Course guides  
230810 - REPT - Regulation, Economy and Telecommunication Policy  

Unit in charge: Barcelona School of Telecommunications Engineering  
Teaching unit: 739 - TSC - Department of Signal Theory and Communications.  

Degree:  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Optional subject).  
BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Optional subject).  

Academic year: 2019  
ECTS Credits: 6.0  
Languages: Catalan, English, Spanish  

LECTURER  

Coordinating lecturer: Antoni Elias FustéJofre Roca, Luis  
Others: Antoni Elias FustéJofre Roca, Luis  

PRIOR SKILLS  
no one  

REQUIREMENTS  
no one
improvements to the design. They will take into account economic and social aspects of the project or product.

09 CSCT N1. ABILITY TO CONCEIVE, DESIGN, IMPLEMENT AND OPERATE COMPLEX ICT SYSTEMS. Level 1. To identify the processes involved in the life cycle of a product, process or service and the functions of engineering. To assess the need for a systematic design process. To design and follow a management model of the design process based on a standard. To provide a systemic and integrative headway.

09 CSCT N2. ABILITY TO CONCEIVE, DESIGN, IMPLEMENT AND OPERATE COMPLEX ICT SYSTEMS. Level 2. To identify the user needs and to develop a definition of product, process or service and its initial specifications. To prepare a specification of the design process. To design and follow a management model of the design process based on a standard. To know the steps associated with the phases of design, implementation and operation. To consistently use the knowledge and tools acquired in different subjects in the process of design and implementation. To evaluate and propose improvements to the design. To develop a method of analysis and problem solving in a systematic and creative way.

11 CDIO N3. They will be able to apply a comprehensive view of the entire life cycle (conception, design, implementation and operation) of a product, process or service in the ICC field, and identify users’ needs and develop a set of requirements for the product, process or service and a set of initial specifications. They will be able to explore possible solutions and select the best one. They will be able to carry out a design process following a standardised methodology. They will know how to evaluate and propose improvements to the design. They will take into account economic and social aspects of the project or product.

12 CPE N1. They will be able to identify, formulate and solve engineering problems in the ICC field and will know how to develop a method for analysing and solving problems that is systematic, critical and creative.

12 CPE N2. They will be able to identify, formulate and solve engineering problems in the ICC field and will know how to develop a method for analysing and solving problems that is systematic, critical and creative.

12 CPE N3. They will be able to identify, formulate and solve engineering problems in the ICC field and will know how to develop a method for analysing and solving problems that is systematic, critical and creative.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Generical:
08 CRPE N2. ABILITY TO IDENTIFY, FORMULATE AND SOLVE ENGINEERING PROBLEMS Level 2. To identify, model and pose problems starting from open situations. To explore the alternatives to solve the problem and to choose the best one according to a justified criterion. To know how to make approaches. To propose and implement methods to validate the solutions. To have a complex system vision and of interactions among complex systems components.

09 CSCT N3. ABILITY TO CONCEIVE, DESIGN, IMPLEMENT AND OPERATE COMPLEX ICT SYSTEMS. Level 3. To identify market needs and opportunities. To collect information to prepare specifications for a new product, process or service. To prepare a business plan. To conceive a new product, process or service. To develop and implement planning of a design process. To carry out the various phases of the design process.

11 CDION2. They will be able to apply a comprehensive view of the entire life cycle (conception, design, implementation and operation) of a product, process or service in the ICC field, and identify users’ needs and develop a set of requirements for the product, process or service and a set of initial specifications. They will be able to explore possible solutions and select the best one. They will be able to carry out a design process following a standardised methodology. They will know how to evaluate and propose improvements to the design. They will take into account economic and social aspects of the project or product.
Transversal:
01 EIN N2. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.
06 URI N1. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.
06 URI N2. EFFECTIVE USE OF INFORMATION RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.
06 URI N3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
07 AAT N2. SELF-DIRECTED LEARNING - Level 2: Completing set tasks based on the guidelines set by lecturers. Devoting the time needed to complete each task, including personal contributions and expanding on the recommended information sources.
04 COE N1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
04 COE N2. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
01 EIN. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
04 COE N3. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
02 SCS. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
02 SCS N1. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world¿s situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.
02 SCS N2. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.
05 TEQ. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
01 EIN N1. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.
02 SCS N3. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
05 TEQ N1. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
04 COE. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
05 TEQ N3. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
07 AAT N1. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
07 AAT N3. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.
07 AAT. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.

TEACHING METHODOLOGY

Interactive class: presentation of the teacher with projection of transparencies, and open discussion. Expert Conferences and Videos about certain topics.
LEARNING OBJECTIVES OF THE SUBJECT

Students will achieve the ability to analyze and understand the transversal and strategic role of telecommunications in the current socio-economic environment, as well as the role played in that environment by the Telecommunication Engineer and ICT technological expert, both as a technical professional and a manager of the sector. Students will acquire knowledge of how the sector is structured, how it is created and adds value, the possibilities of ICT technologies, and how legal and administrative tools are managed and applied in different national and supranational contexts: - The potential of the ICT sector, the new services and their socio-economic impact, new jobs and trades, ... - The importance of infrastructures, services, applications and content. - The reasons for the competition, the specific strategies and characteristics of the telecommunications business and the political and economic implications of the plans for the enhancement, development and use of Information and Communication Technologies and Audiovisuals. - Knowledge of legal and administrative procedures, within the EU. - Understanding, in a globalized free market environment, the complexity of the operation of Telecommunication services. - Understanding of the legal and economic vocabulary of the telecommunications business.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Self study</td>
<td>98</td>
<td>65.33</td>
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<tr>
<td>Hours large group</td>
<td>52</td>
<td>34.67</td>
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Total learning time: 150 h

