

60955 - Signal processing for advanced communications

Syllabus Information

Academic Year: 2020/21

Subject: 60955 - Signal processing for advanced communications

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 623 - Master's Degree in Telecommunications Engineering

ECTS: 6.0

Year: 1

Semester: First 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 achievements of the learning objectives. A wide range of teaching and learning tasks are implemented, such as Lectures (M1), mini-projects (M4), practice sessions (M8), laboratory sessions (M9), tutorials (M10), and assessment (M11).

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 (42 hours). The teacher presents the theory and students participate actively. This methodology is designed to provide students with the theoretical foundations of the course and requires student autonomous work.

A02 Practice classes (8 hours). The students solve problems to consolidate the theoretical concepts from the lectures.

A03 Lab sessions (10 hours). There will be 2 sessions of 2 hours. The students are provided with a series of problems to solve, which include the main topics of a digital communication system, and work on the lecture contents.

A05 Mini-projects (24 hours). The students implement some of the theoretical concepts of the course using a simulation environment provided by the teacher. Students will write a report and make an oral presentation.

A06 Tutorials. The teacher answers questions of the students in the office with the aim of reviewing and discussing the materials and topics presented in lectures and practice sessions.

A08 Assessment. The evaluation is done using the lab reports, projects and written tests described in the "Assessment"

section.

4.3.Syllabus

The course will address the following topics:

Topic 1. Wiener filtering and adaptive signal processing.

Topic 2. Signal processing in multimedia communication systems.

Topic 3. Multichannel adaptive processing: Array Processing and MIMO (Multiple Input Multiple Output) Systems. Advanced Channel Coding.

Topic 4. Advanced Channel Coding.

Topic 5. Multicarrier systems. OFDM. Adaptive Modulation & Coding (AMC).

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://biblos.unizar.es/br/br_citas.php?codigo=60955&year=2020