Course guides

32102 - IP.OL - Introduction to Photonics. Optics and Lasers

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 893 - ICFO - Institute of Photonic Sciences.

Degree:
DOCTORAL DEGREE IN PHOTONICS (Syllabus 2007). (Optional subject).
DOCTORAL DEGREE IN OPTICAL ENGINEERING (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: 5.0  Languages: English

LECTURER
Coordinating lecturer: RAMON VILASECA ALAVEDRA
Others: ARTUR CARNICER

TEACHING METHODOLOGY
Presencial teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT

Introduction to Photonics. Optics and Lasers presents a general overview of the world of Photonics, introducing the fundamental aspects concerning light and its propagation and interaction with matter. At the same time, the state-of-the art in research and the variety of applications in Science and Technology brought about by Photonics are reviewed.

This Course will be given during the first semester, so that the general knowledge gained with it should allow the student to better follow the different courses of the Master, in any of the itineraries he/she can choose.

CONTENTS

-Introduction

-Light. Fundamental characteristics

-Light-matter interaction

-Free propagation of light in uniform media.

-Propagation of light in bounded and non-uniform media (linear effects)
Applications and Research. Photonics in different Sectors

GRADING SYSTEM

Work done by the student (alone or in group) and lecture and activities attendance:
up to 40%.
Partial (and, if necessary, global) examinations: 60% at least.

EXAMINATION RULES

The usual in university teaching

BIBLIOGRAPHY

Basic:

Complementary: