Course guides
32080 - MI - Medical Imaging

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: I. Juvells (UB)
Others: J. Pladellorens (UPC)

TEACHING METHODOLOGY
Presencial Teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT
In this course the physics behind the most important medical imaging modalities will be treated. After an introductory lecture, microscopic imaging (optical, electronic, atomic force), radiology (X-ray, computer tomography), nuclear imaging (SPECT and PET) and magnetic resonance imaging (NMR) will be discussed. The increasing importance of medical imaging for diagnosis and guiding surgery will be emphasized.

CONTENTS

(ENG) Introduction

(ENG) Image Processing Techniques.

(ENG) Radiology

(ENG) Nuclear Magnetic Resonance (NMR)

(ENG) Biomedical image reconstruction

(ENG) Examples of Image Processing in Nuclear Medicine
GRADING SYSTEM

The evaluation criteria will be twofold. Firstly, we will consider activities developed by the students along the course (as algorithm developing, further study of some question, etc.). These activities will be evaluated through a written report or an oral presentation. Secondly, through some kind of final examination to insure that the alumni have a general understanding of the issues taught in the course.

EXAMINATION RULES.

The usual in University teaching.

BIBLIOGRAPHY

Basic: