Course guides
32062 - FT - Fibres and Telecommunications

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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:** 5.0 **Languages:** English

LECTURER

Coordinating lecturer: JOSÉ ANTONIO LÁZARO

Others: JOSEP PRAT

TEACHING METHODOLOGY

Presencial teaching + activities

LEARNING OBJECTIVES OF THE SUBJECT

Optical fibers are one of the most relevant technological achievements of photonics, as all the Internet traffic generated in any European country can be transported by a single fiber.
Nevertheless, several physical effects limit the maximum transmission distance, influenced also by performance limitations of optical sources, amplifiers and receivers used in contemporary fiber-optical communication system. ¿Fibers and Telecoms¿ provides a comprehensive overview of the key characteristics of the optical and optoelectronic technologies and components used in up-to-date transmission systems.
One of the main goals of F&T is to provide a solid background to physicists and engineers for: designing and dimensioning optical communication systems, with the assistance of tutorial software, and the understanding of the physical phenomena limiting current systems and the new photonic technologies overcoming current limitations

CONTENTS

(ENG) -Light propagation in fibers

(ENG) -Optical transmitter and receivers

(ENG) -Lightwave systems

(ENG) -Optical amplifiers

(ENG) -Multichannel systems and networks

GRADING SYSTEM

¿ Class exercises and participation
¿ Team work for solving a System project with tutorial software
¿ Oral presentation of the main challenges and results of the project

EXAMINATION RULES.

The usual in University teaching

BIBLIOGRAPHY

Basic:
- Keiser, G. Optical fiber communications. 4th ed. New York: McGraw-Hill, 2011. ISBN 9780073380711.
- Prat Gomá, J. [et al.]. Fiber-to-the-home technologies. Boston [etc.]: Kluwer Academic Publishers, 2002. ISBN 1402071361.
- Saleh, B.E.A.; Teich, M.C. Fundamentals of photonics. 2nd ed. New York [etc.]: John Wiley & Sons, 2007. ISBN 9780471358329.

Complementary:
- Agrawal, G.P. Fiber-optic communication systems. 4th ed. Hoboken, New Jersey: Wiley, 2010. ISBN 9780470505113.