Course guides
32073 - LD - Non-Linear Dynamics in Photonic Crystals and Metamaterials

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).
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: GASPAR ORRIOLS
Others: KESTUTIS STALIUNAS, RAMON HERRERO

TEACHING METHODOLOGY
PRESENCIAL TEACHING + ACTIVITIES

LEARNING OBJECTIVES OF THE SUBJECT
An introduction of the main concepts and a perspective of the current research on light propagation and light dynamics in spatially modulated materials like Photonic Crystals or Metamaterials, allowing the understanding of the latest scientific literature in this field

CONTENTS

- An introduction of few fundamental concepts, subjects of current interest in the topic of nonlinear dynamics of optical systems will be studied.

  Fundamentals in the general theory of Photonic Crystals

  One dimensional Photonic Crystals

  Two and three dimensional Photonic Crystals

  Modification of diffraction

  Nonlinear Photonic Crystals
Solitons

Slow light

Other specific topics of current research interest (will vary depending on situation)

GRADING SYSTEM
The full grade will be assigned according to the attendance to and participation in the lectures, and upon completion of a project based on either what has been discussed in the lectures or a scientific paper related to the topics discussed in the course

EXAMINATION RULES.
THE USUAL IN UNIVERSITY TEACHING

BIBLIOGRAPHY

Basic: