Universidad Zaragoza

Year : 2020/21

60939 - Photonic and optical engineering

Syllabus Information

Academic Year: 2020/21
Subject: 60939 - Photonic and optical engineering
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 533 - Master's Degree in Telecommunications Engineering
ECTS: 2.5
Year: 2
Semester: First semester
Subject Type: Optional
Module: ---

1.General information

1.1.Aims of the course

1.2.Context and importance of this course in the degree

1.3.Recommendations to take this course

2.Learning goals

2.1.Competences

2.2.Learning goals

2.3.Importance of learning goals

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

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** (14 hours).
- **M9 Laboratory sessions** (11 hours). Laboratory assignments and visits to different photonics research and development facilities.
- **M6 Group assignment** (20 hours).
- **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** (14 hours). Presentation of the main course contents combined with active participation of students.
- **Laboratory sessions** (11 hours). 2 sessions of 2 hours each (4 hours total) and visits to research and development facilities (7 hours total).
- **Group assignments.** In groups and under the supervision of the teacher, students will be asigned a case study

related to photonics or optical engineering.

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. Integrated optics and optical sensors
- Topic 4. Advanced applications of optical fibers
- Topic 5. Interferential optics
- Topic 6. 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.