

## SUBJECT TEACHING GUIDE

G1956 - Physics

Degree in Civil Engineering

First Degree in Civil Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering First Degree in Civil Engineering			Type and Year	Core. Year 1 Core. Year 1
Faculty	School of civil Engineering				
Discipline	PHYSICS FOR CIVIL ENGINEERING				
Course unit title and code	G1956 - Physics				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Knowledge Field					
Web	<a href="https://moodle.unican.es">https://moodle.unican.es</a>				
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIA E INGENIERIA DEL TERRENO Y DE LOS MATERIALES				
Name of lecturer	PEDRO SERRANO BRAVO				
E-mail	pedro.serrano@unican.es				
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. DESPACHO PROFESORES (1055)				
Other lecturers	DIEGO FERREÑO BLANCO				

4. OBJECTIVES
-To understand the fundamental laws of Newtonian Mechanics.
-To know the static and dynamic behavior of ideal fluids as well as their most important applications.
-To understand and apply the fundamental principles of Thermodynamics to practical cases.
-To understand and apply the basic principles of Electromagnetic Theory
-To develop basic experimental analyses of the previous subjects.

6. SUBJECT PROGRAM	
CONTENTS	
1	Vector Calculus. Scalars and vectors.
2	Material point kinematics and dynamics. Energetic approach to dynamics.
3	Fluid mechanics. Ideal fluid statics. Ideal fluid dynamics.
4	Thermodynamics. Thermal properties of matter. State equations. First Law of thermodynamics. Second principle of thermodynamics
5	Electromagnetic Theory. Electrostatic field and potential. Study of balanced conductors. Study of dielectric media. Stationary electrical currents. Static magnetic field

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Midterm exam 1 in October and January	Written exam	No	Yes	35,00
Midterm exam 2 in January	Written exam	No	Yes	35,00
Practical exam in the laboratory	Laboratory evaluation	No	No	15,00
The student's participation in the development of the course and the completion of test-type exercises on the Moodle platform during the course will be evaluated.	Activity evaluation with Virtual Media	No	No	15,00
TOTAL				100,00
Observations				
<p>The final exams of January or February will be written and will consist of the recovery of the midterm evaluations, exclusively in the event that they have been failed.</p> <p>The evaluation of the laboratory practices will be considered during the realization of the same, plus the practical exam, which will consist of the realization by the student of a practical carried out in the course.</p> <p>Only under duly justified reasons (e.g. health issues) the assessment tests may be arranged remotely, with prior authorization from the Centre's Management.</p>				
Observations for part-time students				
<p>The evaluation for part-time students will be the same as for full-time students except for the section on participation in the development of the course. In this case, the percentage of each partial will be 40% and the percentage of laboratory practices will be 20%.</p>				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
<ul style="list-style-type: none"> <li>- Sears F.W., Zemansky M.W., Young H.D., Física Universitaria, Addison Wesley, 1988.</li> <li>- Tipler P.A., Física (2 Volúmenes), Reverté, 1988.</li> <li>- Serway R. A., Jewet J. W. Física para Ciencias e Ingeniería. Cengage Learning.</li> <li>- Giancoli D. C., Física para Ciencias e Ingeniería. Ed. Pearson Educación.</li> <li>- García Calderón, M.A., Cuadernos de Física I. Ediciones TGD. Edificio Interfacultativo. Universidad de Cantabria, 2003.</li> <li>- García Calderón, M.A., Cuadernos de Física II. Ediciones TGD. Edificio Interfacultativo. Universidad de Cantabria, 2003.</li> </ul> <p>La documentación para usar en las clases teóricas y prácticas se publicará en el Campus Virtual , plataforma Moodle.</p>

