Course guides
32078 - AIP - Advanced Image Processing

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: Catalan, English, Spanish

LECTURER
Coordinating lecturer: María Sagrario Millán

TEACHING METHODOLOGY
Presencial Teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT
The course focuses on modern signal and image processing algorithms and architectures, as well as implementation techniques. Some of the most important applications of optics, optoelectronics and computers are in image sensing, communications, and processing systems that are no longer extremely high cost but currently available for many commercial applications. The course covers recent advances in image sensing and processing systems, non-linear distortion tolerant image recognition, 3D imaging and processing systems, multidimensional information security systems, inspection by machine vision, and other applications.

CONTENTS

- Background on digital optical image processing
- Restoration, enhancement and image analysis
- Computer generated holography
- Pattern recognition
- Image transmission and coding
Optical security

3D imaging and processing systems

Color image processing. Multidimensional image processing

Image processing in Microscopy

Human vision models applied to machine vision

GRADING SYSTEM

To be determined according to the general policy of the Master committee
Possibilities: exam, problem work out, short presentation, etc

EXAMINATION RULES.

The usual in university teaching

BIBLIOGRAPHY

Basic:

Complementary: