SUBJECT TEACHING GUIDE

G64 - Physics Laboratory III

Double Degree in Physics and Mathematics
Degree in Physics

Academic year 2020-2021

1. IDENTIFYING DATA					
Degree	Double Degree in Physics and Mathematics Degree in Physics			Type and Year	Compulsory. Year 3 Compulsory. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Physics Laboratories Central Module				
Course unit title and code	G64 - Physics Laboratory III				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Web	https://moodle.unican.es/				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. FISICA APLICADA
Name of lecturer	PEDRO JOSE VALLE HERRERO
E-mail	pedro.valle@unican.es
Office	Facultad de Ciencias. Planta: + 3. LABORATORIO - OPTICA CUANTICA 3039 (3039)
Other lecturers	JOSE MARIA SAIZ VEGA PABLO ALBELLA ECHAVE

3.1 LEARNING OUTCOMES
- Carrying out experiments involving the manipulation of light, including sources, free propagation, guiding, detection and measurement.
- Experimental verification of the main phenomena in optics and electromagnetism like fundamental laws of propagation, dispersion, polarization, interference and diffraction.
- Analysis and interpretation of results with the corresponding errors and their comparison with theoretical models.
- Oral and written skill in communication of experimental work.

4. OBJECTIVES

To apply the scientific method, critical thinking and experimental rigor.
To understand the fundamental phenomena, experiments and their main implications in the field of applied optics.
To behave safely and easily in an optics laboratory, individually and in groups.
Correct processing and analysis of experimental data as well as comparison with theoretical models or expected values.
Produce reports of the work done (oral and written).

6. COURSE ORGANIZATION

CONTENTS	
1	Basic instrumental optics. Optical experiments related to: polarization (generation and analysis), Laws of radiometry, dispersion of materials, characterization of color filters and introuction to digital image rocessing.
2	Optical Physics. Optical experiments related with: temporal and spatial coherence, interference of two beams and multiple beams, diffraction by openings, obstacles and gratings.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Assesement of student work and experiment results in the lab.	Laboratory evaluation	No	No	30,00
Written reports of experiments.	Work	No	Yes	20,00
Student seminars.	Others	No	No	10,00
Short texts after teacher demonstrations.	Written exam	No	No	10,00
Written exam.	Written exam	Yes	Yes	30,00
TOTAL				100,00

Observations

Conducting laboratory experiments and attendance at teacher demonstrations are mandatory.
The course is considered eminently practical training so evaluation activities involving laboratory work are considered unrecoverable, according to the provisions of the rules of assessment.
In general, the submission of any evaluation activities out of the time allowed will be considered not being made.

Observations for part-time students

Part-time enrollment must be known by the teacher at the beginning of the course so as not to interfere with the operation and organization of the laboratory groups.
In any case an assessment of the subject without a part of laboratory work is expected.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Guiones de las prácticas disponibles en la web de la asignatura
E. Hecht y A. Zajac, OPTICA, Addison-Wesley Iberoamericana. Madrid (1990)
J. Casas, OPTICA, Librería Pons. Zaragoza (1994)