



Year : 2018/19

## **30331 - Audio and Video Electronic Systems**

### **Syllabus Information**

<b>Academic Year:</b>	2018/19
<b>Subject:</b>	30331 - Audio and Video Electronic Systems
<b>Faculty / School:</b>	110 -
<b>Degree:</b>	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
<b>ECTS:</b>	6.0
<b>Year:</b>	4
<b>Semester:</b>	First semester
<b>Subject Type:</b>	
<b>Module:</b>	---

### **General information**

#### **Aims of the course**

#### **Context and importance of this course in the degree**

#### **Recommendations to take this course**

#### **Learning goals**

#### **Competences**

#### **Learning goals**

#### **Importance of learning goals**

#### **Assessment (1st and 2nd call)**

#### **Assessment tasks (description of tasks, marking system and assessment criteria)**

#### **Methodology, learning tasks, syllabus and resources**

#### **Methodological overview**

The learning process that is designed for this subject is based on the following:

**Class work:** 2.4 ECTS (60 hours)

1. Participatory Lectures (45 hours)

2. Laboratory practices (15 hours)
- Personal work:** 3.6 ECTS (90 hours)
3. Performing practical work and supervised
4. Study
5. Personal attention
6. Evaluation tests.

## Learning tasks

The learning process that is designed for this subject is based on the following:

**Class work:** 2.4 ECTS (60 hours)

1. **Participatory Lectures** (45 hours) in which the theoretical foundations of the contents of the subject are presented and where student participation is encouraged. The presentation of bibliographic material previously delivered to the student (or deposited in the computer means provided by the University for this purpose) and its development on the board for proper follow-up will be combined.
2. **Laboratory practices** (15 hours) in which students will perform 5 sessions of practices 3 hours in labs Ada Byron Building. In small groups, a training series related to the contents of the subject and to consolidate the set of theoretical concepts are made. This activity will be conducted in the laboratory in person.

**Personal work:** 3.6 ECTS (90 hours)

3. Performing a practical work tutored by teachers, based on the contents of the subject and related technologies and audiovisual systems. Possibility of attending seminars related to the topic mentioned with the participation of external guests to them.
4. **Study.** Personalized attention to students through tutorials.
6. **Evaluation tests.**

## Syllabus

The program that the student is offered to help you achieve the expected results includes the following activities.

### PART I.

1. Introduction
2. History of Digital Audio
3. Audio equipment
4. Speakers and microphones
5. Fundamentals of Digital Audio
6. AD and DA conversion
7. Magnetic and optical media: CD, MD, DCC, DAT, DVD
8. Perceptual Coding
9. Audio communication protocols

### PART II.

1. Introduction to Video
2. Color representation
3. Fundamentals of video systems
3. Camcorders
4. Monitors & Displays
5. Video Recorders

Professionals

Domestic and semi-professional

6. Video post-production systems

### PROGRAMMING LABORATORY PRACTICE AND SEMINARS

Throughout the course a number of practices will be conducted in order to verify in the laboratory the concepts of the subject. The possibility of a seminar held.

- Practice 1. Openframeworks (I)
- Practice 2. Openframeworks (II)
- Practice 3. Openframeworks (III)
- Practice 4. Openframeworks (IV)

Practice 5. Audiovisual installations (I)  
Practice 6. Audiovisual installations (II)

## Course planning and calendar

Schedule sessions and presentation of works

The schedule of the course, both of the sessions in the classroom and the laboratory sessions, will be determined by the academic calendar that the center established for the corresponding course.

The oral presentation of the assignments will be made during the last teaching week planned in the academic calendar planned by the Center.

## Bibliography and recommended resources

- Ken C. Pohlmann, Principios de audio digital; 4ª ed. McGraw-Hill, 2002
- John Watkinson, Audio digital, Paraninfo, 1996
- John Watkinson, El arte del audio digital, Instituto Oficial de Radio y Televisión, 2002
- Luc Baert [et al.], Digital audio and compact disc technology, 3rd ed, Focal, 1995
- R.A. Penfold, MIDI avanzado : Guía del usuario, Ed. ra-ma, 1992
- Charles Poynton, Digital Video and HD. Algorithms and Interfaces. Elsevier, 2012.
- J. Whitaker & B.K. Benson, Standard Handbook of Video and Television Engineering, 4th ed. McGraw-Hill Professional; 2003.
- David Austerberry, The Technology of Video and Audio Streaming; 2nd. Ed, Focal Press, 2005
- A. F. Inglis & A. Luther, Video Engineering; 2nd. Ed. McGraw-Hill, 1996
- M. Weise y D. Weynand. How Video Works. From analog to High Definition, Focal Press, 2007
- K. Jack , Video demystified-A Handbook for the Digital Engineer, 3th Edition. LLH Technology Publishing, 2001