

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	School of Science		
<b>ACADEMIC UNIT</b>	Physics		
<b>LEVEL OF STUDIES</b>	Undergraduate		
<b>COURSE CODE</b>	<b>10EKA07</b>	<b>SEMESTER</b>	<b>8</b>
<b>COURSE TITLE</b>	<b>Final-year Dissertation II</b>		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>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</i>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
Meetings with supervisor		3	7
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	special background specialized general Knowledge skills development		
<b>PREREQUISITE COURSES:</b>	Final-year Dissertation I		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek English for ERASMUS students		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	Yes		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uoa.gr/courses/PHYS336/">https://eclass.uoa.gr/courses/PHYS336/</a>		

## (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 the successful completion of "Final-year Dissertation II", the student:

- has studied in depth a specific topic within the scientific fields covered by the department,
- has learned to search for appropriate scientific information from the relevant scientific literature
- has learned to describe and document the fundamental knowledge related to the subject of the research being conducted
- has learned to summarize the existing scientific knowledge and expertise on the topic
- has learned to draft a research plan, develop an appropriate methodology for approaching and investigating a subject under study, and organize an implementation plan for it
- has understood, designed, and constructed the necessary tools (software, experimental setup, mathematical tools) required for the completion of the thesis
- has developed skills in writing scientific texts and
- has developed skills in organizing and orally presenting the topic of the thesis."

### 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

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 thinking

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Others...

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- Search for, analysis, and synthesis of data and information, using the necessary technologies and literature
- Independent work (experimental or theoretical)
- Production of new research ideas
- Promotion of free, creative, and inductive thinking
- Understanding of specialized topics
- Understanding of scientific writing and the correct use and citation of scientific papers and other scientists' results
- Practice in the oral presentation of scientific results
- Decision-making
- Adaptation to new situations

### **(3) SYLLABUS**

- Bibliographic search
- Study of literature
- Design and execution of experiments, or execution of theoretical calculations or simulations
- Data analysis/Processing of results
- Drawing conclusions
- Writing the thesis
- Oral presentation of the thesis

There is a posted thesis template (on eClass)

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<p><b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i></p>	Face-to-face	
<p><b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i></p>	Use of ICT at all stages of conducting research for the Dissertation Thesis, as well as for communication with students.	
<p><b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail.</i> <i>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.</i></p> <p><i>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</i></p>	<p><b>Activity</b></p>	<p><b>Semester workload</b></p>
	Guided study/meetings with the supervisor	42
	Laboratory or computational or theoretical work/study	48
	Writing the thesis	70
	Preparation of the presentation	15
	<p><b>Course Total</b></p>	<p><b>175</b></p>
<p><b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure</i></p> <p><i>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</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p><b>Language of evaluation:</b> Greek (or English in case of ERASMUS students)</p> <p><b>Methods of evaluation</b> The evaluation of Final-year Dissertation II is based on various criteria, such as the student's understanding of physical concepts/methods/phenomena, the completeness and clarity of the presentation of the results, the student's participation in the design and execution of an experiment, a theoretical calculation, or a simulation, and the completeness, thoroughness, and clarity of both the written thesis and the oral presentation.</p>	

## (5) ATTACHED BIBLIOGRAPHY

*- Suggested bibliography:*

The suggested bibliography depends on the subject of the Thesis.

*- Related academic journals:*

The relevant scientific journals depend on the topic of the Thesis. Indicatively mentioned are:

Physical Review Letters  
Physical Review D  
The Astrophysical Journal  
Astronomy and Astrophysics  
Monthly Notices of the Royal Astronomical Society  
European Physical Journal C  
Journal of High Energy Physics  
Physics Letters B  
Nature Astronomy  
The Astronomical Journal  
Physical Review X  
Nature Physics  
Journal of Cosmology and Astroparticle Physics  
Physical Review C  
Journal of Instrumentation  
Classical and Quantum Gravity  
Nature Photonics  
Physical Review B  
Nature Materials  
Nature Nanotechnology  
Nuclear Physics A  
ACS Photonics  
Reviews of Modern Physics  
Astroparticle Physics  
Physical Review A - Atomic, Molecular, and Optical Physics  
Physical Review Applied  
Advances in Space Research  
Space Science Reviews  
Applied Physics Letters  
Nature Reviews Earth and Environment  
Quarterly Journal of the Royal Meteorological Society  
Current Climate Change Reports  
Climate and Atmospheric Science  
Journal of Climate  
Weather and Climate Dynamics  
Atmospheric Chemistry and Physics Open Access  
Advances in Atmospheric Sciences  
Journal of Geophysical Research: Atmospheres