IDENTIFYING DATA

Video and Television

Subject	Video and Television
Code	V05G306V01329
Study programme	Bachelor Degree in Telecommunication Technologies Engineering (BTTE)

Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	3rd	1st

Teaching language	#EnglishFriendly Spanish Galician
Department	
Coordinator	Martín Rodríguez, Fernando
Lecturers	Martín Rodríguez, Fernando
E-mail	fmartin@uvigo.es
Web	http://https://moovi.uvigo.gal/
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. English Friendly subject, International students may request from the teachers: a) materials and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.

Training and Learning Results

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.

Expected results from this subject

Expected results from this subject	Training and Learning Results	
Analyzing the influence of coding parameters on compression and quality results. Making calculations necessary for the design and installation of TV networks of different types.	B6	C34 C35
Choosing appropriate saving formats for each need. Choosing appropriate equipment to work with such formats.	B5	C34 C35
Choosing the most suitable formats for image and video.	B6	C34 C35
Writing intra-building video distribution projects and monitoring their installation process. Testing and correcting problems in existing systems.	B6	C34 C35
Designing and implementing interactive TV projects.	B6	C34 C35
Applying and analyzing different multimedia systems: videoconferencing, streaming, audiovisual databases, synchronization, metadata processing, multimedia content exchange.	B5	C34 C35

Contents

Topic	
Still image and video formats.	- Still Image: JPEG. - Intra-Frame video formats. - Simple video formats: H.261 & MPEG. - Contemporary video formats. H.26x, MPEG-x. - Video saving: file formats, multimedia containers, magnetic tape formats, optical formats. - 3D formats.
Video distribution.	- Video on the Internet: smartTV and interactive TV, HBBTV, real-time protocols: RTP, RTCP, SRTP, RTSP. - Digital Video Broadcasting (DVB): DVB-S, DVB-T, DVB-C, DVB distribution networks.
Practical content 1.	Practical work based on informatics/programming and about themes from the course. Probably, it will be divided into several exercises.
Practical content 2.	Desing of an intra-building TV network for a real example.

Planning

	Class hours	Hours outside the classroom	Total hours
Lecturing	21	42	63
Practices through ICT	12	9	21
Mentored work	7	49.5	56.5
Objective questions exam	0.5	1.5	2
Report of practices, practicum and external practices	0	6	6
Essay questions exam	1.5	0	1.5

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

Methodologies

	Description
Lecturing	Professor makes presentation of contents, encouraging critical discussion. Algorithm and procedures teoretical basis are exposed. Related competencies: CG5, CG6, CE34, CE35.
Practices through ICT	Small projects are suggested. Work in pairs. Well founded solutuions must be obtained, choosing appropriate methods and coming to a valid solution. Related competencies: CG5, CG6, CE34, CE35. Software to be used: MATLAB, free CAD application.
Mentored work	A project of a different type is proposed. It will be designed to be carried out by a small group. Work takes into account both the technical aspects of the project and the group organization issues. Skills worked: CG5, CG6, CE34, CE35.

Personalized assistance

Methodologies	Description
Lecturing	Query and answer in the classroom and, if necessary, at the office. https://www.uvigo.gal/es/universidad/administracion-personal/pdi/fernando-martin-rodriguez
Practices through ICT	Query and answer in the classroom and, if necessary, at the office (previous appointment). Help via e-mail. https://www.uvigo.gal/es/universidad/administracion-personal/pdi/fernando-martin-rodriguez
Mentored work	Query and answer at the office (with previous appointment). Help via e-mail. https://www.uvigo.gal/es/universidad/administracion-personal/pdi/fernando-martin-rodriguez

Assessment

	Description	Qualification	Training and Learning Results	
Mentored work	These are small projects that are subject to follow-up meetings in C groups. In these meetings the status of the work is analyzed, including the qualification that they would deserve at that time. Improvements will be proposed that can be carried out in non presentrially.	25	B5 B6	C34 C35
Objective questions exam	Multiple choice tests, performed on finishig each theory unit.	10	B5 B6	C34 C35
Report of practices, practicum and external practices	Final version of works carried out in computer lab. sessions (groups B).	25	B5 B6	C34 C35
Essay questions exam	Final written exam in time and place according to school official scheduling.	40	B5 B6	C34 C35

Other comments on the Evaluation

Students can decide if they want only a final exam (global evaluation) or continuous evaluation (according to the procedure described above). The decision can be taken at the time for final exam: students can sign to resign from their continuous evaluation marks. At the time of joining a C group to carry out the supervised work, they must send an e-mail to record their decision to opt for continuous evaluation.

In the extraordinary call, they can again choose between continuous assessment and the final exam, but taking into account that::

- The qualification from test and lab reports is the same of the first call.

- That qualification is only valid within the present academic year.

End of Grade Call: in this exam call, we will proceed as in the case of students that have not fulfilled the continuous assesment process.

In case of detecting any kind of plagiarism in any of the tests (short tests, partial and final exams, lab. reports), the qualification will be FAIL (0) and this fact will be communicated to the school regents for taking the appropriate actions.

Sources of information

Basic Bibliography

Ulrich Reimers, **DVB: the family of international standards for digital video broadcasting**, 2, 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**, 1, Televés, 2004

Complementary Bibliography

Tomás Perales Benito, **Radio y Televisión Digitales: Tecnología de los Sistemas DAB, DVB, IBUC y ATSC**, 1, Creaciones Copyright, 2005

Mark Massel, **Digital Television: Dvb-T Cofdm And Atsc 8-Vsb**, 2, Digitaltvbooks.com, 2008

Walter Fischer, **Digital video and audio broadcasting technology : a practical engineering guide**, 3, Springer, 2010

Iain E. G. Richardson, **H.264 and MPEG-4 video compression : video coding for next generation multimedia**, 1, Wiley, 2003

Recommendations

Subjects that it is recommended to have taken before

Fundamentals of Sound and Image/V05G301V01209
Digital Signal Processing/V05G301V01205