



## IDENTIFYING DATA

### Video and Television

Subject	Video and Television			
Code	V05G300V01533			
Study programme	(*)Grao en Enxeñaría de Tecnoloxías de Telecomunicación			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Martín Rodríguez, Fernando			
Lecturers	Fernández Hermida, Xulio Martín Rodríguez, Fernando			
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General description	(*)(*) This subject develops nowadays available video technology: video saving on magnetic and/or optic media, digital television over different transmission media (terrestrial, satellite, cable and IP) and television networks. We assume knowledge of basic image and video formats (JPEG and MPEG) that were studied in the prerequisite FSI (Fundamentos de Son e Imaxe, compulsory in the second year).			

## Competencies

Code	
A5	CG5: The knowledge to perform measurements, calculations, assessments, appraisals, technical evaluations, studies, reports, task scheduling and similar work to each specific telecommunication area.
A6	CG6: The aptitude to manage mandatory specifications, procedures and laws.
A43	CE34/SI1 The ability to construct, exploit and manage telecommunication services and applications, such as receiving, digital and analogical treatment, codification, transporting and representation, processing, storage, reproduction, management and presentation of audiovisual and multimedia information services.
A44	CE35/SI2 The ability to analyze, specify, carry out and maintain systems, equipments, heads and installations of TV, audio and video for mobile and fixed environments.

## Learning aims

Expected results from this subject	Training and Learning Results
Choosing appropriate saving formats for each need. Choosing appropriate equipment to work with such formats (C1).	A43 A44
Designing and implementing interactive TV projects (C2).	A43 A44
Making the necessary calculations for design and implementation of TV networks of all different kinds (C3).	A5 A6 A43 A44
Writing intra-building video distribution projects and monitoring their installation process. Testing and correcting problems in existing systems (C4).	A5 A6 A43 A44

## Contents

Topic
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Structure of a video production studio.	General overview. Multimedia matrixes. Capturing formats: SDI, HDMI, analog. Auxiliary equipment: caption machines, measurement and control equipment... Playout system.
Video saving.	Magnetic saving. Optical saving. Domestic formats. Introduction to professional formats.
Televisión Digital.	DVB Standard: Digital Video Broadcasting. DVB transmission media: DVB-T, DVB-S, DVB-C. IPTV (Television over IP). Digital Interactive TV (MHP standard). Fundamentals of 3D TV (Coding and Transmission).
Redes de TV.	TV Broadcasting. Terrestrial networks: emitters, re-emitters, gap-fillers. Cable networks: HFC, FTTH, FTTH. Intra-building networks (residential buildings, hotels, other...).
Lab content 1.	Study of QPSK modulation in DVB-S. Implementation of a simple matlab simulator. Results evaluation.
Lab content 2.	Introduction to terrestrial coverage planning. Development of a small planning application using matlab.
Lab content 3.	Design of an intra-building TV network for a real example.
Lab content 4.	Assignment about MHP application development.

## Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	21	42	63
Practice in computer rooms	12	9	21
Tutored works	7	49.5	56.5
Multiple choice tests	0	1.5	1.5
Reports / memories of practice	0	6	6
Long answer tests and development	2	0	2

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

## Methodologies

	Description
Master Session	Professor makes presentation of contents, encouraging critical discussion. Algorithm and procedures theoretical basis are exposed. Related capabilities: A5, A6, A43, A44, C1, C2, C3, C4.
Practice in computer rooms	Small projects are suggested. Students must obtain well founded solutions, choosing appropriate methods and coming to a valid solution. Related capabilities: A5, A6, A43, A44, C2, C3, C4.
Tutored works	Lab projects are checked in individual or small group interviews. Professor suggests a qualification (the one the presented work deserves). Possible improvement actions are discussed. Related capabilities: A5, A6, A43, A44, C2, C3, C4.

