



## Guía docente

# 32096 - PHTD - Tecnología Fotónica y Dispositivos

Última modificación: 13/05/2015

**Unidad responsable:** Escuela Técnica Superior de Ingeniería de Telecomunicación de Barcelona  
**Unidad que imparte:** 731 - OO - Departamento de Óptica y Optometría.

**Titulación:** MÁSTER UNIVERSITARIO EN FOTÓNICA (Plan 2009). (Asignatura optativa).  
MÁSTER UNIVERSITARIO ERASMUS MUNDUS EN INGENIERÍA FOTÓNICA, NANOFOTÓNICA Y BIOFOTÓNICA (Plan 2010). (Asignatura optativa).

**Curso:** 2015      **Créditos ECTS:** 5.0      **Idiomas:** Inglés

### PROFESORADO

**Profesorado responsable:** Moreno Sereno, Mauricio

**Otros:** M. SAGRARIO MILLAN GARCIA-VARELA

### METODOLOGÍAS DOCENTES

Presencial teaching + activities

### OBJETIVOS DE APRENDIZAJE DE LA ASIGNATURA

The course focuses on the components that we need in order to build simple electrooptical systems used to generate, modulate, and receive optical signals. It assumes a basic knowledge of optics, semiconductors, and electromagnetic waves; many of the key background concepts are either reviewed in the beginning or linked to related subjects. Devices covered include optical couplers, electro-optic devices, magneto-optic devices, acousto-optic devices, nonlinear optical devices, light-emitting diodes (LEDs), photodetectors, thermal detectors and optical modulators. Special attention is paid to cameras and spatial light modulators and their involvement in optoelectronic information processors. Some examples of applications are described.

### CONTENIDOS

(CAST) -Radiometry and Photometry

(CAST) -Radiation sources

(CAST) -Radiation Detectors

(CAST) -Non Linear Photonics

(CAST) -Optical Modulators



(CAST) -Optical Couplers

## SISTEMA DE CALIFICACIÓN

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- Practical numerical exercises.
- Presentation and discussion of works done by students = 40%
- Global examination = 60%

## NORMAS PARA LA REALIZACIÓN DE LAS PRUEBAS.

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The usual in university teaching

## BIBLIOGRAFÍA

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### Básica:

- Wilson, J.; Hawkes, J. Optoelectronics: an introduction. 3rd ed. London [etc.]: Prentice Hall Europe, 1998. ISBN 013103961X.
- Uiga, E. Optoelectronics. Englewood Cliffs (N.J.) [etc.]: Prentice Hall, 1995. ISBN 0024221708.
- Wood, D. Optoelectronic semiconductor devices. New York [etc.]: Prentice Hall, 1994. ISBN 9780136387503.
- Smith, S.D. Optoelectronic devices. London [etc.]: Prentice Hall, 1995. ISBN 0131437690.
- Liu, J-M. Photonic devices. Cambridge: Cambridge University Press, 2005. ISBN 9780521551953.
- Holst, G.C. CCD arrays, cameras and displays. 2nd ed. Winter Park, FL. ; Bellingham, Wash., USA: JCD ; SPIE Optical Engineering, 1998. ISBN 0819428531 (SPIE) ; 0964000040 (JCD).
- Saleh, B.E.A.; Teich, M.C. Fundamentals of photonics. 2nd ed. New York [etc.]: John Wiley & Sons, 2007. ISBN 9780471358329.

### Complementaria:

- Schubert, E.F. Light-emitting diodes. 2nd ed. Cambridge [etc.]: Cambridge University Press, 2006. ISBN 9780521865388.