Last update: 10-07-2018

370703 - ÒPTICA - Advanced Optics and Instrumentation for Visual Care

Coordinating unit: 370 - FOOT - Terrassa School of Optics and Optometry

Teaching unit: 731 - OO - Department of Optics and Optometry

Academic year: 2018

Degree: MASTER'S DEGREE IN OPTOMETRY AND VISION SCIENCES (Syllabus 2012). (Teaching unit Compulsory)

ECTS credits: 4,5 Teaching languages: Catalan, Spanish, English

Teaching staff

Coordinator: MARIA SAGRARIO MILLAN GARCIA VARELA (http://futur.upc.edu/MariaSagrarioMillanGarciaVarela)

Others: Elisabet Pérez Cabré (http://futur.upc.edu/ElisabetPerezCabre)
Fidel Vega Lerín (http://futur.upc.edu/FidelVegaLerin)

Degree competences to which the subject contributes

Transversal:

1. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding how companies are organised and the principles that govern their activity, and being able to understand employment regulations and the relationships between planning, industrial and commercial strategies, quality and profit.
2. FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.
3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.
4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

Teaching methodology

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Learning objectives of the subject

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Study load

Total learning time: 108h 06m	Hours large group:	0h	0.00%
	Hours medium group:	23h 54m	22.11%
	Hours small group:	12h 12m	11.29%
	Guided activities:	0h	0.00%
	Self study:	72h	66.60%

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Content

(ENG) (CAT) -Frentes de onda y óptica adaptativa	Learning time: 26h Theory classes: 8h Self study : 18h
(ENG) (CAT) -Calidad óptica de un sistema formador de imagen	Learning time: 29h Theory classes: 9h Self study : 20h
(ENG) (CAT) -Técnicas basadas en el barrido láser, la polarización y las interferencias	Learning time: 29h Theory classes: 9h Self study : 20h
(ENG) (CAT) -Otros temas de vanguardia	Learning time: 14h Theory classes: 4h Self study : 10h

Planning of activities

(ENG) LABORATORI. ÒPTICA AVANÇADA.	Hours: 20h Laboratory classes: 10h 30m Self study: 9h 30m
(ENG) PROVES D'AVALUACIÓ	Hours: 4h Practical classes: 4h
(ENG) VISITES A EMPRESES DEL SECTOR	Hours: 8h Practical classes: 2h Self study: 6h
(ENG) ACTIVIDADES FORMATIVAS	

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Qualification system

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Bibliography

Basic:

Dai, Guang-ming. Wavefront optics for vision correction. Bellinghma, Wash.: SPIE Press, cop. 2008. ISBN 9780819469663.

Porter, Jason [et al.]. Adaptive optics for vision science: principles, practices, design and applications. Canada: Wiley-Interscience, cop. 2006. ISBN 9780471679417.

Tyson, Robert K. Principles of adaptive optics. 3rd ed. Boca Raton: CRC Press, cop. 2011. ISBN 9781439808580.

Boreman, Glenn. D. Modulation transfer function in optical and electro-optical systems. Bellingham (Wash.): SPIE Press, cop. 2001. ISBN 0819441430.

Saleh, Bahaa E.A.; Teich, M.C. Fundamentals of photonics. 2nd ed. New York [etc.]: John Wiley & Sons, cop. 2007. ISBN 9780471358329.

MacRae, S.M.; Krueger, R.R.; Applegate, R.A. Customized corneal ablation: the quest for superVision. Thorofare, NJ: Slack, cop. 2001. ISBN 1556424884.