

Academic Year/course: 2021/22

## 25871 - Design Workshop I: Foundations and Product Communication

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 25871 - Design Workshop I: Foundations and Product Communication

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

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

**ECTS:** 6.0

**Year:** 1

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

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

The overall objective of the degree is to provide students with skills that allow them to address the management of knowledge and to get the design skills, necessary for planning and developing the entire manufacturing process and life of a product .

In this sense, the subject is part of the group that aims the implementation and development of these skills to be acquired by the student, through experimentation.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDGs, of the 2030 Agenda (<https://www.un.org/sustainabledevelopment/en/>) and certain specific goals, in such a way that the acquisition of the Learning outcomes of the subject provide training and competence to the student to contribute to a certain extent to their achievement:

? Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 8.2. Achieve higher levels of economic productivity through diversification, technological modernization and innovation, inter alia by focusing on sectors with high added value and intensive use of labor

? Goal 12: Guarantee sustainable consumption and production patterns

Goal 12.2. By 2030, achieve sustainable management and efficient use of natural resources

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

Within this approach, the objective of the course is to get the students start working on product development, implementing methodological bases, that gradually will be enriched throughout the entire study plan, acquiring habits and behaviors that will be applied at work from this time, continuously.

More specifically, it is intended that at the end of this course students will be able to make approaches to product that are conceptually appropriate, and formally well focused, within a methodologically conscious and controlled process, regardless that their technical development can not be complete, since that capacity will be acquired in later courses.

### 1.3. Recommendations to take this course

In order to study this subject with the greatest chance of success, it is very convenient to have surpassed all subjects in the 1st. quarter. It is recommended to attend this course together with the other subjects of the 2nd semester, since the knowledge acquired in these subjects will apply in this subject. Thus, as an example, knowledge of Aesthetics and History of Design, Mathematics and Physics apply to tasks of analysis and product development, while knowledge of Artistic Expression, Graphic Expression and Materials is applied directly to different conceptual phases of the project . Computer knowledge gained constitutes a tool for application at different times of the subject.

## 2. Learning goals

### 2.1. 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.

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.

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

## SPECIFIC COMPETENCES

SC11. Ability to analyze industrial design in its technological, aesthetic, historical, and cultural context, managing literature and visual sources and employing the specific technical vocabulary of industrial design and product development.

SC12. Ability to perform a generic approach of a design process, to structure it in stages, apply a methodology and select the design strategy.

SC15. Ability to develop product concepts in relation to a set of services, benefits, and intangible values, understanding the importance of design services.

In this sense, it can be said that the subject provides basic knowledge for the exercise of the profession, and helps to develop the ability to learn, organize and plan, to manage information, generate new ideas, solve problems through decision-making, get communication skills and fostering responsibility and motivation for the work itself.

## 2.2. Learning goals

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

1. Ability to analyze an existing product from a global point of view of its design qualities.
2. Ability to propose a concept of innovative product aimed at a user profile and usage environment, and able to communicate the appropriate messages to that profile and environment.

The student, for passing this subject, must demonstrate that he/she is able to apply some essential aspects of the formal development of a product in the environment of an industrial design project, developing the communicative capacity of the product. It must be able to perform a generic approach to a design process, structuring it into phases and applying a methodology. He/she must prove that has assimilated basic knowledge and terminology of industrial design through its application to the development of the project, and its discussion and presentation. He/She should be able to perform, at a basic level, critical analysis of product that will produce conclusions aimed at generating conceptual alternatives of product and to make proposals for its possible industrialization, within the context of a project methodology, and applying the fundamentals acquired in the other subjects of the course. He/She should be able to present at a basic level a design project, selecting the means of representation and optimal models.

## 2.3. Importance of learning goals

Having a methodology solid and proven is a basic starting point that provides security for professional industrial design as it helps to plan the work, directing efforts adequately to the achievement of predetermined targets and maintain control of all the process.

On the other hand, work and control of the communicative capacity of objects through its forms is essential for the success of the product in the market: the product must be able to indicate what it is, what it does, how it is used, what are their complementary values, etc., to its user so that it can obtain the expected benefits through use.

This also constitutes the starting point for working later aspects as brand image or perception of the product and to

understand the importance of proper development of the relationship function / form in which all the work of Industrial Design and Development Product is based.

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

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

For assessing the results achieved within this subject various practical exercises are taken into account together with theoretical examination, within a context of continuous assessment:

##### Evaluation of the practical part:

Briefings for practical works will be provided in class prior to their starting. In each one will be included precisely the specific evaluation criteria for each project, which relate to the skills worked in each case, including aspects such as the depth and precision of analysis tasks, the ability to develop conceptual alternatives, or overall quality of the media and documentation provided in the presentation of projects.

