

Academic Year/course: 2022/23

25887 - Design Workshop V: Product and Service

Syllabus Information

Academic Year: 2022/23

Subject: 25887 - Design Workshop V: Product and Service

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: Second semester

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

The bulk of the course will consist of the development of practical projects, which will be tutored in practical group work classes by professors from the Graphic Expression Area of the Department of Design and Manufacturing Engineering. The objective is to place special emphasis on the conceptualization and definition of products as a Service System, and on the practice of tools specially dedicated to the formulation of these concepts, the dematerialization of products and the development of service products.

Students will develop these projects with a greater degree of autonomy than in the previous subjects and also with a greater degree of responsibility. It is intended that as much as possible of the the projects consist of actual approaches made by different industrial companies.

The course will have a series of theoretical classes, which will include the exhibition of contents with presentations and examples, and that will allow the learning of definitions, concepts, and diverse work methodologies and approaches. Theoreticians in the discipline will also include various practical contents based on the analysis of cases.

These approaches and objectives are aligned with some of the Sustainable Development Goals, ODS, of Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific goals, so that the acquisition of the learning outcomes of the subject provides training and competence to the student to contribute to some extent to their achievement:

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

- Target 8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including a focus on high value-added and labour-intensive sectors
- Target 8.4. Progressively improve by 2030 the efficiency of production and consumption of global resources and aim at decoupling economic growth from environmental degradation, in line with the Ten-Year Framework of Programmes on Sustainable Consumption and Production Patterns, starting with developed countries

Objective 9: Industry, innovation and infrastructure.

- Target 9.4 By 2030, modernize infrastructure and restructure industries to be sustainable by making more efficient use of resources and promoting the adoption of clean and environmentally sound industrial technologies and processes, with all countries taking action in accordance with their respective capabilities.

Goal 13: Take urgent action to combat climate change and its impacts.

- Target 13.3 Improve education, awareness, human and institutional capacity for climate change mitigation, adaptation, mitigation and early warning

Goal 12: Ensure sustainable consumption and production patterns

- Target 12.2 By 2030, achieve sustainable management and efficient use of natural resources
- Target 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with internationally agreed frameworks, and significantly reduce their release to air, water

and land in order to minimize adverse effects on human health and the environment.

- Target 12.5 By 2030, significantly reduce waste generation through prevention, reduction, recycling and reuse

Goal 16: Promote just, peaceful and inclusive societies

- Target 16.7 Ensure inclusive, participatory and representative decision-making at all levels that is responsive to needs

Goal 17: Revitalize the Global Partnership for Sustainable Development

- Target 17.17 Develop and promote effective partnerships in the public, public-private and civil society spheres, building on partnership experience and resource mobilization strategies

"All the training provided by this subject (theoretical and practical) contributes transversally to AGENDA 2030 and SDGs, as its training enables the student to contribute to the development and management of the 245 indicators of the SDGs proposed by UNEP".

1.2. Context and importance of this course in the degree

The subject is proposed as a continuation of the subjects Design Workshop I, II, III and IV, and is part of the group of subjects of a design nature that forms a vertical axis in the development of the degree. In this subject, the necessary knowledge to face simple industrial design projects is understood to have already been acquired, as well as aspects related to product development from the productive and project management point of view (although some of them will be fully developed in the optional subjects offered in the degree, in the Design Workshop VI, and, of course, in the End of Degree Work).

In this context, the subject starts from the definition of the product as an abstract Service System, capable of meeting the needs of users, and which is the starting point for understanding issues ranging from the most ambitious approaches of conceptual Ecodesign, through the dematerialization of the product to the approaches of Service Design or virtual products.

1.3. Recommendations to take this course

In order to be able to take the course with a guarantee of success, it is highly recommended to have taken the previous subjects, Design Workshop I, II, III and IV, with which the central block of practical design subjects of the degree is made up. It is highly recommended to take it at the same time or after the course User Product Interaction.

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.

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

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.

SPECIFIC COMPETENCES

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

SC16. Understand the importance of eco-design methods, its techniques and main goals.

2.2. Learning goals

The student, upon passing this course, will achieve the following results:

1. It is capable of developing relatively complex product concepts to a satisfactory degree, not only in terms of concerning the definition of components, the selection of materials and production processes, and the estimation of their cost at terminology but also in relation to the set of services, benefits, and intangible values linked to it.
2. It is capable of conceiving service products.
3. Understands the importance of eco-design methodologies, their main techniques and objectives, as well as the definitions, terminology and own concepts.
4. Understands the importance of service design methodologies, their main techniques and objectives, and definitions, terminology and concepts.

2.3. Importance of learning goals

Having a solid and proven work methodology is a basic starting point that provides security to the professional of industrial design, as it helps you to plan your work, directing your efforts properly to the achieving the pre-established objectives and maintaining control of the entire process.

On the other hand, the perspective of considering the product as a Service System allows us to attend to the following issues demand in a variety of markets, some of which go beyond the industrial and commercial context. productive, including service and/or virtual products.

3. Assessment (1st and 2nd call)

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

The student must demonstrate that he/she has achieved the expected learning outcomes through the following assessment activities.

The evaluation will be continuous, and will be based on the satisfaction of the objectives set out in the main project of the semester (which may be complemented with other projects or exercises), by means of the evaluation of different sections within the exercise or project itself. These exercises or projects may involve up to 100% of the final grade, although according to the verification report a final theoretical test may be taken, which may not involve more than 15% of the total grade, in which case it is necessary to pass both sections (practical and theoretical, if any) to pass the subject.

Note: Following the regulations of the University of Zaragoza in this respect, in the subjects that have continuous or gradual evaluation systems, a global evaluation test will also be programmed for those students who decide to opt for this second system.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The development of this subject is based on the principles of Project-Based Learning. Through the realization of practical projects in as real an environment as possible, students will be able to progressively acquire the experience in the development of projects necessary to enter the labor market in the future. Theoretical classes provide the knowledge necessary for adequate progress in the development of the projects. Such projects may be to carry out as a project of a module of subjects sharing contents and dedication with other subjects.

4.2. Learning tasks

The bulk of the course will consist of the development of practical projects, which will be tutored in practical group work classes, and where there will also be room for various practices and exercises in the classroom. The course will also include a series of theoretical classes, which will include the presentation of contents with presentations and examples, and will allow the learning of definitions, concepts, and diverse work methodologies and theoretical approaches of the discipline.

Students will develop projects with a greater degree of autonomy than in the previous subjects and also with a greater degree of responsibility. It is intended that as many of the projects as possible should consist of actual approaches made by different industrial companies. An important part of the work of the course is developed personally by the students in a non-presential way through the preparation of practical work and theoretical study.

The course includes the following learning tasks:

- Type 1; lectures, theory, and problems: 30 h.
- Type 3; laboratory practice: 30 h.

TOTAL PRESENCE: 60 h.

- Type 6: practical work (student): 60 h.
- Type 7: personal study: 25 h.
- Type 8: Passing the test: 5 h.

TOTAL ASSIGNMENT: 150 h. (attendance 60), which is equivalent to 6 ECTS credits, with 4 hours of class per week.

4.3. Syllabus

The course will address the following topics:

- 1. The concept of the product as a service to the user that includes more than its physical or technical components.
- 2. PSS concept.
- 3. Concept of functional unit. Sustainability and Circular Economy.
- 4. Ecodesign: Variable e3. Strategies and tools for circular and sustainable design.
- 5. Life Cycle Concept.
- 6. Instruction manual.
- 7. Design of services.
- 8. Brand value, product reputation.
- Concept of the product as a service to the user that encompasses more than its physical or technical components

These contents will be related in time with the realization of the different practical projects, and whose statements will be delivered throughout the development of the subject to the students through the Moodle platform.

4.4. Course planning and calendar

The different contents will be structured according to a calendar of classes that will be announced at the beginning of the course through the Moodle platform. The timetables and classrooms of the course are available on the eina.unizar.es website.

The course, of a practical and design nature, has a workload evenly distributed throughout the semester.

4.5. Bibliography and recommended resources

<https://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=25887>