Universidad Zaragoza

Academic Year/course: 2021/22

25889 - Design Workshop VI: Professional Practice

Syllabus Information

Academic Year: 2021/22
Subject: 25889 - Design Workshop VI: Professional Practice
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 558 - Bachelor's Degree in Industrial Design and Product Development Engineering
ECTS: 6.0
Year: 4
Semester: First semester
Subject Type: Compulsory
Module:

1. General information

1.1. Aims of the course

The subject is the last obligatory subject of development of projects of the degree. In the same applies the total of knowledge acquired by the student throughout the preceding courses and especially in the subjects of Design Workshop I, II, III, IV and V, plus the specific ones of it, so that it supposes the previous step to the accomplishment of the Final Project of Degree on the part of the student.

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

The final objective of the degree is to train professionals in industrial design and product development, capable of dealing with the different parts of the project within the context of the company. The different project workshop subjects developed previously have served to develop and put into practice this capacity, while acquiring all the basic and indispensable technical knowledge to face increasingly complex projects with a higher level of demand. In this sense, the subject aims to simulate as realistically as possible the work of a professional in industrial design and product development, who will work in team within the context of a company to solve a project in a specific timeframe in such a way as to satisfy a series of objectives defined in advance, and following a pre-established methodology and planning.

1.2. Context and importance of this course in the degree

The subject completes the Design Workshop core, and is aimed at developing the ability to apply all the skills acquired in a professional environment, with the requirements of a context of teamwork and multidisciplinary. It is closely related to the Technical Office subject, in such a way that the contents of one and the other will be complementary, to such an extent that different parts of the same project can be developed in the two subjects, by proposing a module project. The completion of these will mean that the student is ready to undertake the Final Degree Project with regard to their ability to take control and development of an industrial design project and product development in a professional work environment, in multidisciplinary teams, being able to overcome inherent difficulties and generating the corresponding project documentation.

1.3. Recommendations to take this course

It is highly recommended that the student has passed the basic and compulsory subjects of the three preceding courses, and especially those of the Design Workshop group. The subject is complemented with the 25821 Technical Office subject, being able to carry out several complementary and common works to both subjects in the form of Module Project, so it is highly recommended that both subjects are taken at the same time.

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.

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

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

SC14. Ability to define design specifications in order to develop relatively complex products up to a satisfactory technical grade.

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

SC17. Ability to make models and prototypes using workshop techniques and tools. Know and master three-dimensional representation techniques traditional and digital as well as its tools and materials.

2.2. Learning goals

The student, to overcome these subjects, must demonstrate the following results:

1. The student, to overcome this subject, must demonstrate that is capable of team working in the development of an industrial design project for the realization of a product, within the context of the company.

2. Must be able to perform the planning of a project according to the requirements of a client company, prior to the execution of the same, and write a list of conditions that includes such planning.

3. Based on this list of conditions, must be able to develop the project following the proposed planning, being able to develop the phases of collection and analysis of documentation prior to the generation of concepts, the writing of specification, the development of innovative and creative product proposals, and perform the full technical development and definition for possible production.

4. All these works must be documented adequately, so that it can be guaranteed that the client company maintains the necessary degree of information and control over the project, and that the achievement of the project objectives established in the planning and specifications of the project is ensured.

2.3. Importance of learning goals

The ability to apply acquired knowledge to the development of professional activity is one of the most important values that the student can obtain from their university training period. Through work in this subject is intended to enhance that capacity.

In addition, students will gain experience in the exercise of their activity in a context as close as possible to real, which in

addition to the knowledge acquired will provide experience, self-confidence and safety at the time of undertaking their work at the end of the degree, prelude to the beginning of their professional activity.

3. Assessment (1st and 2nd call)

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

The student will develop one or several projects (depending on the type of project and collaborating companies can be a single project or other options) in a team, which will include presentations and debates orally and that will represent at least 75% of the total of the grade of the subject. In the same way they will develop works and written tests of theoretical character that will suppose a maximum of a 25% of the total of the note of the subject.

These projects will be developed throughout the semester and throughout the same will be made partial presentations of results that will be evaluated, adding a series of notes of which, by weighted average, the overall score of the practice note will be obtained.

In these presentations the following sections will be evaluated:

- Project planning: Drafting a list of conditions valid for the start of the project.

- Documentation and conclusions: Depth, breadth and value for the project of the information gathered at the beginning of the project and the analysis carried out.

- EDPs: Drafting of a list of design specifications prior to the conceptual phase. Amplitude, precision and value for the development of the project.

- Generation of concepts: Level of innovation, technical feasibility, potential profitability, quality of the presentation of the proposals.

- Formal development of the selected proposal: Aesthetics, ergonomics, adaptation to production processes, communication capacity.

- Functional development: Materials and processes, mechanical, electrical or other systems, definition of assembly sequences, environmental behavior, use sequence, technical definition.

- Technical documentation: Degree of development and value of the same for production.

- Verbal presentation of the finished project.

- Means used in the presentation of the finished project: Amplitude, quality of them, communicative capacity and their value from the point of view of effectiveness.

The complete project will be delivered at the end of the teaching period to respond to the requirements of the continuous evaluation.

The characteristics of the tests and written works of a theoretical nature will be described at the beginning of the course.

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

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:

The subject is mainly based on the development of one or several projects proposed by companies. Students will work in teams, developing the project, with the support of the teachers of the subject and in collaboration with the subject Technical Office and, if there is an opportunity, students from other degrees, promoting the development of transversal skills. Most classes will consist of practical work sessions for mentoring and project monitoring, where the different groups will work in a similar way to that done in a company dedicated to industrial design and product development.

The course will also include a series of theoretical sessions, including lectures, presentations by professionals and experiences of companies. The calendar of the sessions will be exposed in the first classes of the subject and will necessarily adapt to the availability of external collaborators in the subject.

4.2. Learning tasks

The course includes the following learning tasks:

? Master class (content exposure by faculty, external experts or by the students themselves, all students of the subject): 30 h.
? Laboratory practices (carrying out practical exercises in small groups of students of the subject): 30 h.
? Study and personal work: 90 h.
? Personal tutor-student tutelage.

The applied teaching methodologies include the following:

? Lecture
? Seminar
? Teamwork
? Problem-based learning
? Projects
? Presentation of group work
? Practical classes
? Tutorials
? Evaluation
? Theoretical study and practical work

4.3. Syllabus

The syllabus is based on the presentation of cases and theoretical contents by prestigious professionals, so it must be agreed at the beginning of the course. Students will receive detailed information on the scheduling of sessions and conferences through the Moodle pages.

In general, the course will address the following topics:

- 1. Development of projects in work teams.
- 2. Multi-project activity.
- 3. Responsibility in professional practice.
- 4. Different areas of professional practice.
- 5. Analysis of real cases.
- 6. Visits to/from companies of professional design services.
- 7. Company strategy linked to the development of product proposals.

4.4. Course planning and calendar

The development of the subject is eminently practical and is based on the development of one or several projects in collaboration with companies and students from other engineering disciplines throughout the semester.

For this reason, a series of key dates will be established that coincide with the most important milestones of the project: Start or launch of projects, presentation of the different phases of development, and final delivery, at the end of the teaching period. The specific dates will be agreed with the collaborating companies in each course in the subject, and will be defined at the beginning of the course, being able to undergo some type of adjustment or variation depending on the availability of said collaborators, for which it is strongly recommended to the students a constant monitoring of the subject.

Thus, the calendar of face-to-face sessions and presentation of works will be offered at the beginning of the subject, depending on the availability of external collaborators.