

# 25882 - Design Workshop IV: Product Development

## Syllabus Information

**Academic Year:** 2019/20

**Subject:** 25882 - Design Workshop IV: Product Development

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 558 - Bachelor's Degree in Industrial Design and Product Development Engineering

**ECTS:** 6.0

**Year:** 3

**Semester:** First semester

**Subject Type:** Compulsory

**Module:** ---

## 1.General information

### 1.1.Aims of the course

### 1.2.Context and importance of this course in the degree

### 1.3.Recommendations to take this course

## 2.Learning goals

### 2.1.Competences

### 2.2.Learning goals

### 2.3.Importance of learning goals

## 3.Assessment (1st and 2nd call)

### 3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

## 4.Methodology, learning tasks, syllabus and resources

### 4.1.Methodological overview

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

In the subject involved professors of the Area of ??Graphic Expression with a teaching load of 4 credits, and the Area of ??Manufacturing Processes, with a teaching load of 2 credits respectively.

Through the realization of a practical project in a more realistic environment, students can progressively acquire the experience in the development of projects necessary to incorporate in the future of the labor market. The theoretical classes provide the necessary knowledge for adequate progress in the development of the project.

This subject is related, as has been said, to the subjects of previous courses Design Workshop I: Fundamentals and Product Communication, Design Workshop II: Methods and Design Process and Workshop III: Creativity, having continuity in the subjects of Workshop of Design V: Product and Service and Workshop VI: Professional Practice; being able to exist points of link and continuation with Processes of Manufacture, Resistance of Materials, Design Assisted by Computer II and Ergonomics.

### 4.2.Learning tasks

The program offered to the student to help him achieve the expected results includes the following activities

The course will consist of the development in groups of a practical project (30 hours), which will be tutored in the classes and where various practical activities will also be included.

The course will have 30 theoretical classes, which will include the presentation of contents with presentations and examples, and which will allow the learning of definitions, concepts, and diverse work methodologies and theoretical approaches to the discipline.

Students will develop the project with a degree of autonomy greater than that developed so far in the previous subjects and also with a higher level of responsibility. It is intended that the project consists of a real approach made by an industrial company. The work to be developed for this, between the development of the practical and theoretical study, will be around 90 hours.

6 ECTS credits: 150 hours / student

30 h. of lectures, theory, and problems (15 sessions of 2 hours)

30 h. of practical class (15 sessions of 2 hours)

20 h. of theoretical study (on behalf of the student)

65 h. of practical work (on behalf of the student)

5 h. of examination and presentation of the project

### 4.3.Syllabus

The course will address the following topics:

- 1. The importance of technical development in the design process.
- 2. Realization of technical monographs as a tool for analyzing and identifying opportunities in product design.
- 3. Design for production.
- 4. Design for assembly.
- 5. Deepening in the Functional Analysis Technique.
- 6. Deepening the drafting of specifications of product design (EDPs).
- 7. Patents, utility models and other industrial registers.
- 8. Concept of the product portfolio.

### 4.4.Course planning and calendar

The subject consists of a series of theoretical classes, where the theoretical knowledge related to the work methodology related to product development, explanation of design criteria associated with materials and manufacturing processes, explanation of work techniques, terminology are provided, etc., and a series of practical classes, some of which are of work and others of presentation and evaluation of results.

The subject, of a practical and projective nature, has a workload uniformly distributed throughout the semester. Each course is published the schedules and the start and end dates of the subject and the specific hours of delivery, which can be found on the EINA website: <https://eina.unizar.es/>.

Content of face-to-face sessions and work presentation calendar:

The theoretical content program is as follows:

1. Functional analysis Technique
2. QFD Tool (Quality Function Deployment)
3. Product Design Specifications
4. Graphic documentation in Product Engineering: Technical monograph
5. Design criteria for sheet metal processing
6. Design criteria in the processing of plastics and composites
7. Design criteria for additive manufacturing (3D printing)
8. Manufacturing processes associated with design: Selection and Application of Materials
9. Manufacturing processes associated with design: Selection and Application of Processes
10. Manufacturing processes associated with design: Assembly
11. Homologation, verification, certification of industrial products
12. Patents, utility models and industrial designs

The calendar of practical classes for the realization of the project is the following:

Exercise	Week
Subject Project	1st the 15th

### 4.5.Bibliography and recommended resources