32066 - OMW - Optical Micromanipulation Workshop

Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 10041 - UB-FQ - (ANG) pendent
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: 2,5 Teaching languages: English

Teaching staff
Coordinator: MARIO MONTES
Others: ESTELA MARTIN

Teaching methodology
Presencial teaching + activities

Learning objectives of the subject
This is an eminently practical course on optical tweezers/traps that consists on four laboratory projects. Each session is divided into two parts, an initial and brief introduction, in which the theoretical background is discussed with the students, and an extended laboratory stay with a very hands-on approach. We expect that all students build and align a simple optical tweezer setup, calibrate and measure forces, and generate traps and manipulate samples on a holographic setup. The maximum number of students attending this course is restricted to 9 due to laboratory equipment limitations.
### Content

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<th>Topic</th>
<th>Degree competences to which the content contributes</th>
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<td><strong>-Introduction: micromanipulation with optical tweezers</strong></td>
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<td><strong>-Building an optical tweezer setup</strong></td>
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<td><strong>-Calibration of an optical trap</strong></td>
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<td><strong>-Holographic optical tweezers: advanced micromanipulation</strong></td>
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### Qualification system

The students will be evaluated mainly by the outcome of their practical work in the lab. They will have to periodically present written formal reports of their activities and results, which will be graded accordingly. Also, the laboratory sessions may need thorough preparation and advanced study on the part of the student, work that we intend to take into account as well to set the final scores.

### Regulations for carrying out activities

The usual in University teaching
Bibliography

Basic:


Complementary:


