



## IDENTIFYING DATA

### Audiovisual Technology

Subject	Audiovisual Technology			
Code	V05G300V01631			
Study programme	Degree in Telecommunications Technologies Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	2nd
Teaching language	Spanish Galician			
Department	Signal Theory and Communications			
Coordinator	Torres Guijarro, María Soledad			
Lecturers	Martín Rodríguez, Fernando Torres Guijarro, María Soledad			
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General description	In this subject the student will learn to design audiovisual systems, with respect to sound take and sound reinforcement, image take and visual coating, synchronisation, wiring, connections and supply. Indoor and outdoor applications of audiovisual networks, as well as distinct multimedia platforms, will be analysed.			

## Competencies

Code	
B1	CG1: The ability to write, develop and sign projects in the field of Telecommunication Engineering, according to the knowledge acquired as considered in section 5 of this Law, the conception and development or operation of networks, services and applications of Telecommunication and Electronics.
B6	CG6: The aptitude to manage mandatory specifications, procedures and laws.
B9	CG9: The ability to work in multidisciplinary groups in a Multilanguage environment and to communicate, in writing and orally, knowledge, procedures, results and ideas related with Telecommunications and Electronics.
B12	CG12 The development of discussion ability about technical subjects
C36	CE36/SI3 The capacity to implement projects at places and installations for the production and recording of audio and video signals.
C38	CE38/SI5 The ability to create, modify, manage, broadcast and distribute multimedia contents taking into account the use and accessibility criteria to audiovisual, broadcasting and interactive services.
D4	CT4 Encourage cooperative work, and skills like communication, organization, planning and acceptance of responsibility in a multilingual and multidisciplinary work environment, which promotes education for equality, peace and respect for fundamental rights.

## Learning outcomes

Expected results from this subject	Training and Learning Results	
Understand which elements have an influence on audiovisual quality.		C36 C38
Design a system of sound take and sound reinforcement given a certain enclosure, comparing different subsystems and elements.	B1 B6	C36
Create atmospheres addressing acoustic and visual appearances	B12	C36
Design the wiring and connections of an audiovisual network for his control and supply	B1 B6	C36 C38
Analyse different indoor and outdoor applications of Audiovisual Networks.		C36 C38
Apply and analyse distinct multimedia systems: videoconference, streaming, audiovisual databases, synchronisation, metadata processing, exchange of multimedia contents.	B6 B12	C38

Organize a working group to carry out a project, including the following:	B6	D4
* technical ability to collect information, interpret technical specifications of equipment, discuss different options and select a combination of certain equipment.	B9	
* use of theoretical calculations and simulation software tools to support the design of sound systems and visual coating.	B12	
* conduction of meetings, discussion of partial results and oral presentation of a definitive work in front of a demanding audience.		
* writing of progress reports, minutes of meetings and a final technical report.		
* adaptation to new environments, management of internal roles in the group and conflict resolution.		

## Contents

Topic	
Sound reinforcement	Sizing and distribution in the processes of take and presentation of sound
Visual overlay	Design of systems of visual take and presentation indoor and outdoor. Sizing and distribution of the visual coverage, in the processes of take and presentation
Connections and supply	Design of the wiring and connecting of an audiovisual network and his supply. Audiovisual networks, indoor and outdoor applications.
Synchronisation and control	Synchronisation of audio and video signals in an audiovisual network. Control systems. Audiovisual quality: sound/image interaction. Ambient creation addressing visual and acoustic issues
Multimedia systems	Videoconference, streaming, audiovisual databases, synchronisation, metadata procesing, exchange of multimedia contents

## Planning

	Class hours	Hours outside the classroom	Total hours
Computer practices	12	0	12
Project based learning	7	57	64
Lecturing	21	42	63
Short answer tests	2	0	2
Practices report	0	9	9

\*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

## Methodologies

	Description
Computer practices	Use and adjustment of analysis tools and algorithms, identifying which one should be used in each situation. With this methodology they work the CE36 competence, individually or in couples.
Project based learning	Collaborative work in reduced groups on a complex design that applies several topics covered in the subject. The work is periodically followed-up and it fosters working in group, role sharing, information sharing, planning and public defending of results. With this methodology they work the CG1, CG6, CG9, CG12, CE36, CE38 and CT4 competences.
Lecturing	Presentation by the teacher of the contents of the subject, fostering the critical discussion of the concepts. The theoretical grounds of algorithms and procedures used to resolve problems are given. With this methodology they work the CG1, CG6, CG12, CE36 and CE38 competences.

## Personalized attention

Methodologies	Description
Lecturing	Doubts can be solved in the rests of the classes and in the teacher tutorial sessions. These tutorial sessions will be done individually or in short groups (with a maximum of 2-3 students). The tutorial sessions are typically agreed with the professor. The meeting requests can be done personally or by email. The tutorial sessions are preferably done in the schedules and place officially reserved for them.
Computer practices	In the classes of practices is a good moment to consult doubts with the professor. The professor moves between the tables and some students take advantage of the proximity of the professor to consult doubts of the own class or punctual doubts of other classes.
Project based learning	The projects have its own classes of C group in which the students of each team consult their doubts about the project and the professor is with them helping to define the project and giving them support for the development of their particular project. They are classes with a very pleasant interaction.

