

## 30380 - Audiovisual Communications

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 30380 - Audiovisual Communications

**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:** Second semester

**Subject type:** Optional

**Module:**

### 1. General information

The objective of the subject is to provide the student with the knowledge and methodologies necessary to build, operate and manage audiovisual, radio and television systems as new multimedia systems through the Internet.

The subject focuses on the analysis, coding and processing of audiovisual signals as well as on the systems of capture, transport and presentation of multimedia information.

### 2. Learning results

- Know the particularities, similarities and differences of visual, voice and sound information signals.
- Know the way in which audiovisual signals relevant to communications are obtained or reproduced.
- Know the mechanisms of digitization of analog audiovisual signals as well as the most typical digital formats.
- Understand the theoretical fundamentals of the most widespread audio and video signal compression techniques.
- Learn about basic and advanced aspects of some of the most widely applied standards for coding voice and audio signals.
- Learn about basic and advanced aspects of some of the most widely applied standards for coding image and video signals.
- Know the basics of the digital audio and video broadcasting standard (DAB, DVB).
- Relate the different physical means (terrestrial, satellite, cable) for digital television with the appropriate digital communications techniques according to DVB (modulation, channel coding, etc.), being able to dimension some relevant parameters.
- Know the differences between the transmission of audiovisual signals in the contexts of broadcasting, telematic networks and reproduction from physical media.
- Know basic and advanced aspects of some of the most widely applied standards for multiplexing various information streams in multimedia signal encoding.

### 3. Syllabus

BLOCK 1. Basic elements of audiovisual communication

1.1. Sound and audio. Light and video. Acquisition and reproduction of audiovisual signals

1.2. Audiovisual perception

1.3- Audio and video signals. Characteristics and generation models.

1.4- Analog audio and video. Formats, interfaces, communications.

1.5. Digitalization of audiovisual signals. Techniques, formats, interfaces.

BLOCK 2. Compression and encoding standards

2.1. Perceptual audio coding and speech coding. Standards.

2.2. Hybrid video encoding. Standards.

### BLOCK 3. Audiovisual transmission systems

3.1. Digital Audio Broadcasting (DAB)

3.2. Digital Video Broadcasting (DVB)

3.3. Internet Protocol Television (IPTV)

## 4. Academic activities

- **Participative lectures:** 30 hours

The contents of the subject will be presented, with a practical orientation towards audiovisual communication systems.

- **Problem solving and case studies:** 10 hours

Practical problems of audiovisual systems will be solved.

- **Laboratory practices:** 20 hours

Simulation tools and audiovisual equipment will be used to carry out different practices.

- **Teaching assignments:** 24 hours

Both the evaluable teaching assignments and the preparation of laboratory practice reports are included.

- **Study and personal work:** 60 hours

- **Assessment tests:** 6 hours

## 5. Assessment system

The subject will be assessed in the **global** assessment modality by means of the following activities:

- **Intermediate tests** (50% of the grade, minimum 4.5 out of 10).

Written tests will be given throughout the semester. These will be individual theoretical-practical tests.

- **Laboratory practicals** (20% of the grade, minimum 4.5 out of 10).

There will be several laboratory practices distributed throughout the semester. There is a simulation part and a equipmentpart.

- **Project** (30% of the grade, minimum 4.5 out of 10).

A team work will be proposed to be developed throughout the term. The assessment will consider autonomy, the quality and originality of the solution, the analytical and critical capacity of the student and, especially, the ability to work in a team and to communicate the results. This work will be done in coordination with the practices of the subject.

If the student has not passed any of these activities during the semester, they will have the opportunity to pass the subject by means of a global test in the two official exam calls.

## 6. Sustainable Development Goals

7 - Affordable and Clean Energy

8 - Decent Work and Economic Growth

9 - Industry, Innovation and Infrastructure