Universidad Zaragoza

Academic Year/course: 2023/24

30158 - Communication Theory

Syllabus Information

Academic year: 2023/24
Subject: 30158 - Communication Theory
Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza
Degree: 563 - Bachelor's Degree in Industrial Organisational Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject type: Optional
Module:

1. General information

The subject Communication Theory intends to provide the student with the knowledge and ability to analyse different aspects related to a typical communications system.

Main objectives:

- Characterize the basic aspects of a communications system.
- Characterize the elements that make up communications systems: transmitter, channel and receiver.
- Describe the information signals associated with these systems and those that disturb them (noise, distortion, etc.).
- Perform signal and system analysis in a communications system.
- Know the main digital modulations.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (https://www.un.org/sustainabledevelopment/es/), in such a way that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement: Goal 9.

2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

1. Describes the principles of operation, performance of the basic methods and systems for transmission of information.
2. Describes analogue and digital modulation techniques.

3. Syllabus

The program of the subject is divided into the following thematic blocks:

1. INTRODUCTION
2. RANDOM SIGNALS AND NOISE
3. TRANSMISSION CHANNEL
4. DIGITAL BASEBAND TRANSMISSION
5. DIGITAL MODULATIONS

4. Academic activities

The methodology followed for the teaching-learning process that has been designed for this subject is based on :

- **Participative lectures:** presentation of the theoretical contents of the subject accompanied by practical examples and problem solving. The student will actively participate in their resolution.
- **Learning based on autonomous problem solving.**
- **Resolution of group exercises** and **flipped classroom.**
- **Assessment tests.**
- **Personalized attention to** the student through tutorials in order to review the materials and topics presented in class.
- **Autonomous study** and **work** of the student.

5. Assessment system

FIRST CALL

The student will be able to pass the subject by the continuous evaluation procedure. To do this they will need to demonstrate that they have achieved the intended learning results through the following assessment activities:

1. Midterm written test on topics 1-3 of the subject (25%).

2. Midterm written test on topics 4 and 5 of the subject (35%).

3. Practices and exercises to be handed in by the students (40%).

The final continuous assessment grade (100%) will be calculated according to the specific weight of each continuous assessment test . To pass the subject, the student must obtain a grade higher than or equal to 4 in each of the two written tests and a final grade higher or equal to 5 in the final continuous evaluation grade.

Overall test

Students who do not pass the subject by continuous evaluation or who would like to improve their grade, will have the right to take the overall test, prevailing, in any case, the best of the grades obtained . This global test will be a single exam and will have a 100% weight in the final grade. To pass the subject, the student must obtain a final grade greater than or equal to 5.

SECOND CALL

Overall test

Students who do not pass the subject in the first exam may sit for an overall exam.

This global test will be a single exam and will have a 100% weight in the final grade. To pass the subject, the student must obtain a final grade greater than or equal to 5.

Assessment instruments:	**Evaluation**	**RA-1**	**RA-2**
Midterm exam (Topics 1-3)	25%	x	
Midterm exam (Topics 4-5)	35%	x	x
Practices and Exercises to be submitted	40%	x	x