum Mechanics.
8. The history of the Theory of Relativity.
9. Elements of the history of Astronomy.

4. LEARNING & TEACHING METHODS - EVALUATION

TEACHING METHOD Face to face, Distance learning, etc.	Face to face
USE OF INFORMATION & COMMUNICATIONS TECHNOLOGY (ICT) Use of ICT in Teaching, in Laboratory Education, in Communication with students	Use of ICT in Teaching Use of ICT in Communication with students
TEACHING ORGANIZATION The ways and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercise, Field Exercise, Bibliographic research& analysis, Tutoring, Internship (Placement), Clinical Exercise, Art Workshop, Interactive learning, Study visits, Study / creation, project, creation, project. Etc. The supervised and unsupervised workload per activity is indicated here, so that total workload per semester	

Activity	Workload/semester
Lectures	39
Writing project	30
Bibliographic research & analysis	31
Total	**100**

complies to ECTS standards	
STUDENT EVALUATION Description of the evaluation process Assessment Language, Assessment Methods, Formative or Concluding, Multiple Choice Test, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignment, Essay / Report, Oral Exam, Presentation in audience, Laboratory Report, Clinical examination of a patient, Artistic interpretation, Other/Others Please indicate all relevant information about the course assessment and how students are informed	**Student evaluation languages** Greek English **Method (Formative or Concluding)** Formative **Student evaluation methods** — **Rate** Essay / Report — 100

5. Suggested Bibliography

ΙΣΤΟΡΙΑ ΚΑΙ ΕΞΕΛΙΞΗ ΤΩΝ ΙΔΕΩΝ ΣΤΗ ΦΥΣΙΚΗ, ΒΑΡΒΟΓΛΗΣ ΧΑΡΗΣ

Ιστορία της φυσικής, Segre Emilio

Μια σύντομη ιστορία της Φυσικής, J. L. Heilbron

Eudoxus

Βιβλίο [11433]: Η Ιστορία των Ιδεών στη Φυσική, Τσιλίκας Δημήτρης
Βιβλίο [94643777]: Μια σύντομη ιστορία της Φυσικής, J. L. Heilbron
Βιβλίο [12868007]: ΙΣΤΟΡΙΑ ΚΑΙ ΕΞΕΛΙΞΗ ΤΩΝ ΙΔΕΩΝ ΣΤΗ ΦΥΣΙΚΗ, ΒΑΡΒΟΓΛΗΣ ΧΑΡΗΣ
Βιβλίο [12190]: Ιστορία της φυσικής, Segre Emilio