Universidad Zaragoza

Year : 2019/20

60923 - Advanced analog systems and electronic intrumentation

Syllabus Information

Academic Year: 2019/20
Subject: 60923 - Advanced analog systems and electronic intrumentation
Faculty / School: 110 -

Degree: 533 - Master's Degree in Telecommunications Engineering

ECTS: 5.0
Year: 1
Semester: Second semester
Subject Type: Compulsory
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

- Teaching sessions will have a predominantly practical orientation. In the lectures, the concepts of the advance analog design will be presented, setting out the fundamental aspects of the design flow. In the practice sessions, the focus will be put on the methodology which will be applied in the laboratory sessions, encouraging the active participation of the student.
- Laboratory sessions will be in small groups, where the autonomous work of the student will be encouraged to achieve results in the design of advanced analog systems. The required material to develop these lab sessions will be provided to the student in advance.
- Assignments (T6) encourage the autonomous work of the student. The required material to develop these activities will be provided to the student in advance.

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

4.2.Learning tasks

The course includes the following learning tasks:

- **Lectures** (A01) and **practice sessions** (A02) (30 hours). The fundamental contents of the course will be presented, with a practical orientation based on the design of electronic systems. The necessary materials will be available on the virtual platform Moodle (ADD).
- **Laboratory sessions** (A03) (20 hours). The instructions will be available to students on Moodle in advance. In these sessions, simulation tools and electronic instrumentation will be used so that students will acquire the skills and abilities necessary to address the design and experimental verification of advanced analog systems and electronic instrumentation.
- **Assessment** (A08). A set of theoretical and experimental tests and reports. The assessment includes the final test.
- **Assignments and/or seminars** (T6). Both assignments (T6) and lab reports are included. In order to meet the expected results, students will have the material provided by the teacher, manufacturers of integrated circuits, and on-line resources. The student's autonomy, the quality of the solution, and the participation of each of the group members will be considered in the assessment criteria.
- **Autonomous work** (T7). It includes autonomous work and study aimed at achieving the learning objectives, conducting lab sessions, preparing assignments and tutorials.

4.3.Syllabus

The course will address the following topics:

- Topic 1: Introduction
- Topic 2: Integrated Circuits (CIs): submicronic technologies
- Topic 3: Amplification
    - Feedback: stability and compensation
    - Single-supply operation
    - Application-specific AOs
- Topic 4: Active filters
- Topic 5: Analog-digital interface

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

http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=60923