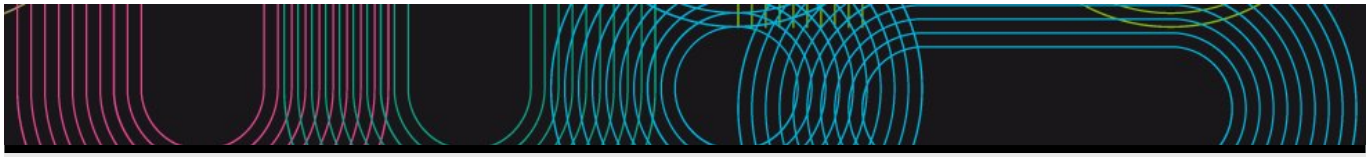

IDENTIFYING DATA				
(*)Xestión e certificación radioeléctricas				
Subject	(*)Xestión e certificación radioeléctricas			
Code	V05G300V01612			
Study programme	(*)Grao en Enxeñaría de Tecnoloxías de Telecomunicación			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	2nd
Teaching language	Spanish			
Department				
Coordinator	García Sánchez, Manuel			
Lecturers	García Sánchez, Manuel			
E-mail	manuel.garciasanchez@uvigo.es			
Web	http://faitic.uvigo.es			
General description	The management of the radioelectric spectrum, understood this like a natural resource, limited and scarce, pursues the most efficient use of the spectrum by means of the application of effective processes, to facilitate the implementation of communication systems and to guarantee minimum interference. To acomplish this objectives, engineering tools, planning, management and technical survey and certification are needed. Besides in this matter study of the SMATV systems and Structured Wiring are included.			

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.
A7	CG7: The ability to analyze and assess the social and environmental impact of technical solutions.
A8	CG8: To know and apply basic elements of economics and human resources management, project organization and planning, as well as the legislation, regulation and standarization in Telecommunications.
A9	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.
A30	CE21/ST1 The ability to construct, exploit and manage telecommunication networks, services, process and applications, considered as systems of receiving, transporting, representation, processing, storage, management and presentation of multimedia information from the point of view of transmission systems.
A34	CE25/ST5 The ability to select transmission antennas, equipment and systems, propagation of guided and non-guided waves, with electromagnetic, radiofrequency and optical media, and their corresponding radio electric spectrum management and frequency designation.

Learning aims	
Expected results from this subject	Training and Learning Results
Know and comprise the mechanisms of exploitation and management of the radioelectric spectrum. Capacity for the management of the radioelectric specrum and allocation of frequencies. Capacity for the design of radioelectrric stations.	A30 A34
Knowledges for the realisation of measures of surveillance of the radioelectric spectrum. Capacity for the certification of radioelecrric stations according to the national rules. Capacity for checkingof the exposition limits to the electromagnetic fields. Knowledge of the laws, regulations and relative norms to the management of the radioelecric spectrum. Capacity of realisation of a work in group and its oral and written presentation.	A5 A6 A7 A8 A9

Contents	
Topic	
Introduction	Introduction to the matter. General concepts.
Spectrum management	National and international regulatory bodies International management and coordination National management The Telecommunications Law National telecommunication Plans CNAF
Spectrum engineering	Specifications of telecommunication equipmnet. Radio wave propagation. Coverage. Interferences. Re-use distance. Techniques to share the spectrum.
Frequency planning	Trellis method List method Other methods Examples
Technical surveillance	The specrrum analyzer The wideband sounder measurement procedures for radioelectric base station certification
SMATV	Introduction Rules Design Examples
Structured wiring.	Introduction Rules Design Examples

Planning			
	Class hours	Hours outside the classroom	Total hours
Laboratory practises	1	2	3
Tutored works	3	45	48
Practice in computer rooms	6	6	12
Outdoor study / field practices	11	11	22
Others	2	25	27
Master Session	19	19	38
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Laboratory practises	Activities of application of the acquired knowledge to particular situations. Acquisition of basic skills related with the matter. Specific measurement equipment as Spectrum Analysers , Field level sounders, etc, will be used.
Tutored works	The student, alone or in a small group with other students, elaborates a report on a given subject. This includes the search of the information, reading, writting, etc
Practice in computer rooms	Activities of application of the acquired knowledge to particular situations. Acquisition of basic skills related with the matter using computer programs.
Outdoor study / field practices	Field activities. Activities of application of the acquired knowledge to particular situations. Acquisition of basic skills related with the matter. Specific measurement equipment as Spectrum Analysers , Field level sounders, etc, will be used.
Others	Written exam on the contents of the matter.
Master Session	Master lecture given by the teacher.

Personalized attention	
Methodologies	**Description**
Master Session	The students will be able to resolve the doubts and questions of these types of teaching during the realisation of the activities, attending to scheduled meetings with the , or by means of email

Laboratory practises	The students will be able to resolve the doubts and questions of these types of teaching during the realisation of the activities, attending to scheduled meetings with the , or by means of email
Tutored works	The students will be able to resolve the doubts and questions of these types of teaching during the realisation of the activities, attending to scheduled meetings with the , or by means of email
Practice in computer rooms	The students will be able to resolve the doubts and questions of these types of teaching during the realisation of the activities, attending to scheduled meetings with the , or by means of email
Outdoor study / field practices	The students will be able to resolve the doubts and questions of these types of teaching during the realisation of the activities, attending to scheduled meetings with the , or by means of email

Assessment

	Description	Qualification
Laboratory practises	Realisation of the practice	5
Tutored works	Realisation of reports and presentations on CTI, Structured Cabling, , etc, that will be presented in class to evaluate the compentencie CG9.3 "Capacity to communicate, so much by writing as of oral form, knowledges, procedures, results and ideas related with the telecommunications and the electronics."	20
Practice in computer rooms	Memory of the practice	5
Outdoor study / field practices	Test at the end of the practice	30
Others	Written exam of the contents of the matter	40

Other comments on the Evaluation

Following the own guidelines of the titulation, two systems of evaluation are offered: continuous evaluation and evaluation at the end of the semester.

· Continuous evaluation. The continuous evaluation will be done on the report of the computer practice and the test of the other prectices. The guided work will also be taken into account, by means of the presentation in class. The last task of the continuous evaluation is a written exam. These tasks are not recoverable and only are valid for the current course.

· Evaluation at the end of the semester. The students that do not opt by continuous evaluation will go through a written exam that will cover the theoretical part (50%) and another written exam of the practical part (50%) in the official date of examination agreed by the School.

The students will have to opt by an of the two options of evaluation before the deadline fo the memory of the first practice. Students should have completed the exercises proposed during the master classes on time if they want to opt by continuous assesment.

· Recovery in July. The students that have opted previously by continuous evaluation will be able to opt between repeating the last proof of the continuous evaluation (written examination) or to be examined again of all the matter by means of written exam that will cover the theoretical part (50%) and another written exam of the practical part (50%). They must communicate the option that they choose before the official date of the examination. The rest of the students will be examined of all the matter by means of a written exam that will cover the theoretical part (50%) and another written exam of the practical part (50%).

Sources of information

Internacional Telecomunication Union, **ITU-R recommendations**,
Internacional Telecomunication Union, **Radiocomunication Rules**,
Internacional Telecomunication Union, **National Spectrum management Manual**, 2005,
Gretel-COIT, **La evolución de la gestión del espectro radioeléctrico**, 2007,

Recommendations

Subjects that it is recommended to have taken before

(*)Técnicas de transmisión e recepción de sinais/V05G300V01404

(*)Transmisión electromagnética/V05G300V01303
(*)Sistemas de comunicacións por radio/V05G300V01512