

COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	206Y	SEMESTER	1
COURSE TITLE	Physics		
INDEPENDENT TEACHING ACTIVITIES		WEEKLY TEACHING HOURS	CREDITS
Lectures		3	5
Total credits			5
COURSE TYPE	General background		
PREREQUISITE COURSES:	-		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	http://www.env.aegean.gr/studies/undergraduate-degree/curriculum/physics/		

(2) LEARNING OUTCOMES

Learning outcomes
<ul style="list-style-type: none"> • Description of basic principles of Physics, related to environmental science • The significance of the scientific method as a methodology for understanding the physical world is underlined • Analysis of physical (mostly thermodynamical) processes on which phenomena examined in more advanced courses are based • Examination of analytical tools and their application on Physics problems
General Competences
Production of free, creative and inductive thinking Production of new research ideas Working independently Search for, analysis and synthesis of data and information, with the use of the necessary technology

(3) SYLLABUS

<ul style="list-style-type: none"> • Scientific method, Environmental science, Electrical nature of matter • Atom structure, Nucleus, Mass spectrometer • Radioactivity, Half-life, Nuclear reactions • Black body, Photoelectric phenomenon, Gas emission spectra • Bohr's atom, Wave-particle duality, Heisenberg uncertainty principle • Atomic orbitals, Temperature, Heat, Heat transfer • Phase changes, Thermal expansion, Equation of gas state • First law of thermodynamics, P-V diagrams, Kinetic theory • Equipartition theorem, Maxwell-Boltzmann distribution • Second law of thermodynamics, Carnot engine, Entropy, T-S diagrams
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(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	The distribution of course material, as well as a significant part of the evaluation is through the electronic platform moodle (aegeanmoodle.aegean.gr)	
TEACHING METHODS	<i>Activity</i>	<i>Semester workload</i>
	Lectures	39
	Study and analysis of bibliography	86
	Course total	125
STUDENT PERFORMANCE EVALUATION	Language of evaluation: Greek <ul style="list-style-type: none"> • Compulsory weekly quizzes on moodle (30% of the grade) • Final examination on moodle (70% of the grade) Both quizzes and final exam consist of multiple choice questions and quantitative problems	

(5) ATTACHED BIBLIOGRAPHY

<p>- Suggested bibliography:</p> <ol style="list-style-type: none"> 1. H. D. Young and R. A. Friedman, (2012), University Physics with Modern Physics, Volume III: Thermodynamics and Modern Physics, in Greek, Papazisi Editions, Athens 2. G. Paul Hewitt, (2009), The concepts of Physics, in Greek, University Editions of Crete, Crete 3. R. Wolfson, (2019), Essential University Physics, in Greek, Kritiki Editions, Athens <p>- Related academic journals:</p>
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