



Year : 2018/19

30357 - Signal Processing and Communications Laboratory

Syllabus Information

Academic Year:	2018/19
Subject:	30357 - Signal Processing and Communications Laboratory
Faculty / School:	110 -
Degree:	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
ECTS:	6.0
Year:	4
Semester:	Second semester
Subject Type:	Optional
Module:	---

General information

Aims of the course

Context and importance of this course in the degree

Recommendations to take this course

Learning goals

Competences

Learning goals

Importance of learning goals

Assessment (1st and 2nd call)

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

Methodology, learning tasks, syllabus and resources

Methodological overview

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

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

Learning tasks

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 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.

Syllabus

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.

Course planning and calendar

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.

Bibliography and recommended resources

- Course webpage in moodle.unizar.es