32063 - OPT - Optoelectronics

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications
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)
DOCTORAL DEGREE IN PHOTONICS (Syllabus 2007). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: English

Teaching staff
Coordinator: RAMON ALCUBILLA
Others: ADOLFO COMERON TEJERO
MARÍA CONCEPCIÓN SANTOS BLANCO

Teaching methodology
Presencial teaching + activities

Learning objectives of the subject
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.
### Content

<table>
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<tr>
<th>Topic</th>
<th>Degree competences to which the content contributes:</th>
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<tr>
<td>Basic concepts in optoelectronics systems and devices.</td>
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<tr>
<td>Engineering of light manipulation devices</td>
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<td>Engineering of optical detection systems</td>
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<td>Engineering of light emitting systems</td>
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<td>Electromagnetic propagation in anisotropic media Graphical representations</td>
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<td>Electro-optics polarization density response and index ellipsoid contracted notation</td>
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<td>Electro-optic devices Pockels and Kerr cells, dynamic wave retarders Bulk optical modulators Integrated electro-optical modulators</td>
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<td>Example of electro-optical and optoelectronic system</td>
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<td>Signal-to-noise ratio Unified approach to PIN, APD and PTM signal</td>
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Qualification system

.2 tests during the semester (40%)
.1 Final examination (60%).

Regulations for carrying out activities

The usual in University teaching

Bibliography

Basic:

Complementary: