



Guía docente 32063 - OPT - Optoelectrónica

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Unidad responsable: Escuela Técnica Superior de Ingeniería de Telecomunicación de Barcelona
Unidad que imparte: 739 - TSC - Departamento de Teoría de la Señal y Comunicaciones.

Titulación: DOCTORADO EN FOTÓNICA (Plan 2007). (Asignatura optativa).
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: RAMON ALCUBILLA

Otros: ADOLFO COMERON TEJERO
MARÍA CONCEPCIÓN SANTOS BLANCO

METODOLOGÍAS DOCENTES

Presencial Teaching + activities

OBJETIVOS DE APRENDIZAJE DE LA ASIGNATURA

Representative examples of devices and systems for light generation, processing and detection are treated, together with the basic interface electronics for applications in measurement and communications systems.

CONTENIDOS

(CAST) -Basic concepts in optoelectronics systems and devices.

(CAST) -Engineering of light manipulation devices

(CAST) -Engineering of optical detection systems

(CAST) -Engineering of light emitting systems.

(CAST) (CAT) - Electromagnetic propagation in anisotropic media Graphical representations

(CAST) (CAT) - Electro-optics polarization density response and index ellipsoid contracted notation



(CAST) (CAT) - Electro-optic devices Pockels and Kerr cells, dynamic wave retarders Bulk optical modulators
Integrated electro-optical modulators

(CAST) (CAT) - Example of electro-optical and optoelectronic system

(CAST) (CAT) - Signal-to-noise ratio Unified approach to PIN, APD and PTM signal

SISTEMA DE CALIFICACIÓN

2 partial tests or exercises submissions during the semester (40%)
1 Final examination (60%).

NORMAS PARA LA REALIZACIÓN DE LAS PRUEBAS.

The usual in University teaching

BIBLIOGRAFÍA

Básica:

- Yariv, A.; Yeh, P. Optical waves in crystals. 1. New York [etc]: John Wiley and Sons, 1984. ISBN 0-471-09142-1.
- Saleh, B.E.A.; Teich, M.C. Fundamentals of photonics. 2nd ed. New York [etc.]: John Wiley & Sons, 2007. ISBN 9780471358329.

Complementaria:

- Hobbs, P.C.D. Building electro-optical systems: making it all work. 2nd ed. Hoboken, New Jersey: John Wiley and Sons, 2009. ISBN 9780470402290.
- Wood, D. Optoelectronic semiconductor devices. New York [etc.]: Prentice Hall, 1994. ISBN 9780136387503.