

## 230009 - ENTIC - Introduction to Ict Engineering

Coordinating unit:	230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit:	710 - EEL - Department of Electronic Engineering 732 - OE - Department of Management 744 - ENTEL - Department of Network Engineering 739 - TSC - Department of Signal Theory and Communications
Academic year:	2019
Degree:	BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN TELECOMMUNICATIONS SCIENCE AND TECHNOLOGY (Syllabus 2010). (Teaching unit Compulsory) BACHELOR'S DEGREE IN ELECTRONIC SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN AUDIOVISUAL SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Compulsory) BACHELOR'S DEGREE IN TELECOMMUNICATIONS TECHNOLOGIES AND SERVICES ENGINEERING (Syllabus 2015). (Teaching unit Compulsory)
ECTS credits:	6
Teaching languages:	Catalan, Spanish

### Teaching staff

Coordinator:	Ferran Silva
Others:	Esteve Pallarés Joan Pons Olga Pons Marc Pous Francesc Rocadenbosch Joan Sarda Ferran Silva Ma.José Soneira

### Degree competences to which the subject contributes

#### Generical:

1. 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 identify and perform the steps of a product design specification document (PDS). To complete and improve planning and specification documents. To apply a systematic design process in the stages of implementation and operation. To prepare progress reports of a design process. To handle support tools for project management. To prepare a final report for a simple design process. To understand the basic economic aspects associated with the product, process or service that is being designed.

11 CDION1. 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:

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2. 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.

3. 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.

### Teaching methodology

activity for  
Application class  
lectures  
Group work (learning)  
Individual (learning)  
exercises  
oral presentation  
Short answer tests (control)

### Learning objectives of the subject

- Introduce economic aspects of the processes of production and marketing of products and services in the ICT field
- Introduce and motivate students to study engineering
- Expose them to the design and construction of systems
- Introduce them to the project methodology
- Provide experiences that help to consolidate or prior knowledge of the subjects taught in parallel and relate them to the economic

### Learning outcomes:

Properly known concept of enterprise, and acquired basic knowledge about their institutional and legal framework. Acquired basic knowledge about business organizations and knows the tools to do basic calculations associated costs of products and services processes and profitability.

Recognizes the ethical, social and environmental engineering professional activity in the field of ICT.

Plans and conducts an oral presentation respond appropriately to the questions formulated and drafted properly basic texts.

Identify the goals of the group and can draw a work plan for achieving them. Identifies the responsibilities of each group member and committed to the task assigned.

Apply a systematic design process phases of implementation and operation. Prepares progress reports and final. Learn about the basic economic aspects related to the product-process-service is being designed.

### Study load

Total learning time: 150h	Hours large group:	26h	17.33%
	Hours small group:	39h	26.00%
	Self study:	85h	56.67%

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### Content

<p>Concepts of project management, business and economics</p>	<p>Learning time: 60h Theory classes: 26h Self study : 34h</p>
<p>Description: Introduction to project management methodology. Definition and types. Methodologies to manage the project. Document management. Planning time. Management of teamwork.</p> <p>Business Models and Business IT. Types of ICT products and services. Case studies.</p> <p>Costing of products and / or serveis. Tipologia costs. Conventional systems costs: direct costs and full costs. Practical case.</p> <p>Investment analysis. Characteristics of an investment. The value of money over time. Static and dynamic methods for analyzing profitability. Practical case.</p> <p>Oral and Written Communication: Basic knowledge of communication, both oral and written. Importance of communication at personal, interpersonal and organizational. After the conclusion of the course, the student is able to communicate effectively both orally and in writing at 1 the competition</p> <p>Commitment to society: Basic knowledge of social commitment in the field of engineering ICT democratic values and equal opportunities for women and men. We present regulations regional, national and European.</p>	
<p>(ENG) Projecte.</p>	<p>Learning time: 90h Laboratory classes: 39h Self study : 51h</p>
<p>Description: Design and partial implementation of a complex system that includes various ICT systems through a project partially guided in small groups (4).</p> <p>Related activities: Implementation of the electromechanical system that is platform project (underwater vehicle, robot ...) Design partial measurement systems (sensor signal conditioning, acquisition), transmission of information (physical signals, basic protocols) and processing and analyzing the collected information (calibration graph) Assignment (resource planning and time) and project documentation (specifications, plan, progress reports, final report)</p> <p>Specific objectives: Implement the concepts worked and seminars on the topics of the course, reinforcing specific skills from previous courses and acquire parallel the learning outcomes expected for generic skills. I mainly worked on concepts (implementation) and O (operate) with an introduction to the design (D).</p>	

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### Qualification system

To obtain a qualification > 5

- Your team must successfully fulfil the Part A LAB\_PROJECT.
- You must do all the individual tasks.

The qualification will be distributed in this way:

#### LAB PROJECT TRACK

- Part A Lab-Project (team task) 20%
- Part B Lab-Project (team task) 30 %
- Mid Term Exam (individual task) 10 %

#### PROJECT MANAGEMENT TRACK

- Business Case Report (team task) 20 %
- Business Case Presentation (individual task) 10 %
- Mid Term Exam (individual task) 10 %

### Bibliography

Basic:

Ulrich, K.T.; Eppinger, S.D.; Yang, M.C. Product design and development. 7th ed. New York, NY: McGraw-Hill Education, 2019. ISBN 9781260566437.