Universidad Zaragoza

60975 - Electronic systems for access control and security

Syllabus Information

Academic Year: 2022/23
Subject: 60975 - Electronic systems for access control and security
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 623 - Master's Degree in Telecommunications Engineering
ECTS: 6.0
Year: 2
Semester: Second semester
Subject Type: Optional
Module:

1. General information

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:

- Lectures, in which the theoretical contents of electronic systems for access control and security will be explained.
- Practice sessions, in which representative problems and designs will be solved.
- Laboratory sessions, based on computer programing or experimental implementation, will be conducted in small groups up to two students per equipment.

Students are expected to participate actively in the class throughout the semester.

4.2. Learning tasks

The course includes the following learning tasks:

- A01 **Lectures** (20 hours). The fundamental contents of the course will be presented and a set of representative problems will be made. This activity will take place in the classroom. The materials will be available to students on the virtual platform.
- A02 **Practice sessions** (10 hours). In this activity, a set of representative problems will be solved. This activity will take place in the classroom. The materials will be available to students on the virtual platform.
- A03 **Laboratory sessions** (18 hours). Representative examples will be carried out in Laboratory sessions the laboratory. The instructions of the exercises will be available to students on the virtual platform.
- **Assignments** (A06) (36 hours). Individual or group assignments will be proposed, in the form of a course project. The assessment criteria include: difficulty, development, achieved results, quality of the written report and oral presentation.
- **Study** (A07) (60 hours). Study, preparation of laboratory work and time for preparing the final exam. Students

can also attend tutorials to solve specific <u>problems.</u>

- **Evaluation activities** (A08) (6 hours). Assessment will be based on coursework (laboratory work and assignments) and final examination.

4.3. Syllabus

The course will address the following topics:

Theory
  T1: Introduction to Machine Learning
  T2: Introduction to Electronics systems for Access control
  T3: Biometrics
  T4: Traffic monitoring and vial security
  T5: Video-surveillance

Laboratory sessions
  S1: Face detection
  S2: Facial biometrics
  S3: Fingerprint recognition
  S4: Motion detection
  S5: Tracking: traffic monitoring application
  S6: Video-surveillance application

4.4. Course planning and calendar

For further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, please refer to the EINA website https://eina.unizar.es/ and Moodle https://moodle.unizar.es/

4.5. Bibliography and recommended resources

http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=67245