Lesson guides
13187 - MOI - Medical Optical Imaging

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

Degree: 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: T. Durduran
Others: J.P. Torres

TEACHING METHODOLOGY

Presencial Teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT

The students will get an insight into the fundamentals of light-tissue interactions, and how they can be utilized to image tissues in clinical settings. The distinction between medical imaging and the important and widespread field of biological imaging will be clearly highlighted. After some initial considerations about light propagation in tissues, a survey of several important technologies such as optical coherence tomography and diffuse optical tomography will be presented. The course will conclude with a brief in-class laboratory session where the students will learn how to design experiments, use a demonstration instrument to acquire data from humans and analyze the data. A visit to a hospital or health center could also be included, if necessary. A visit to a hospital or health center might also be organized.

CONTENTS

(ENG) - Clinical Imaging

(ENG) - Light tissue interactions

(ENG) - Optical coherence tomography

(ENG) - Diffuse optics

(ENG) - Laboratory
GRADING SYSTEM

40% reports,
40% class participation,
20% laboratory.
Note: Late submissions will be penalized.

EXAMINATION RULES.

The usual in University teaching