Universidad Zaragoza

Academic Year/course: 2022/23

60984 - Photonics and optical engineering

Syllabus Information

Academic Year: 2022/23
Subject: 60984 - Photonics and optical engineering
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 623 - Master's Degree in Telecommunications Engineering
ECTS: 6.0
Year: 2
Semester: First semester
Subject Type: Optional
Module:

1. General information

1.3. Recommendations to take this course

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as

M1 Lectures (36 hours).
M9 Laboratory sessions (16 hours). Laboratory assignments and visits to different photonics research and development facilities.
M10 Tutorials.
M11 Assessment. Combination of a final test, laboratory work, and the mark of the group assignment.

4.2. Learning tasks

The course includes the following learning tasks:
Lectures (36 hours). Presentation of the main course contents combined with active participation of students.

Laboratory sessions (16 hours). 3 sessions of 3 hours each (9 hours total) and visits to research and development facilities (8 hours total).

4.3. Syllabus

The course will address the following topics:
Topic 1. Introduction to photonics and optical engineering. Fields of application

Topic 2. Optoelectronics. Synchronous detection in optical instrumentation

Topic 3. Geometric Optics and optical system design.

Topic 4. Integrated optics and optical sensors

Topic 5. Advanced applications of optical fibers

Topic 6. Interferential optics
Topic 7. Optical engineering for industry

4.4. Course planning and calendar

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

4.5. Bibliography and recommended resources

The students will have access to the lecture notes prepared by the teachers, which will cover all the contents of this course.