CONTENTS

1. Telecommunications. Situation and prospective.

   **Description:**

   **Specific objectives:**
   Take a general ICT sector look from different points of view: historical, technological, economic and social. View the role of engineering and engineers in social and economic developments. Have a knowledge of the current ICT sector and its future potential. How ICT adds value

   **Full-or-part-time:** 28 h
   Theory classes: 14h 30m
   Self study: 14h 30m
2. The Telecommunication Business.

Description:
- ICT Liberalization, Competition and Regulation developments in the EU and Spain-A market economy. The EU Treaty-The European Union: the EU treaties, Configuration of administrative bodies and institutions.-Telecomunicacions, Electronic Communications, Broadcasting and Information Society in the EU.-The networks, development and prospective.-The Next Generation Networks (NGN).-The Internet of Things (IoT)-The Digital Identity.-The broadband.-The cloud.-ICT sector Business data.-The ICT economic and social impact.

Specific objectives:
- Understanding how the EU is set to an economic sector of telecommunications competition.- Understanding of how ICT technologies and techniques have been developed and deployed to provide a range of services, such as its future evolution. - The presentation of the latest business figures in the ICT sector and its social and economic impact.

Full-or-part-time: 132 h
Theory classes: 120h 50m
Self study : 12h 30m

3. The Audiovisual and Multimedia sector

Description:

Specific objectives:
Understanding of the Audiovisual and Multimedia sector. Distribution systems, content, production behaviours and main business groupsKnowledge of the legal concepts that apply to the content sector. The chain value and the business associated with the contents in their different forms of provision: TV, radio, press.Knowledge of the new contents: music, video games, on-line bets etc., their distribution and provision.

Full-or-part-time: 12 h
Theory classes: 6h
Self study : 6h
4. Regulation

**Description:**
- The EU telecommunications policy.
- Hierarchy of norms and legislation concepts.
- The concept of regulation: origins and foundations.
- The EU regulatory framework, Guidelines and Recommendations.
- The national regulatory authorities NRA.
- The ICT Industry regulation in the EU and the USA.
- The Spain ICT regulation.
- Aspects keys Regulation: Operators with SMP (significant position in the market), Universal Service Guarantee (SU), regulatory bodies, restrictions or limitations, spectrum and numbering management.
- Principles of Competition Law.
- Identification and Market Analysis.
- Regulators the ICT sector in Spain. The former CMT (Telecommunications Market Commission) and current CNMC (National Commission of Market and Competition).
- The national regulatory authorities NRA.
- The ICT Industry regulation in the EU and the USA.
- The Spain ICT regulation.
- Aspectes keys Regulation: Operators with SMP (significant position in the market), Universal Service Guarantee (SU), regulatory bodies, restrictions or limitations, spectrum and numbering management.
- Principles of Competition Law.
- Identification and Market Analysis.
- Regulators the ICT sector in Spain. The former CMT (Telecommunications Market Commission) and current CNMC (National Commission of Market and Competition).

**Specific objectives:**
- Understanding of the concepts underlying legal and economic regulation of markets.
- Acquiring knowledge of Spanish and European regulations that apply to the ICT sector.
- The presentation of the main regulatory instruments could be used in the regulation of ICT.

**Full-or-part-time:** 16 h
Theory classes: 8h 30m
Self study: 8h 30m

5. Spectrum management, mobile telephony.

**Description:**
- Radio Spectrum (RS) Definitions.
- Radio Spectrum International Management Authorities.
- Objectives of the RS management.
- RS managing tools.
- RS Common Uses.
- RS Specific Uses, licenses.
- The national attribution frequencies table (CNAF).
- Mobile Communications and Digital Terrestrial Television (DTT).
- Limitations of the current model of RS management.
- RS Secondary Market.
- The so-called "digital dividend".
- RS uses and health.
- The RS and Broadband regulation policies in the EU.

**Specific objectives:**
To get knowledge about how the radio spectrum is managed, its different types of use, the forms of granting and the new possibilities of use and granting offered by the technology (secondary spectrum market).
To illustrate about the services that require the use of the radio spectrum, the advantages of mobility against the available bandwidth.
Presentation of the whole thematic on mobile telephony and health, state of the matter.

**Full-or-part-time:** 8 h
Theory classes: 4h
Self study: 4h
6. The Universal Telecommunication Service

Description:
- European Directives on the Universal Service of Telecommunications and Users' Rights.
- Legal and economic foundations of the Universal Service concept. Origins and principles of the US.
- The universal voice and data service.
- Methodology for calculating the cost of the US.
- Evaluation of intangibles, effects on competition.
- European Comparison of Universal Service.
- The role of the Regulator in the US.
- Proposal of a new US model.

Specific objectives:
To understand, in basis on the users rights, the existence reasons for an universal telecommunications service.
The European Directives supporting the Universal Telecommunications Service.
The presentation of new models of the US, Which allow their provision in competition.
The generalization of the concept of the US to other economic sectors.

Full-or-part-time: 4 h
Theory classes: 2h
Self study: 2h

GRADING SYSTEM
The evaluation is done by combining 50% of the presentation, in class, of a teamwork (max 4 students) on a current topic, for which documentation is provided to the team, and individual participation in class discussions.

BIBLIOGRAPHY
Basic:

Complementary:
- Informes i estudis de: OCDE, OFTEL, CISCO, ACCENTURE, IBM, ADTEL, TELEFÓNICA, VODAFONE, ORANGE, DELOITTE, PWC, Etc...
- Informes i memòries anyals de la CMT, CNMC, INI i ONTSI.

RESOURCES
Audiovisual material:
- Ordenador, proyector y pantalla. Computer, projector and screen