Course guides
32055 - NO - Non-Linear Optics

Unit in charge: Barcelona School of Telecommunications Engineering
Teaching unit: 748 - FIS - Department of Physics.

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: 5.0  Languages: English

LECTURER
Coordinating lecturer: Jose Trull
Others: Crina Cojocaru

TEACHING METHODOLOGY
Presencial teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT
A broad perspective of the current research topics in the area of nonlinear dynamics of optical systems, allowing the understanding of the latest scientific literature in those fields.

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 nonlinear dynamical systems

Temporal dynamics of optical systems

Relaxation oscillations, auto pulsations and chaos. Auto-organization of oscillatory modes


Nonlinear spatio-temporal dynamics of optical systems
Extended and localized spatio-temporal structures, vortices and solitons

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:
- Resonators. Springer Verlag,