



IDENTIFYING DATA

Coherent Optics

Subject	Coherent Optics			
Code	001M117V01102			
Study programme	(*)Máster Universitario en Fotónica e Tecnoloxías do Láser			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	1st	1st
Teaching language				
Department				
Coordinator	Michinel Álvarez, Humberto Javier			
Lecturers	Bao Varela, Carmen Flores Arias, María Teresa Michinel Álvarez, Humberto Javier			
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Web	http://laserphotonics.org			
General description	In this subject, the basis of the linear systems in Coherent optics and develop specific questions in signal theory, optical communications and Optical treatment of the Information are presented.			

Competencies

Code	
C1	Ability to understand the physical basis of the applications of lasers in various fields of particular relevance, such as metrology , biomedicine, industry and environment . Identification and recognition of new technologies, applications, business systems, regulations on lasers and the development of processes and systems for analysis.
C5	Capacity for understanding and classification of optical communication systems, exploring the transmission and propagation of light in optical fibers and optical identification of sources, integrated optical devices, and digital and analog systems.

Learning outcomes

Expected results from this subject	Training and Learning Results
Know the parameters of characterization of space signals	C1
Handle the lens as basic element for reply of signals and Fourier transformations	C1
Know the image transform in the space and frequency domains and use the Functions of Optical and Coherent Transfer.	C5
Know the spatial filter as a process of synthesis and know how to design and construct filters.	C1 C5

Contents

Topic	
Characterization of spatial signals.	Characterization of spatial signals.
Linear optical systems.	Linear homogeneous systems. Linear inhomogeneous systems.
The optical system as image and spectrum forming.	The optical system as image forming. The optical system as spectrum forming.
Transfer function.	Analysis in the spatial frequencies domain.
Frequency filtering.	Spatial frequency filtering. Temporal frequency filtering.
Coherence of the light	Scalar theory.
Holography.	Planar holograms. Volume holograms.
Temporal optics	Analysis in the temporal frequencies domain.

Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	38	0	38
Troubleshooting and / or exercises	10	0	10
Autonomous troubleshooting and / or exercises	0	100	100
Multiple choice tests	2	0	2

*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies

	Description
Master Session	The professor will explain the main concepts of the subject with the support of the opportune teaching materials.
Troubleshooting and / or exercises	The professor will solve the exercises and problems that will serve as a model for the student.
Autonomous troubleshooting and / or exercises	The student will solve autonomously the problems and exercises proposed by the teacher.

Personalized attention

Methodologies	Description
Autonomous troubleshooting and / or exercises	*Tutorías Voluntary. *Asesoramento In the realization of the different proofs well of individual form us time of *titoría or well through the was of debate *online.

Assessment

	Description	Qualification	Training and Learning Results
Autonomous troubleshooting and / or exercises	Periodic delivery of collections of problems autonomously solved by the student	50	
Multiple choice tests	Test with multiple answers	50	

Other comments on the Evaluation

*Exámenes12/01/15 16:00 Seminar of *fotónica. Empower of Sciences (1º SEMESTER)30/06/15 16:00&*nbsp;Seminar of *fotónica. Empower of Sciences (JULY)

Sources of information

Recommendations