## Personalized attention

Methodologies	Description
Master Session	Doubts can be answered in tutorship sessions. These tutorships will be performed: * Individually or in small groups (typically not more than 2-3 students). * Previous appointment with professor is needed unless indicated otherwise. Appointment will be asked via e-mail and will take place preferably in the times and place formally booked. In lab hours, professor will assist in any problem that arises at that moment. In monitoring sessions (C groups), works will be presented to professor that will comment them, insisting on the detected weak points and the improvement possibilities.
Practice in computer rooms	Doubts can be answered in tutorship sessions. These tutorships will be performed: * Individually or in small groups (typically not more than 2-3 students). * Previous appointment with professor is needed unless indicated otherwise. Appointment will be asked via e-mail and will take place preferably in the times and place formally booked. In lab hours, professor will assist in any problem that arises at that moment. In monitoring sessions (C groups), works will be presented to professor that will comment them, insisting on the detected weak points and the improvement possibilities.

Tutored works	Doubts can be answered in tutorship sessions. These tutorships will be performed: * Individually or in small groups (typically not more than 2-3 students). * Previous appointment with professor is needed unless indicated otherwise. Appointment will be asked via e-mail and will take place preferably in the times and place formally booked. In lab hours, professor will assist in any problem that arises at that moment. In monitoring sessions (C groups), works will be presented to professor that will comment them, insisting on the detected weak points and the improvement possibilities.
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Assessment		
	Description	Qualification
Tutored works	This consists of small projects exposed in the lab classes (B group). Such works start at B group but are monitored in C group. In such meetings, work state will be analyzed including a qualification (achieved up to the moment). Improvements will be proposed and they could be implemented in B group or via non presential work. Assessed capabilities: A5, A6, A43, A44, C2, C3, C4.	0
Multiple choice tests	Multiple choice tests, performed online via fatic platform. There will be three tests. The first one will be about the first two themes. The second one about the third theme and the third one about the fourth theme. On finishing each theme, professor will announce the dates to take the online test. Each test will deserve a maximum of 0.5 points of the final qualification. Estimated dates: - Third week (production studios and video saving). - Fifth week (DVB). - Eighth week (TV networks).  Assessed capabilities: A5, A6, A43, A44, C1, C2, C3, C4.	15
Reports / memories of practice	They are the final version of tutored jobs. Reports are submitted at course ending. Although we show here the complete qualification, this 25% is due to the work performed in this section and also in the section above. Assessed capabilities: A5, A6, A43, A44, C2, C3, C4.	25
Long answer tests and development	Final written exam in time and place according to school official scheduling. Assessed capabilities: A5, A6, A43, A44, C1, C2, C3, C4.	60

### Other comments on the Evaluation

Student can decide whether he wants to be evaluated via final exam or with continuous evaluation (the procedure described above). Student must indicate his decision writing it on the final exam. If he chooses the final exam option (final exam is 100% of the qualification), he will be required to answer extra questions or to solve extra exercises (having extra time available).

In the second call, students will be asked the same question (choosing between continuous evaluation and final exam) but with the following considerations:

- The qualification from test and lab reports is the same of the first call.
- That qualification is only valid within the present academic year.

### Sources of information

Ulrich Reimers, **DVB: the family of international standards for digital video broadcasting**, Berlin : Springer,  
Tomás Perales Benito, **Radio y Televisión Digitales: Tecnología de los Sistemas DAB, DVB, IBUC y ATSC**, Creaciones Copyright,  
José Luis Fernández Carnero, Antonio Suárez Perdigón, **Televisión y radio analógica y digital : sistemas para la recepción y distribución de las comunicaciones y los servicios en edificios y viviendas**, Santiago de Compostela : Televisión,

Besides bibliography student will have this material (in Spanish):

- \* Theory text: material that contains the theoretical basis to be developed in the in-person classes.
- \* Practical jobs guidelines: specifications for each practical job demanded.
- \* Copy of graphical material to be used in in-person classes.

### Recommendations

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

Audiovisual Technology/V05G300V01631

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

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Fundamentals of Sound and Image/V05G300V01405

Digital Signal Processing/V05G300V01304

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