Guía docente
32139 - PHM - Materiales Fotónicos

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Unidad responsable: Escuela Técnica Superior de Ingeniería de Telecomunicación de Barcelona
Unidad que imparte: 748 - FIS - Departamento de Física.

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: Frank Güell

Otros: B.Garrido

METODOLOGÍAS DOCENTES

Presencial Teaching + activities

OBJETIVOS DE APRENDIZAJE DE LA ASIGNATURA

This subject aims at providing the student with a solid background in fundamental concepts and mechanisms present in photonic materials. Materials are the first link in the chain of applied photonics. Their optical properties will be introduced and related with electronic band structure. These fundamental properties will serve to describe and understand the physics and technology of elemental photonic and optoelectronic structures, such as photonic crystals and optical microcavities.

CONTENIDOS

(CAST) -Crystalline and electronic structure of solids

(CAST) -Fundamentals of carrier transport in solids

(CAST) -Optical processes in solids

(CAST) -Basic semiconductor device physics and technology

(CAST) -Photonic Crystals

(CAST) -Optical microcavities

SISTEMA DE CALIFICACIÓN

· Minimum attendance: 80 % of the lecture time.
· Examination: The students will prepare a presentation on a subject of the lectures, which will consist in a 15 minutes oral presentation (50% final mark). Global examination (50% final mark).

NORMAS PARA LA REALIZACIÓN DE LAS PRUEBAS.

The usual in the University teaching

BIBLIOGRAFÍA

Básica:
- Yu, P.Y.; Cardona, M. Fundamentals of semiconductors: physics and materials properties. 4th ed. Berlin [etc.]: Springer Verlag, 2009. ISBN 9783642007095.
- Klingshirn, C.F. Semiconductor optics. 3th ed. Berlin [etc.]: Springer Verlag, 2007. ISBN 9783540383451.
- Ashcroft, N.W.; Mermin, N.D. Solid state physics. Philadelphia: Saunders College, 1976. ISBN 0030493463.
- Sze, S.M.; Lee, M.K. Semiconductor devices: physics and technology: international student version. 3rd ed. Singapore: John Wiley & Sons Singapore, 2013. ISBN 9780470873670.