INSTITUTO POLITÉCNICO DE BRAGANÇA

Course Unit	Physics			Field of study	Physic Sciences		
Bachelor in	Environmental Engineering			School	School of Agriculture		
Academic Year	2022/2023	Year of study	1	Level	1-1	ECTS credits	6.0
Type	Semestral	Semester	2	Code	9099-309-1203-00-22		

Workload (hours)	162	Contact hours	T	TP	PL	TC	S	E	OT	O
			30	-	30	-	-	-	20	-

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): Felícia Maria Silva Fonseca

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
Have a fulfillment understanding of some domains of Physics science; Recognize the importance of learning outcomes through academic life.

Prerequisites

Before the course unit the learner is expected to be able to:
Apply knowledge of: Trigonometry; Resolution of equation`s systems; Differentiation and Integration.

Course contents

Mechanics; Thermodynamics; Fluid Mechanics.

Course contents (extended version)

1. Mechanics
   - Physical Quantities; Standards and Units
   - Vectorial Algebra
   - Kinematics
   - Dynamics
   - Static
   - Work and Energy
   - Impulse and Linear Moment
   - Conservation of Energy
2. Thermodynamics
   - Thermodynamics Systems
   - Kinetic Theory
   - Zero Law of Thermodynamics
   - First Law
   - Thermodynamic`s Transformations/Specific Heat
   - Second Law
   - Third Law
   - Entropy
3. Fluids
   - Physical properties
   - Fundamental Equation of Hydrostatics
   - Archimedes`s Principle
   - Pascal`s Principle
   - Equation of Continuity
   - Bernoulli`s Equation

Recommended reading

1. Alonso, M. , Finn, E. J. , 1999. Física. Addison-Wesley.
2. Haliday D. , Resnick R. , Walker, J. , 2012. Fundamentos de Física. Volume 1, 2 e 3 9ª Edição, GEN.
3. Apontamentos elaborados pelos docentes da UC.

Teaching and learning methods

Theoretical knowledge is accomplished by expositive method, using: blackboard, transparencies or data-show. At two ours classes, that aren`t laboratorial, lessons are performed, in which, students learn strategies to solve exercises, and, they must participate on discussion about the best way how to get a solution.

Assessment methods

1. With mid-term evaluation - (Regular, Student Worker) (Final)
   - Intermediate Written Test - 50% (Corresponds to 3. 0 ECTS.)
   - Final Written Exam - 50% (Corresponds to 3. 0 ECTS.)
2. Evaluation in final exam - (Regular, Student Worker) (Final, Supplementary, Special)
   - Final Written Exam - 100% (Corresponds to 6. 0 ECTS.)

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

Felícia Maria Silva Fonseca	Tomás de Aquino Freitas Rosa Figueiredo	Artur Jorge de Jesus Gonçalves	Maria Sameiro Ferreira Patrício
06-12-2022	06-12-2022	08-12-2022	19-12-2022