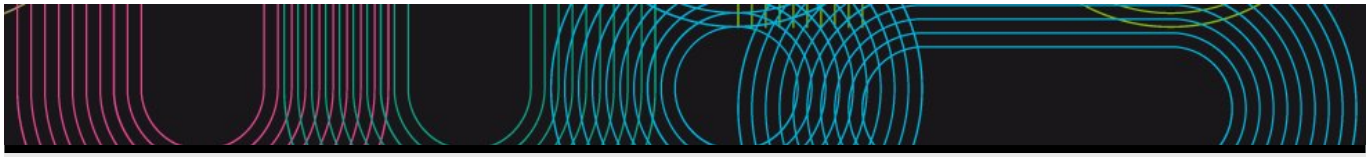

IDENTIFYING DATA				
Video and Television				
Subject	Video and Television			
Code	V05G300V01533			
Study programme	Degree in Telecommunications Technologies Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	1st
Teaching language	Spanish			
Department				
Coordinator	Martín Rodríguez, Fernando			
Lecturers	Martín Rodríguez, Fernando			
E-mail	fmartin@uvigo.es			
Web	http://faitic.uvigo.es			
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	
B5	CG5: The knowledge to perform measurements, calculations, assessments, appraisals, technical evaluations, studies, reports, task scheduling and similar work to each specific telecommunication area.
B6	CG6: The aptitude to manage mandatory specifications, procedures and laws.
C34	CE34/SI1The 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.
C35	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 outcomes		
Expected results from this subject		Training and Learning Results
Chossing appropriate saving formats for each need. Choosing appropriate equipment to work with such formats (C1).	B5	C34 C35
Designing and implementing interactive TV projects (C2).	B6	C34 C35
Making the necessary calculations for design and implementation of TV networks of all different kinds (C3).	B5	C34 C35
Writing intra-building video distribution projects and monitoring their installation process. Testing and correcting problems in existing systems (C4).	B6	C34 C35

Contents	
Topic	
Structure of a video production studio.	General overview. Multimedia matrixes. Capturing formats: SDI, HDMI, analog. Auxiliary equipment: caption machines, measurment 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. Satellite TV. 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.	Desing of an intra-building TV network for a real example.
Lab content 4.	Assigment 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 teoretical basis are exposed. Related competencies: CG5, CG6, CE34, CE35.
Practice in computer rooms	Small projects are suggested. Students must obtain well founded solutuions, choosing appropriate methods and coming to a valid solution. Related competencies: CG5, CG6, CE34, CE35.
Tutored works	Lab projects are checked in individual or small group interviews. Professor suggests a qualification (the one the presented work derserves). Possible improvement actions are discussed. Related competencies: CG5, CG6, CE34, CE35.

Personalized attention

Methodologies	Description
Master Session	Query and answer in the classroom and, if necessary, at the office.
Practice in computer rooms	Query and answer in the classroom and, if necessary, at the office (previous appointment). Help via e-mail.
Tutored works	Query and answer at the office (with previous appointment). Help via e-mail.

Assessment

	Description	Qualification	Training and Learning Results	
Tutored works	This consists of small projects proposed in the lab clases (B group). Such works 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 suggested and they could be implemented in B group or via non presential work.	0	B5 B6	C34 C35
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.	15	B5 B6	C34 C35

Reports / memories of practice	They are the final version of tutored jobs. Reports are submitted at course ending. Altough we show here the complete qualification, this 25% is due to the work performed in this section and also in the section above. Team work (in pairs). Both students achieve the same qualification.	25	B5 B6	C34 C35
Long answer tests and development	Final written exam in time and place according to school official scheduling.	60	B5 B6	C34 C35

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

Basic Bibliography

Ulrich Reimers, **DVB: the family of international standards for digital video broadcasting**, Springer, 2005

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**, Televés, 2004

Complementary Bibliography

Tomás Perales Benito, **Radio y Televisión Digitales: Tecnología de los Sistemas DAB, DVB, IBUC y ATSC**, Creaciones Copyright, 2005

Mark Massel, **Digital Television: Dvb-T Cofdm And Atsc 8-Vsb**, Digitaltvbooks.com, 2008

Walter Fischer, **Digital Television: A Practical Guide for Engineers (Signals and Communication Technology)**, 1, Springer, 2013

Recommendations

Subjects that are recommended to be taken simultaneously

Audiovisual Technology/V05G300V01631

Subjects that it is recommended to have taken before

Fundamentals of Sound and Image/V05G300V01405
Digital Signal Processing/V05G300V01304