

SUBJECT TEACHING GUIDE

G322 - PHYSICS 1

Degree in Chemical Engineering

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Degree in Chemical Engineering			Type and Year	Core. Year 1
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Physics Basic Training Module				
Course unit title and code	G322 - PHYSICS 1				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web	http://personales.unican.es/junqueraj/JavierJunquera_files/Fisica-1/Fisica-1-index.html				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS DE LA TIERRA Y FISICA DE LA MATERIA CONDENSADA				
Name of lecturer	FRANCISCO JAVIER JUNQUERA QUINTANA				
E-mail	javier.junquera@unican.es				
Office	Facultad de Ciencias. Planta: + 3. DESPACHO - INVESTIGADOR (RAMON Y CAJAL) (3012)				
Other lecturers	FERNANDO GOMEZ ORTIZ				

3.1 LEARNING OUTCOMES
- Present, analyze and interpret key experimental results in brief reports of scientific and technological character
- Write the concepts properly. Establish and present written comparison on the relative importance of the models at the time of facing a physical problem. Judge correctly the obtained results
- Know accurately the fundamental concepts and models associated with the different subjects in the table of contents
- Solve numerical problems associated to the concepts of the table of contents, using different units and basic mathematical tools.
- Support verbal judges on practical situations associated practical situations related with the table of contents.

4. OBJECTIVES

Provide the knowledge and comprehension of the fundamental laws, concepts, and principles that rule the mechanical behavior of matter.

Identify the key points of a physical phenomena, how to analyze them from an experimental point of view taking into account the proposed mode, the mathematical tools required. Provide quantitative results that can be validated with the experiment.

Analyze and present the obtained results taking into account the accuracy of the used instruments and methods

6. COURSE ORGANIZATION

CONTENTS

1	Vectors
2	Kinematics of the particle.
3	Relative movement.
4	Dynamics of the particle.
5	Work and energy.
6	Collisions.
7	Harmonic oscillations.
8	Dynamic of a system of particles.
9	Rigid body dynamics.
10	Statics.
11	Introduction to thermodynamics.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
midterm exam (week 4)	Written exam	No	Yes	16,60
midterm exam (week 8)	Written exam	No	Yes	16,70
midterm exam (week 12)	Written exam	No	Yes	16,70
final exam	Written exam	Yes	No	40,00
Lab work	Laboratory evaluation	No	No	10,00
TOTAL				100,00

Observations

Throughout the course, the progress of the student will be monitored during the lectures devoted to the discussion of the problems. A continuous feedback with the students will be pursued to check whether the competences have been acquired .

To evaluate the progress, we will consider the work at the lab, and the corresponding reports. Those can be written in Spanish or English. The analysis of the collected data, conclusions, presentation, spelling and orthography will be taken into account.

In case of a lockdown imposed by the sanitary alert, the different tests will be carried out using the telematic means offered by the University of Cantabria. These might include personal interviews, quizzes with multiple choices, on-line exams, or other tests of similar characteristics.

Observations for part-time students

It is mandatory to attend to all the lab works.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Serway-Jewet, "Física para Ciencias e Ingeniería", vol. 1. 6ª edición. Thomson 2005
(available in English).