Course guides
32088 - AAP - Active and Adaptive Optics

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 731 - OO - Department of Optics and Optometry.

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: 2.5   Languages: English

LECTURER

Coordinating lecturer: Santiago Royo
Others: Josep Arasa

TEACHING METHODOLOGY

Presencial Teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT

Novel instrumentation and applications are allowing the birth of a new generation of applications in optics and photonics. The possibility of changing classical passive lenses for active optical elements, and the capability of controlling them in real-time, yielding optical systems which adapt to dynamical situations, is the central issue of this course. We will review the sensors, active elements and configurations which make this different optics possible. The main technical applications already developed (in visual optics, laser beam optimization, metrology, etc) are reviewed.

CONTENTS

(ENG) - Active and adaptive optics: an overview
(ENG) - Active optical elements
(ENG) - Description and compensation of wavefronts
(ENG) - Sensing the wavefronts: alternatives
(ENG) - Closing the loop: controlling the wavefront
(ENG) - Active and adaptive optics applications

GRADING SYSTEM

Elaboration and defense of a short discussion on a theoretical or applied topic related to an active or adaptive optics application.
- Evaluation results will be based on students’ interest and participation in discussions and forums; on the consistency of the discussion held on AO topics; and on the question and answer session following the presentation, with questions made either by the lecturer or by other students.

EXAMINATION RULES.

The usual in University teaching

BIBLIOGRAPHY

Basic:

Complementary: