

## 25823 - Undergraduate Dissertation

### Información del Plan Docente

<b>Academic Year</b>	2016/17
<b>Academic center</b>	110 - Escuela de Ingeniería y Arquitectura
<b>Degree</b>	271 - Bachelor's Degree in Industrial Design and Product Development Engineering
<b>ECTS</b>	30.0
<b>Course</b>	4
<b>Period</b>	Second Four-month period
<b>Subject Type</b>	End of Grade Dissertation
<b>Module</b>	---

### 1. Basic info

#### 1.1. Recommendations to take this course

The student should have completed and satisfied all other subjects of the degree , in any case must meet the requirements set out in the rules for the Final Project Degree of the School of Engineering and Architecture EINA - University of Zaragoza .

#### 1.2. Activities and key dates for the course

Dates and schedules will be agreed with the Director of the project, but in any case should take into account the deadlines for the final project contained in the " Rule of Permanence and Policy Evaluation" at the University of Zaragoza , and deadlines and dates set for submission and defense of the final project at EINA .

Information, TFG offers , dates, rules and documentation can be found at:

<https://eina.unizar.es/trabajos-fin-de-estudios/>

### 2. Initiation

#### 2.1. Learning outcomes that define the subject

The student, for passing this subject, should demonstrate the following results ...

- That is able to develop, present and defend individually an original exercise of professional nature in the field of Engineering Design and Product Development as a demonstration and synthesis of skills acquired.
- Can apply the skills acquired to perform a task autonomously. Identifies the need for continuous learning and develops its own strategy to carry it out.
- That is able to plan and use the information required for a project or academic work from a critical reflection on the information resources used.
- It is able to use the techniques, skills and tools Engineering Design and Product Development necessary to practice it.
- Communicates clearly and efficiently in oral and written presentations on complex subjects, adapting to the situation, the type of audience and communication objectives.

#### 2.2. Introduction

##### Brief presentation of the subject

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The final project is the final subject of the degree , where the student tests the knowledge and skills acquired throughout the degree, so that it can demonstrate that its working capacity is at the level required for incorporation into the labor market.

### 3.Context and competences

#### 3.1.Goals

**The subject and its expected results meet the following approaches and objectives:**

The main objective of the degree is to provide students with the skills necessary for insertion into the labor market. By the Final Project the student will test all the knowledge acquired in previous courses and subjects , and acquire the experience and confidence necessary to move to real professional environment.

The development of projects in collaboration with companies are promoted , so that the experience gained through the development of Final project as realistic as possible be encouraged university practices .

#### 3.2.Context and meaning of the subject in the degree

This is the last subject of the degree ; overcoming it will credit for obtaining Graduate in Industrial Design Engineering and Product Development .

#### 3.3.Competences

##### BASIC COMPETENCES

CB01. Students have demonstrated knowledge and understanding in a field of study that is part of the general secondary education curricular, and is typically at a level which, although it is supported by advanced textbooks, includes some aspects that involve knowledge of the forefront of their field of study.

CB02. Students can apply their knowledge to their work or vocation in a professional manner and have competences typically demonstrated through devising and defending arguments and solving problems within their field of study.

CB03. Students have the ability to gather and interpret relevant data (usually within their field of study) to inform judgments that include an important reflection on social, scientific or ethical issues.

CB04. Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.

CB05. Students have developed those skills needed to undertake further studies with a high degree of autonomy.

##### GENERAL COMPETENCES

GC01. Able to acquire basic knowledge of the profession of industrial design, to combine that generalist knowledge and expertise with those who generate innovative and competitive proposals.

GC02. Ability to analyze and assess social and environmental impact of technical solutions, acting with ethics, professional responsibility and social commitment.

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GC03. Ability to design and develop design projects in aspects related to the nature of products and services, their relevance to the market, usage environments and user, and based on their manufacture, the selection of materials and processes most appropriate in each case considering relevant aspects such as quality and product improvement.

GC04. Ability to organize time effectively and coordinate activities to acquire new knowledge quickly and perform under pressure.

GC05. Capacity to collect, manage, analyze and synthesize information from various sources for the development of design projects and product development. Capacity to use this documentation to obtain conclusions aimed at solving problems and making decisions with initiative, creativity and critical thinking, in order to generate new product concepts, new ideas and solutions.

GC06. Ability to generate the necessary documentation for the proper transmission of ideas through graphics, reports and technical documents, models and prototypes, oral presentations in Spanish and other languages.

GC07. Ability to use and master techniques, skills, tools and techniques and communication and others specific of design engineering needed for design practice.

GC08. Ability to learn continuously, to develop autonomous learning strategies and to work in multidisciplinary groups with motivation and determination to achieve goals.

GC09. Knowing the industries, organizations, regulations and procedures and other elements to be considered in industrial design projects.

GC10. Ability to plan, budget, organize, direct and control tasks, people and resources.

### SPECIFIC COMPETENCES for the FINAL PROJECT

SC27. An original piece of work to be done individually and to be presented and defended in front of a university assessor panel. The work will consist of a project in the field of specific technologies in Engineering in Industrial Design and Product Development, of professional nature in which the student must synthesize and integrate the skills acquired along the learning process.

### 3.4.Importance of learning outcomes

The results for this subject are of high importance and relevance, the final project must show the results of the overall degree.

### 4.Evaluation

**The student must demonstrate that it has achieved the intended learning outcomes through the following evaluation activities**

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The student must develop a project in accordance with the standards and requirements established by the School of Engineering and Architecture that will be presented and defended in front of a university assessor panel.

The evaluation of the TFG / TFM will be based on the following aspects :

- The quality and depth of the work itself , according to the scope and objectives outlined in the proposal accepted by de Academic Board and considering the expected workload .
- The assessment made by the director or co-directors .
- Public presentation of work .

### 5.Activities and resources

#### 5.1.General methodological presentation

**The learning process that is designed for this subject is based on the following:**

The student must agree with the Director the training activities, depending on the proposed theme and scope of the project.

There are different options:

- The student must undertake the development of a project of industrial design and product development whose complexity and level of demand involves an estimated total workload equivalent to 30 ECTS credits.
- The student must undertake the development of a project of industrial design and product development whose complexity and level of demand involves an estimated total workload equivalent to a minimum of 18 ECTS credits; other receivable amounts (up to 12 ECTS credits, would be complemented by electives subjects not previously studied and directly related to the project).
- The student must undertake the development of a project of industrial design and product development whose complexity and level of demand involves an estimated total workload equivalent to a minimum of 18 ECTS credits; other receivable amounts (up to 12 ECTS credits in total degree), be supplemented by work experience directly related to the project, computable according to a value of 1 ECTS credit every 25 hours of practice. It is essential to prove the successful completion of the internship at the time of the defense of the project

#### 5.2.Learning activities

Learning activities must be agreed in any case with the director of the project.

The project represents 30 ECTS , equivalent to 750 hours of student work .

#### 5.3.Program

The program and the stages of the project will be agreed with the director of the project.

#### 5.4.Planning and scheduling

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The planning and schedule of the project will be agreed with the director of the project, and it may depend on the type of project, that can be:

- specific academic work.
- specific laboratory work.
- specific work done as a result of practices in companies or institutions.

### **5.5. Bibliography and recommended resources**

Several examples of Final Projects can be found at:

<http://zaguan.unizar.es/?ln=en>