30101 - Physics I

Información del Plan Docente

Academic Year	2017/18
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia 179 - Centro Universitario de la Defensa - Zaragoza
Degree	425 - Bachelor's Degree in Industrial Organisational Engineering 457 - Bachelor's Degree in Industrial Organisational Engineering 563 - Bachelor's Degree in Industrial Organisational Engineering
ECTS	6.0
Year	1
Semester	First semester
Subject Type	Basic Education
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

SPECIALIZATION IN BUSINESS

The learning process that is designed for this subject is based on the following:

30101 - Physics I

The subject consists of 6 ECTS credits, which represents 150 hours of student work on the subject during the semester. 40% of this work (60 h .) Will take place in the classroom, and the rest will be autonomous . One semester consist of 15 teaching weeks . To make the timing is used to measure the school week , in which the student must devote to the study of the subject 10 hours.

DEFENSE

The course corresponds to 6 ECTS credits which are equivalent to 150 hours of student work. Of these, 60 hours correspond to work in the classroom, where laboratory sessions and evaluation activities are included; the remaining 90 hours are the approximate number of independent learning hours needed to pass the course. It is recommended that students try and solve a problem a day on their own. Problems to solve should be chosen among those proposed.

5.2.Learning tasks

SPECIALIZATION IN BUSINESS

The program includes the following activities:

- Theoretical classes: theoretical activities so fundamentally expository given by the teacher .
- Practical classes: practical discussion activities and conducting exercises conducted in the classroom and requiring high student participation.
- Laboratory Practice : Practical activities in laboratories.
- Office Group tutorials houres .
- Office individual tutorials houres .

DEFENSE

Classroom teaching : Involves Lectures and sessions on problem solving . The lectures will provide the means to give a concise, focused presentation of the subject matter of the course.

Laboratories: Laboratory experiments enhance and consolidate the basic principles discussed in the theoretical section of the course. Students will work in small groups of about 2-3 students and complete an experiment during each lab meeting. Procedures for each lab can be accessed via Moodle in the Experiments section. Labs are mandatory and are part of the grade. Students must complete each lab in order to pass the course. A grading lab writeup for each group should be handed over after the lab session.

Independent study: involves activities such as preparing submitted work (e.g. lab reports), working through any worked examples provided by the lecturer or further examples, on problem solving, on independent study of the lecture course material and textbooks, and on revision.

Office hours : Lecturers can be reached during Office Hours to answer questions and provide assistance with the course material, homework or other questions about the class. Office hours work best if students have their textbooks, class notes, and lecture tutorials with them. Students are highly recommended to arrange the appointments by email.

5.3.Syllabus

30101 - Physics I

SPECIALIZATION IN BUSINESS

The program of the subject includes six topics:
I. Kinematics
II . Dynamics of one and several particles. Static .
III . Rigid body dynamics
IV . oscillatory movement
V. Elasticity and fluids
VI . Thermodynamics

DEFENSE

1. Introduction. Measurements, errors and uncertainty

2 .One-body Mechanics

3. Many-body Mechanics

4. Elasticity

5. Fluid Mechanics

6. Oscillations

7. Thermodynamics

7.1. Temperature and Heat. Energy transfer

7.2. The first law of thermodynamics

7.3. The second law of thermodynamics

Labs

1. Measurements, Errors and Uncertainty

2. One-body dynamics. Motion in the presence of resistive forces. Stokes law.

3. Mathematical and Physical Pendulum

4. Specific heat of metals

5.4.Course planning and calendar

SPECIALIZATION IN BUSINESS

Planning for weeks about the subject is as follows:

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Topic	I	I	II	II	III	III	III/IV	IV	IV	V	V	VI	VI	VI	R
Exams				1º					2º					3º	

DEFENSE

Timetabled activities will be available on Moodle at the beginning of term. To access the planning, go to: http://moodle2.unizar.es with your username and password to log in. To check the school calendar and timetables visit http://cud.unizar.es/calendarios.

5.5.Bibliography and recommended resources

SPECIALIZATION IN BUSINESS

Resources:

Students will have the Moodle virtual platform where you will find notes, powerponit slides , corollary of exercise, laboratoy practices manuals and any other material.

BB	Burbano de Ercilla, Santiago. Física general. Tomo 1, Estática, cinemática y dinámica / Santiago Burbano de Ercilla, Enrique Burbano García, Carlos Gracia Muñoz. - 32ª ed. Madrid : Tébar, D.L. 2006

30101 - Physics I

BB	Tipler, Paul A.. Física para la ciencia y la tecnología. Vol. 1, Mecánica , oscilaciones y ondas, Termodinámica / Paul A. Tipler, Gene Mosca ; [versión española por Albert Bramón Planas ... et al.]. - 5ª ed., reimp. Barcelona : Reverté, imp. 2006

DEFENSE

Class materials such as copies of PowerPoint slides, lecture notes, electronic versions of handouts, guide notes for each experiment and exam reviews will be available through Moodle http://moodle2.unizar.es . . Other supplementary texts and audiovisual packages will also be available. These materials may be utilized to reinforce the lecture and lab material or to provide material for independent study by the student.