



## Course guides

### 230016 - PBE - Basic Engineering Project

**Last modified:** 29/04/2020

**Unit in charge:** Barcelona School of Telecommunications Engineering  
**Teaching unit:** 710 - EEL - Department of Electronic Engineering.

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

**Academic year:** 2020    **ECTS Credits:** 6.0    **Languages:** Catalan

#### LECTURER

---

**Coordinating lecturer:** Ramon Bragós Bardia

**Others:** Oliveras Verges, Albert  
Pegueroles Valles, Josep Rafael  
Camps Carmona, Adriano  
Rocadenbosch, Francesc  
Bermejo, Sergio  
García Hernández, Miguel  
Torres Urgell, Lluís  
Rodríguez Fonollosa, José Adrián  
Bragós Bardia, Ramon  
Duffo, Núria  
Fàbregas, Francesc  
Torres, Francesc  
Vall-Ilosera, Mercè

#### PRIOR SKILLS

---

Students must have passed at least three courses of the semester 2A, we recommend that are the most related to the degree in which the student has enrolled.

#### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

---

**Generical:**

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:**

1. 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.
5. 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.

**TEACHING METHODOLOGY**

---

Directed activity  
Lecture  
Teamwork  
Other activities  
Oral presentation  
Short answer test

**LEARNING OBJECTIVES OF THE SUBJECT**

---

The course aims to achieve a double impact:

- 1 - Consolidation and expansion of the learning outcomes of the previous or parallel courses.
  - 2 - Acquisition of the learning outcomes of the listed generic skills, particularly the 3 that are specifically evaluated.
- The regulated projects part has the specific purpose of providing basic skills to perform projects within the formal exercise of the profession.

Learning outcomes:

- Is able to conceive, develop, organize and manage networks, systems, services and telecommunications infrastructures in residential settings (home, city and digital communities), business and institutions, taking responsibility in their development and continuous improvement, and to know their economic and social impact.
- Is able to acquire new knowledge and techniques for the design, development or operation of telecommunications systems and services.
- Understands and manages computing and communications applications (office applications, databases, advanced computing, project management, visualization, etc..) to support the development and operation of networks, services and applications in telecommunications and electronics.
- Knows how to use search tools and bibliographic information related to telecommunications and electronics.
- Knows the rules and regulations of telecommunications in national, european and international level.
- Has acquired basic knowledge about organizations and knows the tools and techniques for managing and generating ideas.
- Takes initiatives that create new opportunities and solutions with vision of implementation, process and market.
- Recognizes the ethical, social and environmental implications of the engineering professional activity in the ICT field.
- Applies sustainability criteria and ethic codes of the profession in designing and evaluating technology solutions. Identifies the need for legislation, regulations and standards.
- Plans and conducts an oral presentation, respond appropriately to the questions formulated and writes correctly basic texts.
- Uses strategies to prepare and carry out oral presentations and writes texts and documents with a consistent content, structure and style, with an appropriate level and good spelling and grammar.
- Applies systematic design process in the implementation and operation phases. Prepares progress and final reports. Knows the basic economic aspects related to the product-process-service that is being designed.
- Identifies user needs and develops a definition of product-process-service and its initial specifications. Follows the process management model based on a standard design. Evaluates the application of laws and regulations which apply.

**STUDY LOAD**

---

Type	Hours	Percentage
Self study	85,0	56.67
Hours large group	26,0	17.33
Hours small group	39,0	26.00

**Total learning time:** 150 h



## CONTENTS

### Sessions

**Description:**

Deployment and management of networks, systems, services and telecommunications infrastructure. Regulations.

**Related activities:**

- Lectures
- Labs

**Full-or-part-time:** 46h

Theory classes: 26h

Self study : 20h

### Seminars

**Description:**

Advanced information gathering

Contents related to the specific project

**Related activities:**

- Lectures
- Practical activities
- Cooperative activities

**Full-or-part-time:** 14h

Guided activities: 4h

Self study : 10h

### Project

**Description:**

Project of intermediate technical complexity, conducted in groups of 4-6 people.

The start point is the definition of a product or service common to all grades. It is broken down to subsystems. All students should be aware of the block structure of the whole system, the specifications of the system and of the interfaces between blocks.

In laboratory sessions, students are grouped by degrees, so that each laboratory group carries out the design and implementation of one of the subsystems, the closest to the subject of the degree in which each student enrolled.

**Specific objectives:**

- Acquisition of skills in management and project documentation
- Acquisition of practical skills in the design of ICT products and services
- Learning specific content related to the topic of the project

**Related activities:**

- Cooperative learning sessions on topics specific to the project
- Design, implementation, characterization and evaluation of a subsystem from its specifications

**Full-or-part-time:** 89h

Guided activities: 35h

Self study : 54h



## GRADING SYSTEM

---

- Regulated Projects (1/3)
- 20% lab
- 80% final test
- Design-Build Project (2/3)
- 10% of individual contribution to cooperative activities
- 30% of tests (half term and final test). Knowledge about the specific project
- 60% of group project (planning and accomplishment of the work plan milestones and tollgates. Achievement of the specifications. Project documentation)

This course will assess the following generic skills:

- Entrepreneurship and innovation (Intermediate Level)
- Effective oral and written communication (Intermediate Level)
- Ability to conceive, design, implement and operate complex systems in the ICT context (Intermediate Level)

## EXAMINATION RULES.

---

The non-delivery or late delivery of the individual assignments that can affect the achievement of cooperative activities and of the whole project will penalize the individual note