

SUBJECT TEACHING GUIDE

G1996 - Science Panorama and Project Elaboration

Double Degree in Physics and Mathematics Degree in Physics

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics Degree in Physics			Type and Year	Compulsory. Year 5 Compulsory. Year 4
Faculty	Faculty of Sciences				
Discipline	Subject Area: History and the Panorama for Research and Applications in Physics Module: Orientation				
Course unit title and code	G1996 - Science Panorama and Project Elaboration				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. FISICA MODERNA
Name of lecturer	JONATAN PIEDRA GOMEZ
E-mail	jonatan.piedra@unican.es
Office	
Other lecturers	FERNANDO RODRIGUEZ GONZALEZ IVAN VILA ALVAREZ FRANCISCO JESUS CARRERA TROYANO PABLO ALBELLA ECHAVE ANA QUIRCE TEJA JOSE ANGEL MIER MAZA

3.1 LEARNING OUTCOMES

- To know the fundamental role that Physics plays in different cutting-edge fields linked to scientific and technological knowledge.
- Knowing and historically contextualising scientific advances and the development and evolution of concepts that have been developed in the field of Physics.
- To highlight the interdisciplinary nature of science and technology in the 21st century and how Physics is situated in this new scientific landscape, both in a basic and applied perspective.
- To be able to propose a scientific and technological project proposal and to know how to analyze its feasibility.
- To estimate the human and material resource requirements to carry out a project.
- To be able to elaborate and present the results of a project in a realistic and positive way.
- Know how to organize the appropriate team structure to undertake a project.
- Present in an adequate way, both orally and in writing, the results of a project and in particular of the work carried out individually within it.
- Know how to evaluate the successes, problems and risks that arise in a project, and define an improvement strategy based on them.
- Know how to evaluate the social and environmental impact, as well as to identify the ethical issues related to the realization and implementation of a project.

4. OBJECTIVES

- To understand the context of scientific and technological projects.
- Differentiate elements in the design of a project.
- Establish an organisation of individual and group work.
- Define indicators of progress, quality and risk in a project.
- Practical approach to individual and group projects.
- To understand the inextricable link between basic research and technological development.
- To know the current situation of research in fundamental and applied physics, as well as the most relevant projects.
- To know the most relevant applications of physics and its insertion in modern technology.
- Acquire a broad perspective of the state of research in fundamental and applied physics.

6. COURSE ORGANIZATION

CONTENTS

1	Overview, interdisciplinarity and frontiers of Physics
2	Cutting-edge topics in Physics in different fields
3	Life cycle of a project
4	Teamwork organization

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessn	%
Exam: written resolution of practical cases.	Written exam	Yes	Yes	15,00
Project raised by the student and submitted by him or herself.	Work	No	Yes	40,00
Group project developed and presented in open session.	Work	No	No	20,00
Multiple-choice test in each seminar	Written exam	No	No	25,00
TOTAL				100,00
Observations				
<p>The deadline for submission of individual projects may be extended for exceptional reasons (eg. students on Erasmus). Similarly, you can opt for a flexible formula to participate in the drafting group.</p> <p>In the case of having more than 30% of the course positively evaluated based on the presented projects, the written exam can be recovered by another written exam.</p>				
Observations for part-time students				
As far as possible, and in accordance with the professor, we will try to facilitate the engagement of the student at partial time.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Las presentaciones utilizadas en las clases presenciales se encuentran disponibles en la plataforma MOODLE.
Physics, the Human Adventure, G. Holton and S. Brush
Los principios de la física en su evolución histórica, C. Sánchez del Río
El desafío del Universo, Telmo Fernández y Benjamín Montesinos