

## 30331 - Audio and Video Electronic Systems

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	438 - Bachelor's Degree in Telecommunications Technology and Services Engineering
<b>ECTS</b>	6.0
<b>Course</b>	4
<b>Period</b>	First semester
<b>Subject Type</b>	
<b>Module</b>	---

### **1.Basic info**

#### **1.1.Recommendations to take this course**

#### **1.2.Activities and key dates for the course**

### **2.Initiation**

#### **2.1.Learning outcomes that define the subject**

#### **2.2.Introduction**

### **3.Context and competences**

#### **3.1.Goals**

#### **3.2.Context and meaning of the subject in the degree**

#### **3.3.Competences**

#### **3.4.Importance of learning outcomes**

### **4.Evaluation**

### **5.Activities and resources**

#### **5.1.General methodological presentation**

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

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4. Study
5. Personal attention
6. Evaluation tests.

### 5.2.Learning activities

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 and 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

5. Personalized attention to students through tutorials.
6. Evaluation tests

### 5.3.Program

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

#### PART I.

Introduction  
History of Digital Audio  
Audio equipment  
Speakers and microphones  
Fundamentals of Digital Audio  
AD and DA conversion  
Magnetic and optical media: CD, MD, DCC, DAT, DVD  
Perceptual Coding  
Audio communication protocols

#### PART II.

Introduction to Video  
Color representation  
Fundamentals of video systems  
Camcorders  
Monitors & Displays  
Video Recorders  
Professionals  
Domestic and semi-professional  
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

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subject. The possibility of a seminar held.

Practice 1. Audacity - Overview

Practice 2. Audacity - recording and editing podcasts

Practice 3. Online Music Mixer - Soundstation Studio

Practice 4. Pure Data

Practice 5. Pure Data and GEM

Practice 6. Audiovisual installations

### 5.4.Planning and scheduling

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.

### 5.5.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