



IDENTIFYING DATA

(*)VÍDEO E TELEVISIÓN

Subject	(*)VÍDEO E TELEVISIÓN			
Code	V05G300V01533			
Study programme	(*)Grao en Enxeñaría de Tecnoloxías de Telecomunicación			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Martín Rodríguez, Fernando			
Lecturers	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.	
B1	The ability for critical reading of scientific papers and docs.	
B2	To approach a new problem considering first the essential and then the secondary aspects	
B3	The development of discussion ability about technical subjects	
B4	The ability to use software tools that support problem solving in engineering	
B5	The ability to use software tools to search for information or bibliographical resources	

Learning aims

Expected results from this subject	Training and Learning Results	
Making the necessary calculations for design and implementation of TV networks of all different kinds.	A5	B1
	A6	B2
	A43	B3
	A44	B4
		B5
Writing intra-building video distribution projects and monitoring their installation process. Testing and correcting problems in existing systems.	A5	B1
	A6	B2
	A43	B3
	A44	B4
		B5

Designing and implementing interactive TV projects.	A43 A44	B1 B2 B3 B4 B5
Choosing appropriate saving formats for each need. Choosing appropriate equipment to work with such formats.	A43 A44	B1 B2 B3 B4 B5

Contents

Topic	
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, FTTB, 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.

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.
Practice in computer rooms	Small projects are suggested. Students must obtain well founded solutions, choosing appropriate methods and coming to a valid solution.
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.

Personalized attention

Methodologies	Description
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Master Session	Doubts can be answered in tutorshio sessions. These tutorships will be performed: * Individually or in small groups (typically nor 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 prerrably in the times and place formally booked. In lab hours, professor will assint 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 tutorshio sessions. These tutorships will be performed: * Individually or in small groups (typically nor 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 prerrably in the times and place formally booked. In lab hours, professor will assint 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 tutorshio sessions. These tutorships will be performed: * Individually or in small groups (typically nor 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 prerrably in the times and place formally booked. In lab hours, professor will assint 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.

Assessment

	Description	Qualification
Tutored works	This consist of three small projects exposed in the lab clases (B group). Such work start at B group but are monitored in C group. In such meetings work state will be analyzed included a qualification (achieved up to the moment). Improvements will be proposed and they could be implemented in B group or via non presential work.	0
Multiple choice tests	Multiple choice tests, performed online via faitic platform. There will be three tests. The first one will be about thr 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).	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.	25
Long answer tests and development	Final written exam in time and place according to school official scheduling.	60

Other comments on the Evaluation

Student can decide wether 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 ask 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 : Televés,

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: especifications 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

(*)Tecnoloxía audiovisual/V05G300V01631

Subjects that it is recommended to have taken before

(*)Fundamentos de son e imaxe/V05G300V01405

(*)Procesado dixital de sinais/V05G300V01304
