

30382 - Radio-Communication Systems

Syllabus Information

Academic year: 2024/25

Subject: 30382 - Radio-Communication Systems

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 581 - Bachelor's Degree in Telecommunications Technology and Services Engineering

ECTS: 6.0

Year: 4

Semester: First semester

Subject type: Optional

Module:

1. General information

The objective of the Radiocommunication Systems subject is to introduce and learn how to design and plan the different existing radiocommunication systems. To this end, the set of fundamental objectives can be summarized as follows: To know the telecommunications regulatory bodies and the associated regulations, to know the propagation characteristics and performance of fixed terrestrial radio relay systems and to know how to design sound and TV broadcasting systems, and know telecommunication infrastructures, their deployment and the tools for the design and planning of radiocommunication systems.

2. Learning results

- Know the telecommunications regulatory agencies and their regulations.
- Know and know how to differentiate the different types of telecommunication systems and associated technologies.
- Know telecommunication infrastructures, understand the design principles and their deployment phases.
- Know the components, propagation characteristics and performance of fixed terrestrial radio relay (ER) systems.
- Know how to design fixed terrestrial RE, correctly planning power balances.
- Know and know how to design sound and TV broadcasting systems.
- Know designing and planning tools for radio communications systems

3. Syllabus

Topic 1: Introduction to Radio Communication Systems.

Topic 2: Fundamentals of Radio Communication Systems.

Topic 3: Fixed Radio Relay Systems (RE).

Topic 4: Broadcasting Systems.

PROGRAMMING OF LABORATORY PRACTICES AND SEMINARS Throughout the course there will be some practices related to the subject, in addition to the possibility of holding a seminar

4. Academic activities

Participative lectures (38h). Presentation by the teacher of the main contents of the subject, combined with the active participation of the students.

Problem solving and case studies (10h). Solving of problems proposed by the teacher, with the possibility of exposition of the same by the students individually or in groups authorized by the teacher.

Laboratory practices (12h). Students will carry out 2-hour practice sessions. This activity will be carried out in person. The work to be developed will be done in small groups. The presentation of studies or previous works will be required when these

are necessary for the development of the internship and the delivery of the follow-up report of the same.

Study and personal work (84h)

Assessment tests (3h)

5. Assessment system

The student will have a global test in each of the exams established throughout the term. Dates and schedules will be determined by the School. The grade for this test will be obtained as follows:

- An exam consisting of a theoretical part consisting of a test and a second part consisting of a set of problems or practical cases. This exam will have a weight of 80 % of the overall grade.
- A set of practices and assignments whose weight on the overall grade is 20 %.

A Minimum of 4.5 out of 10 in the exam and a minimum of 5 in the combined part of practical and assignments is required to weight the grade of practical and assignments. . Students who do not pass the practices will have the possibility to take an alternative test on the same date as the final exam.

CONTINUOUS ASSESSMENT

Partial Exam 1 (EP1): Approximately halfway through the subject there will be a test (with sufficient advance notice) in which test questions and practical assumptions of the subject taught up to that moment will be evaluated. Passing the exam, with a grade higher or equal to 4.5 out of 10 in this test, will exempt the student from taking this part of the final exam (EF.1). However, , students who have passed this test may take this part of the final exam to improve their grade.

On the other hand, students who fail this test will be obliged to take the same test.

Partial Exam 2 (EP2): At the end of the subject there will be a test (with sufficient advance notice) in which test questions and practical assumptions of the subject not included in EP1 will be evaluated. Passing the exam, with a grade higher or equal to 4.5 out of 10 in this test, will exempt the student from taking this part of the final exam (EF.2). However, , students who have passed this test may take this part of the final exam to improve their grade. On the other hand, students who fail this test will be obliged to take the same test.

Final exam (EF): The final exam will consist of a written test that is divided into two parts:

- EF.1: It addresses the contents evaluated in the EP1 test and with the same format.
- EF.2: It addresses the contents evaluated in the EP2 test and with the same format.

A Minimum of 4.5 out of 10 in the exam and a minimum of 5 in the combined part of practical and assignments is required to weight the grade of practices and assignments.

6. Sustainable Development Goals

8 - Decent Work and Economic Growth

9 - Industry, Innovation and Infrastructure

12 - Responsible Production and Consumption