32139 - PHM - Photonic Materials

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 748 - FIS - Department of Physics
Academic year: 2015
Degree: MASTER'S DEGREE IN PHOTONICS (Syllabus 2009). (Teaching unit Optional)
ERASMUS MUNDUS MASTER'S DEGREE IN PHOTONICS ENGINEERING, NANOPHOTONICS AND BIOPHOTONICS (Syllabus 2010). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: English

Teaching staff
Coordinator: Frank Güell
Others: B. Garrido

Teaching methodology
Presencial Teaching + activities

Learning objectives of the subject
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.
### Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Degree competences to which the content contributes:</th>
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<tbody>
<tr>
<td>- Crystalline and electronic structure of solids</td>
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<tr>
<td>- Fundamentals of carrier transport in solids</td>
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<td>- Optical processes in solids</td>
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<td>Silicon for photonic applications</td>
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<td>- Photonic Crystals</td>
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<td>- Optical microcavities</td>
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### Qualification system

- 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).

### Regulations for carrying out activities

The usual in the University teaching
Bibliography

Basic:


