Course guide
320118 - EV - Video Equipment

Last modified: 19/04/2023

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 710 - EEL - Department of Electronic Engineering.

Degree: BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Compulsory subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Montserrat Corbalán y Javier Gago

Others: Montserrat Corbalán, Javier Gago, Wenceslao Matarin

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE21-ESAUD. Ability to build, operate, and manage telecommunications services and applications, understood as systems for capturing, analog and digital processing, encoding, transportation, representation, processing, storage, reproduction, management, and presentation of audiovisual services and multimedia information. (Specific Technology Module: Sound and Image)
CE22-ESAUD. (ENG) Capacitat d'analitzar, especificar, realitzar i mantenir sistemes, equips, capçaleres i instal·lacions de televisió, àudio i vídeo, tant en entorns fixes com mòbils. (Mòdul de tecnologia específica: So i imatge)
CE23-ESAUD. Ability to carry out projects for premises and facilities for the production and recording of audio and video signals. (Specific Technology Module: Sound and Image)

Transversal:
CT06 N3. Self-directed learning - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.

TEACHING METHODOLOGY

- Face-to-face lecture sessions.
- Face-to-face practical work sessions.
- Independent learning and exercises.
- Preparation and completion of individual and group activities subject to assessment.

In the face-to-face lecture sessions, the lecturer will introduce the basic theory, concepts, methods and results for the subject and use examples to facilitate students' understanding.

Students will be expected to study in their own time to become familiar with the concepts, using their own notes taken in theory classes and the compulsory and recommended reading lists. It is particularly important that students read and assimilate, in their own time, all the information that is offered complementary, since naturally used many different instruments in laboratories.

Students are expected to complement the face-to-face activities with out of lectures activities: reading the manuals of the equipment used; information search; and the reporting practices. In addition, student should see audio-visual material and perform some program in MATLAB or C + +.

The assessment of the teamwork competition is done through practices that can only be done with the collaboration of the entire group. Autonomous learning is measured by individual quizzes carried out through Atenea.

LEARNING OBJECTIVES OF THE SUBJECT

In this subject, students will become familiar with the operation of the various pieces of equipment that make up the video/television chain, from capture to take-up. On completing the subject, students will be able to use, design, build, characterise and specify all of the various pieces of equipment that make up the video/television chain.

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	20.00
Self study	90,0	60.00
Hours large group	30,0	20.00

Total learning time: 150 h

CONTENTS

Video and television equipment

Description:
1- Introduction to video and television systems
2- Analog TV systems
3- Digital TV Systems
4- Broadcast equipment and television reception
5- Equipment of a television studio
6- Influence of light in the video acquisition
7- Video cameras

Full-or-part-time: 30h
Theory classes: 30h

GRADING SYSTEM

- First examination: 20%
- Second examination: 20%
- Work in Laboratory: 30%
- Work in Terrassa Channel and Recordings of shows (these practices will be done outside academic hours): 20%
- Autonomous learning: 5%
- Teamwork: 5%

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the on-site written evaluation acts (tests, midterm and final exams) and the grades obtained during the course for lab practices, works, projects and presentations will be kept.
If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

EXAMINATION RULES.

Students will be expected to have passed all of the subjects related to mathematics and IT/programming, as well as Signals and Systems, Digital Image Processing and Digital Audio Processing.

BIBLIOGRAPHY

Basic:

- Carlson, A. Bruce. Communication systems: an introduction to signals and noise in electrical communication. 4th ed. New York: McGraw-Hill, 2002. ISBN 0070111278.
- Bosi, Marina. Introduction to digital audio coding and standards. Boston: Kluwer Academic Publishers, 2003. ISBN 1402073577.
- Clarke, R. J. Digital compression of still images and video. London: Academic Press, 1995. ISBN 012175720X.

Complementary:

- Wang, Y.; Ostermann, J.; Zhang, Y-Q. Video processing and communications. Upper Saddle River: Prentice Hall, 2002. ISBN 9780130175472.
- Kim, Hyoung-Gook [et al.]. MPEG-7 audio and beyond: audio content indexing and retrieval. Chichester: John Wiley, 2005. ISBN 047009334X.
- Ghanbari, Mohammed. Standard codecs: image compression to advanced video coding [on line]. 3rd ed. London: Institution of Electrical Engineers, 2011 [Consultation: 03/10/2022]. Available on: https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=774059. ISBN 9780863419645.