30305 - Signals and systems

Información del Plan Docente

Academic Year	2018/19
Subject	30305 - Signals and systems
Faculty / School	110 - Escuela de Ingeniería y Arquitectura
Degree	438 - Bachelor's Degree in Telecomunications Technology and Services Engineering 330 - Complementos de formación Máster/Doctorado
ECTS	6.0
Year	XX
Semester	Indeterminate
Subject Type	ENG/Complementos de Formación, 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 following methodologies, learning tasks and planning only apply to courses with teaching assigned, and it does not apply to course 2018/19 since there will be no teaching for Signals and Systems.

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

M1: Participative Master Class

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M4: Problem-based learning

M8: Classroom Practices

M9: Lab

M10: Tutoring

M11: Assessment of student progress

M13: Practical work

The following table lists the different methodologies of teaching-learning and the related learning outcomes, general skills and common training of telecommunication branch which the students are expected to acquire from these methodologies:

Metodologías	Resultados	Competencias
M1	**R1-R8**	**C4, C5, C6, C10, C11, CRT1, CRT4**
M4	**R1-R8**	**C4, C5, C6, C10, C11, CRT1-CRT4**
M8	**R1-R7**	**C4, C5, C6, C10, CRT1, CRT3 y CRT4**
M9	**R1-R8**	**C6, C11, CRT1 y CRT2**
M10	**R1-R8**	**C5, CRT3**
M11	**R1-R8**	**C4, C5, C6, C10, C11, CRT1-CRT4**
M13	**R1-R8**	**CRT2, CRT4**

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4.2.Learning tasks

- Participative Master Class.

This activity takes place in the classroom (40 hours) and in it the teacher makes the presentation of the contents of the course. Examples on the use of Matlab / Octave software for solving exercises and problems will be presented to the students.

- Lab practices.

This activity will be conducted in a computer classroom. It will include 5 sessions of 2 hours each. Prior to the laboratory session, students will perform a preliminary study to work the concepts that will be addressed in the lab. At the end of the session, students will perform a questionnaire relating to work done.

- Classroom practices.

This activity will take place in the classroom (10 hours) and will be addressed by the students individually and / or group. The teacher will propose students problem solving and case studies related to the agenda of the subject and will be responsible for tutoring them. Students solve problems and proposed cases and submit results written or orally.

- Problem solving

With some regularity, teachers will propose students the resolution, outside the classroom and individually or in groups, of problems concerning the agenda of the subject and whose level of difficulty will be similar to the final exam. In the deadlines set in each case, students will submit their proposed solutions to problems. They may also be requested to submit comparative reports between their solution and the one provided by the teachers.

- Supervised practical work.

In this activity the teacher will propose students solving various practical tasks related to the content addressed in the course. Students will work as a group in applying the knowledge to successfully solve practical cases raised. After the completion of practical work, each student group issued a document containing the results and the code used to obtain these results. Professor periodically monitor the progress of job status and resolve any questions that each group of students raised in the resolution of same.

4.3.Syllabus

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1. Programming with Matlab / Octave

2. Signals and systems in time domain

2.1 Signals

2.2 Systems

3. Linear and Time Invariant Systems

3.1 Convolution and impulse response

3.2 Systems defined by differential equations and difference equations

3.3 Correlation

4. Frequency representation of signals

4.1 Continuous-time periodic signals: Fourier series expansion

4.2 Discrete time periodic signals: Fourier series expansion

4.3 Continuous Time Fourier Transform

4.4 Discrete Time Fourier Transform

5. Systems Analysis

5.1 LTI Systems: frequency response

5.2 Applications

5.3 Laplace Transform

4.4.Course planning and calendar

The timing of the subject, both classroom hours as well as the laboratory sessions will be defined by the center in the academic calendar of the corresponding course. 5 laboratory sessions 2 hours each will be made. The detailed study of the course with the dates of each session calendar, as well as the delivery of exercises will be available through the educational platform "Moodle" of the University of Zaragoza.

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4.5.Bibliography and recommended resources

BB	Oppenheim, Alan Victor. Señales y sistemas / Alan V. Oppenheim, Alan S. Willsky, S. Hamid Nawab ; traducción, Mata Hernández ; revision tecnica, Agustín Suárez Fernán [2ª ed. en español, reimp.] México [etc.] : Prentice Hall, cop
BB	Soliman, Samir S.. Señales y sistemas : Continuos y discre Samir S. Soliman, Mandyam D. Srinath ; traducción, Ana T Suárez ; revisión técnica, Miguel Ángel Rodríguez Hernánd 2a ed., reimpr. Madrid [etc.] : Prentice hall, 2000