PHYSICS
COURSE OUTLINE

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND NUTRITION		
EDUCATION LEVEL	*Undergraduate*		
LECTURE CODE	ΒΠ213	**SEMESTER**	Β΄
LECTURE TITLE	PHYSICS TEACHER: Chr. PAPAIOANNOU		
SELF-ENDED TEACHING ACTIVITIES *in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire course, enter the weekly teaching hours and total credits*		**WEEKLY TEACHING HOURS**	**CREDIT UNITS (ECTS)**
	Διαλέξεις	4	5
	Ασκήσεις Πράξης	2	
COURSE TYPE *Background, General Knowledge, Scientific Area, Development*	GENERAL INFRASTRUCTURE (MANDATORY)		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	NO		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

Learning Outcomes

The course aims to introduce students to concepts, laws and applications of fluid mechanics, thermodynamics, optics and nuclear physics. The aim is for students to acquire a background in these subjects, which will serve them in the context of other courses during their studies, but in the exercise of their profession. The practical exercises of the course aim at consolidating and familiarizing students with the concepts, laws and physical quantities included in the modules of the course.
Upon successful completion of the course, the student will be able to:
• Understands concepts and laws of Fluid Mechanics, Thermodynamics, Optics and Nuclear Physics.
• Applies laws of Physics to other activities and situations.

General Skills

- *Search, analysis and synthesis of data and information, using the necessary technologies*
- *Decision making*
- *Autonomous work*
- *Teamwork*
- *Work in an interdisciplinary environment*
- *Generation of new research ideas*

COURSE CONTENT

1st week
The subject of Physics. Basic concepts, methods and procedures of Physical Science. About the scientific method…Practical exercises: types of errors, calculation of experimental error.

2nd week Life size items. International System of Units (S.I.). Work, energy, power.Practical exercises: Technique of graphical representations, conversions of measurement units.
3rd week What is weight and what is mass. Law of universal gravitation-Coulomb's law. From force to the concept of force field. Force field intensity. Dynamic lines. Types of fields.Practice exercises: activities, questions, exercises.
4th week Energy in Nature. Practice exercises: activities, questions, exercises.
5th week Heat spread. Measuring temperature. Types of thermometers. calorimeter. Changes in body condition. Practice exercises: activities, questions, exercises.
6th week Basic concepts of thermodynamics. The first law of thermodynamics. The second law of thermodynamics. Thermodynamic potentials in simple systems. Practice exercises: activities, questions, exercises.
7th week Thermodynamic equilibrium and the third law of thermodynamics. Thermal pollution, global warming, energy sources.Practice exercises: activities, questions, exercises.
8th week The continuous means. Density, tension, pressure of continuous media. Hydrostatic pressure (Pascal's principle). Buoyancy (Archimedes' Principle). Calculation of pressure. Pressure measurement. Movement of ideal fluids (law of continuity, Bernoulli's theorem). Practice exercises: activities, questions, exercises.
9th week Really fluid. Surface tension and capillary property. Cohesive forces. Actual cash flow. Viscosity. Categories of real funds. Flow in pipes (Poiseuille equation). Osmosis. Practice exercises: activities, questions, exercises.
10th week The atomic model of matter. The core of atoms. Radioactive decay (α-, β-decay, γ-radiation). Nuclear fission.Practice exercises: activities, questions, exercises.
11th week Measurement of radioactivity. Units of measurement. Biologically equivalent dose. Medical uses of radiation and isotopes. Radiation shielding. Radio chronology. Practice exercises: activities, questions, exercises.
12th week Nature of light. Basic concepts of Geometrical Optics. Electromagnetic waves. Practice exercises: activities, questions, exercises.
13th week Brief tour of the world of Modern Physics.

TEACHING and LEARNING METHODS - EVALUATION

TEACHING METHOD	Face-to-face lectures in a classroom.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of T.P.E. in teaching. Support of the learning process with the e-class electronic platform. Contact by e-mail.
TEACHING ORGANISATION	

Δραστηριότητα	***Φόρτος Εργασίας Εξαμήνου***
Lectures	39
Practice exercises	26
Bibliograpy stude and analysis	26
Writing problem solving assignements	18
Unguided study	16
Total (25 workload hours per Credit unit)	**125**

STUDENT EVALUATION	Written final exam including: • Short answer questions. • Problem solving.