<b>Assessment</b>					
	Description	Qualification	Training and Learning Results		
Project based learning	Assessment of a project, developed through the four-month period, including the preparation and public presentation of a report. The corresponding individual mark to the works done in group is obtained as a ponderated sum of: 1) the common mark of the group (60%); 2) the individual mark (40%), obtained from one or various of the following methods of evaluation: cross-evaluation by the other members of the group, oral questions during the presentations of the works, written questions about the content of the work.	40	B1 B6 B9 B12	C36 C38	D4
Short answer tests	Assessment of a written exam, with brief questions and problems.	50	B1 B6 B12	C36 C38	
Practices report	Assessment of a written inform that describes the work of several weeks in the computer classroom.	10		C36	

### **Other comments on the Evaluation**

Following the study programme guidelines, the student can choose between two assessment methods: CONTINUOUS ASSESSMENT, that is the recommended method linked to the educational activities and SOLE ASSESSMENT, only recommended for those students which can not follow the first method.

In case of detection of plagiarism in any of the tests (short tests reports of the laboratory practices, reports of the directed works, or final exam), the final grade will be FAIL (0) and the fact will be communicated to the Centre Management for the oportune effects.

#### FIRST TAKE

##### A) CONTINUOUS ASSESSMENT

The continuous assessment consists of the tests detailed in the following. The student opts by the continuous assessment method once she/he signs the document of commitment that will be available at the begining of the term, so that she/he can begin the work in the corresponding group. Once signed, it is assumed that the student has taken the examination session and will be given the mark resulting of the application of the criterion detailed in the following, regardless of wheter she/he takes the final exam or not.

Types and assessment of activities:

1. Reports of the practical sessions (Weight: 10%)
2. Projects (Weight 40%): will be assessed in the middle and at the end of the term. The individualized part of the assessment will be done through cross-evaluation, oral questions during presentations, and/or written exam questions.
3. Proof of short answer (Weight: 50%): it coincides with the final exam date. It includes all the contents of the subject.

The final grade corresponds to the sum of the marks obtained in all the activities weighted by the corresponding percentages. The student should obtain, at least, a grade of 4 points over ten in each type activity, and a final grade of 5 points to pass the subject. If in any of the activities the grade does not reach 4 but the average exceeds 5, the final grade will be 4.

##### B) SOLE ASSESSMENT

If the student does not sign the document of commitment, she/he will be evaluated through a final examination in the official date assigned by the Centre. This exam will consist of two parts, of equal weight in the final mark: a written part that may include all the topics of the subject, and an oral part relative to additional work. This additional work should be presented previously to the teacher. The student may take part in the continuous assessment activities of the practical sessions, but they will not be assessed in her/his case. The additional work to deliver will have to be delivered to the teacher a week before the final exam. The student should obtain, at least, a grade of 4 points over ten in each type activity, and a final grade of 5 points to pass the subject.

#### RETAKE

Whoever has been evaluated by Continuous Assessment at the first opportunity may opt for:

1. Perform the written test again, keeping the grades obtained in the activities carried out continuous assessment, with the weights discussed above.

2. Be evaluated with a single final exam. This final exam is described in the following.

Anyone who has been evaluated by the Sole Assessment at the first take will be evaluated through a final exam on the official date assigned by the Center. This exam will consist of two parts, of equal weight in the final grade: a written part that will include as possible contents the whole subject, and an oral part related to the additional work that previously have had to present. The additional work must be delivered one week before the final exam. To pass, 4 points in each activity of each type and 5 points in the final grade are needed at least.

EXTRAORDINARY TAKE (FINAL GRADE TAKE):

The exam will consist of a short answer test. This final exam will be rated between 0 and 10 points. It includes all the topics of the course. To pass, at least five points are needed. No other activity is valued.

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### Sources of information

#### Basic Bibliography

John Eargle, **JBL Sound system design reference manual**, 3, JBL, 1999

#### Complementary Bibliography

John Eargle, Chris Foreman, **Audio Engineering for Sound Reinforcement**, Hal Leonard, 2002

Gary Davis and Ralph Jones, **Sound Reinforcement Handbook**, Hal Leonard, 1989

Philip Giddings, **Audio Systems Design and Installation**, Focal Press, 1990

Hilary Wyatt y Tim Amyes, **Postproducción de Audio para TV y Cine**, Escuela de Cine y Video de Andoain, 2005

Rüdiger Ganslandt, Harald Hofmann, **Handbook of Lighting Design**,

José Luis Sánchez Bote, **Sistemas de refuerzo sonoro**, Universidad Politécnica de Madrid, 2013

José María Mellado, **Fotografía de alta calidad: las técnicas y métodos definitivos.**, CS6. Anaya multimedia, 2013

Ben Simonds, **Blender master class : a hands-on guide to modeling, sculpting, materials, and rendering**, No Starch Press, 2013

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### Recommendations

#### Subjects that are recommended to be taken simultaneously

Room Acoustics/V05G300V01635

Imaging Systems/V05G300V01633

#### Subjects that it is recommended to have taken before

Fundamentals of Sound and Image/V05G300V01405

Audio Systems/V05G300V01532

Video and Television/V05G300V01533