Course guides
32066 - OMW - Optical Micromanipulation Workshop

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 10041 - UB-FQ - (ANG) pendent.
Degree: DOCTORAL DEGREE IN PHOTONICS (Syllabus 2007). (Optional subject).
MASTER'S DEGREE IN PHOTONICS (Syllabus 2009). (Optional subject).
ERASMUS MUNDUS MASTER'S DEGREE IN PHOTONICS ENGINEERING, NANOPHOTONICS AND
BIOPHOTONICS (Syllabus 2010). (Optional subject).

Academic year: 2015  ECTS Credits: 2.5  Languages: English

LECTURER

Coordinating lecturer: 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.

CONTENTS

-Introduction: micromanipulation with optical tweezers

-Building an optical tweezer setup

-Calibration of an optical trap

-Holographic optical tweezers: advanced micromanipulation
GRADING 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.

EXAMINATION RULES.

The usual in University teaching

BIBLIOGRAPHY

Basic:

Complementary: