

Academic Year: ( 2024 / 2025 )

Review date: 02-05-2024

Department assigned to the subject: Signal and Communications Theory Department

Coordinating teacher: MIGUEZ ARENAS, JOAQUIN

Type: Compulsory ECTS Credits : 6.0

Year : 2 Semester : 1

**REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)**

Calculus

**OBJECTIVES**

The goal of the course is to provide the students with the theoretical and methodological knowledge necessary to work with continuous and discrete-time signals and LTI (linear and time-invariant) systems in the time and frequency domain.

**DESCRIPTION OF CONTENTS: PROGRAMME**

1. Signals and their properties.
2. Continuous and discrete time signals.
3. Systems and their properties. LTI systems. Convolution.
4. Fourier series in continuous and discrete time.
5. Fourier transform in continuous and discrete time. Fast Fourier transform.
6. Generalization of the Fourier transform:
  - 6.1 Laplace transform of continuous-time signals and its properties.
  - 6.2 Z transform of discrete time signals and its properties.

**LEARNING ACTIVITIES AND METHODOLOGY****THEORETICAL PRACTICAL CLASSES.**

Knowledge and concepts students must acquire. Receive course notes and will have basic reference texts. Students partake in exercises to resolve practical problems.

**TUTORING SESSIONS.**

Individualized attendance (individual tutoring) or in-group (group tutoring) for students with a teacher. Subjects with 6 credits have 4 hours of tutoring/ 100% on- site attendance.

**STUDENT INDIVIDUAL WORK OR GROUP WORK.**

Subjects with 6 credits have 98 hours/0% on-site.

**WORKSHOPS AND LABORATORY SESSIONS.**

Subjects with 3 credits have 4 hours with 100% on-site instruction. Subjects with 6 credits have 8 hours/100% on-site instruction.

**ASSESSMENT SYSTEM**

<b>% end-of-term-examination:</b>	60
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	40

**FINAL EXAM.**

Global assessment of knowledge, skills and capacities acquired throughout the course.

**CONTINUOUS EVALUATION.**

Assessment of laboratory projects, exercises and partial test/quizzes carried out over the term.

## BASIC BIBLIOGRAPHY

- Alan V. Oppenheim, Alan S. Willsky. S. Hamid Nawab Signals and Systems, Prentice-Hall, 1997