

30357 - Laboratory of Signal and Communications

Información del Plan Docente

Academic Year	2016/17
Academic center	110 - Escuela de Ingeniería y Arquitectura
Degree	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
ECTS	6.0
Course	4
Period	Second semester
Subject Type	Optional
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

In order for the students to achieve the learning outcomes described above and acquire the skills designed for this course, the following teaching-learning methodologies are proposed:

M1: Lecture

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M2: Seminar

M3: Team work

M7: Presentation of team work

M8: Practical classes

M9: Laboratory

M10: Tutoring

M11: Evaluation

M12-M13: Theoretical and practical work

M14-M15: Theoretical and practical study

M16: Complementary activities

5.2.Learning activities

The program offered to help the student achieve the expected results includes the following activities ...

Lectures.

This activity will be conducted in the classroom (11 hours). The professor shall present the course contents:

- Theoretical introduction to lab projects.
- Explanation of supervised assignments to be performed.
- When appropriate, presentations on software and/or hardware necessary for the supervised assignments.
- Students presentation of supervised assignments.

Lab projects.

This activity will be conducted in a computer lab. It will comprise 14 sessions of 2 hours each. In general, each lab project

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will last 2 or 3 2-hour sessions, so there will be up to 5 different lab projects. Prior to the first session of each lab project, students will perform a preliminary study to become familiar with the concepts that will be addressed in the lab. At the end of the last session of each lab project, students will answer individually a brief written assessment test.

Supervised assignments.

In this activity the teacher will propose students to solve various practical tasks related to the content addressed in the course. Students will work as a team or individually, applying their knowledge to successfully solve practical cases raised. After the completion of the practical assignment, each student team shall issue a report with their results and make a public presentation and defense of it. Professors will periodically monitor the work progress and solve any questions raised by each team.

5.3.Program

The topics for the lab projects in the previous year were as follows (there might be slight modifications for this course):

1. LPC speech coding
2. Array processing: beamforming and DOA estimation
3. Sequence comparison and detection with Dynamic Time Warping
4. Pulse compression and pulsed Doppler radar
5. ECG signal preprocessing and heart rate variability analysis

The general topic for the two supervised practical assignments is:

- Signal processing / communications app development in hardware with limited resources.
- Data analysis with Matlab or other software tools.

5.4.Planning and scheduling

The schedule of the course, for both the classroom sessions and the lab sessions, will be determined by the official academic calendar. Delivery deadlines of supervised practical assignments will be announced well in advance both in class and on the course website.

5.5.Bibliography and recommended resources

- Course webpage in moodle.unizar.es