For the evaluation of the practical part, the students develop, along the course, different projects, whose content, workload, linking to learning objectives and evaluation value is stated in the following table:

<b>Exercise</b>	<b>Week</b>	<b>Dedication</b>	<b>Value</b>	<b>Competences</b>
Analysis of existing objects.	1 y 2	3 y ? h.	5 %	CG 1, 4-8, 10, CB 1-5, CE11
Creating shapes and resistant structures with simple materials.	3 y 4	7 h.	5 %	CG 1, 4-8, 10, CB 1-5,
Construction of forms from point, line, plane (the latter in 3D).	5 y 6	9 h.	5 %	CG 1, 4-8, 10, CB 1-5,
Study of form by panels of influences technique: sketching forms and modelling them in polystyrene or PVC foam	7 y 8	12 h.	25 %	CG 1, 4-8, 10, CB 1-5, CE11, CE15
Designing a simple product	9, 10, 11	35 h.	50 %	CG 1, 4-8, 10, CG3, CB 1-5, CE11, CE12, CE15
Analysis of existing objects II.	12, 13	3 y ? h.	10 %	CG 1, 4-8, 10, CB 1-5, CE11

##### Evaluation of the theoretical part:

For the evaluation of the theoretical part, at the end of the course, a theoretical examination is done on the official date of examination session, where knowledge of aspects such as terminology, definitions, or basic concepts of industrial design is checked, as reflected in the program, and on CB01 and CB04 competences.

The result of the practices accounts for 80% of the grade for the course, while the result of the theoretical exam accounts for the remaining 20%.

HOWEVER, TO PASS THE SUBJECT IT IS NECESSARY TO PASS THE TWO PARTIES REGARDLESS.

##### IMPORTANT NOTES:

- In case of suspending one of the two parts (theory or practice), the approved part (theory or practice) will be kept within the same academic year so that the student will only examine the unsurpassed part (theory or practice) in the next call in the same academic year. However, if the subject is finally not passed, and the student must attend it again in another academic year, must be re-examined necessarily of the complete subject (theory + practice).

- Students who prefer not to opt for continuous assessment, should carry out a similar theoretical examination referred to above, together with one or more practical projects defined specifically for this type of evaluation.

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

#### 4.1. Methodological overview

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

The learning process is based on the realization of a number of basic projects, which are slowly gaining in complexity, size and level of demand, while, in a series of lectures, teachers will provide the knowledge necessary to develop such works. The aim is to establish a workshop of practical work, which as far as possible simulates working in a technical office product development.

## 4.2. Learning tasks

The course includes the following learning tasks:

The course includes a series of lectures and practical sessions.

The theoretical sessions consist of the development, by exposure by the teacher to the entire group, of the program of the subject. Students attend them, take notes and then do self-study.

The practical sessions are organized in smaller groups of numbers of students and essentially comprise two activities: the development work itself, and presentation.

To this end, students will receive the briefings of the various projects, where the partial objectives of each are indicated, together with specific indications on the work process and evaluation criteria. Students work on their own project development, and at classroom practice the working methods, partial results, and, in short, the evolution of this work are discussed. Reached the relevant time, students present their results through verbal defenses to the rest of the class.

The distribution of the resulting workload is as follows:

Total teaching load of the subject 6 ECTS: 150 hours for the student of which:

- 30 h. theoretical class (15 classes 2h.)
- 30 h. Practice class (15 sessions of 2 hours.)
- 15 h. theoretical autonomous study (the student)
- 70 h. practical autonomous work (by the student)
- 5 h. examination and presentation of projects

## 4.3. Syllabus

The course will address the following topics:

I: Fundamentals and Product Communication are:

- 1. The design as a professional activity.
- 2. Professional Terminology.
- 3. The product as a pragmatic/syntactic/ semantic structure.
- 4. Introduction to the global analysis of aspects related to the product.
- 5. Formal Product Development.
- 6. The product as a communication medium.

## 4.4. Course planning and calendar

### Schedule sessions and presentation of works

The schedule of lectures is as follows:

1. Overview.
2. What is Design ?.
3. Design methodologies.
4. Pragmatic / Syntactic / Semantic structure.
5. Analysis of cases.
6. Study form: Working with panels influences.
7. Tools: 2D rendering techniques.
8. Tools: 3D rendering techniques.
9. Approaches to the product: The market, manufacture, the user, the use environment, the function ... (I)
10. Approaches to the product: The market, manufacture, the user, the use environment, the function ... (II)
11. Basic elements of the form: Point, Line, Planes. Colour. Textures, others.
12. The design as a communication system. Roles of the object. The kitch, the collection ...
13. The importance of form. Gestalt formulations.
14. Analysis of cases.
15. Analysis of cases.

The project schedule is as follows:

<b>Exercise</b>	<b>Week (aprox)</b>
Analysis of existing objects	1 y 2
Creating shapes and resistant structures with simple materials.	3 y 4
Construction of forms from point, line, plane (the latter in 3D).	5 y 6
Study of form by panels of influences technique: sketching forms and modelling them in polystyrene or PVC foam	7 y 8

Designing a simple product.	9, 10, 11
Analysis of existing objects II..	12, 13

The course consists of a series of lectures, to provide the theoretical knowledge concerning methodology, explanation of working processes, terminology, etc., and a number of practical classes, some of which are working in projects and other consists of presentation and evaluation of results. The moment of greatest dedication coincides with the completion of the main project of the subject, around week 10.

Each year schedules and start dates and completion of the course and specific hours of instruction are detailed, which can be found on the website of the EINA when published:

<https://eina.unizar.es/>