

Course guide

340072 - TAD1-D3O17 - Design Workshop I

Last modified: 17/05/2023

Unit in charge: Vilanova i la Geltrú School of Engineering
Teaching unit: 717 - DEGD - Department of Engineering Graphics and Design.
732 - OE - Department of Management.
712 - EM - Department of Mechanical Engineering.
737 - RMEE - Department of Strength of Materials and Structural Engineering.
702 - CEM - Department of Materials Science and Engineering.

Degree: BACHELOR'S DEGREE IN INDUSTRIAL DESIGN AND PRODUCT DEVELOPMENT ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Manuel López Membrilla

Others: Departament 702-CMEM: Joan Vicent Castell Balaguer.
Departament 712-EM: Marc Escolà Fernández.
Departament 717-EGD: Manel L. Membrilla, Alba Torras, Rubén de Castro.
Departament 732-OE: Josep Maria Colomer Mur.
Departament 737-RMEE: Antoni Andreu Torras.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:

1. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 1. Planning oral communication, answering questions properly and writing straightforward texts that are spelt correctly and are grammatically coherent.
2. SELF-DIRECTED LEARNING - Level 1. Completing set tasks within established deadlines. Working with recommended information sources according to the guidelines set by lecturers.
3. EFFECTIVE USE OF INFORMATION RESOURCES - Level 1. Identifying information needs. Using collections, premises and services that are available for designing and executing simple searches that are suited to the topic.
4. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
5. THIRD LANGUAGE. Learning a third language, preferably English, to a degree of oral and written fluency that fits in with the future needs of the graduates of each course.

TEACHING METHODOLOGY

Being the Design Workshop 1 (TAD1), the first of the different Design Workshops that are part of the Degree in Design Engineering and Product Development, this Design Workshop will be attributed the so-called: the CONCEPTUAL DESIGN Workshop

- In the different Sessions of Workshops of Design1 (TAD1) will expose the contents and will introduce the basic theoretical concepts and especially the practical content Project of the different Subjects linked to the different Departments that form and integrate the asignatura of TAD1, with practical applications and convenient examples to facilitate their understanding. The student must be able to develop at an individual level the different activities related to all the subjects that make up the project or proposed needs, then integrating them into the working group, called Workshop Group (WG).

- Defining TAD1 under the concept of co-Design and Circular Design is the result of Group Collaboration Work (Workshop Groups -GT-) with the personal contributions of each student on each Specific Subject (corresponding to each Department) to define a Project in Common among all members of the WG, not the division or inhibition of these Mataries by each student in the WG. It is necessary to enrich the Project and define it with the best of the contribution of each student member of the WG.

- The final result of the WG Project is the compendium of all the Specific Subjects of the activities analyzed and agreed in the WG from the synthesis of all the individual Activities of each student on the different Subjects treated in the Project.

-This result in the WG Project contemplates and implies a very important part in the development of Personal Activities of the student, as well as those of group level of the WG. On the other hand, the aforementioned result must also reflect, and no less important, the Management of the Project itself to be developed by the WG with its own planning and monitoring activities for the good development of the Project to be defined.

- It must be borne in mind that the Activity Developed by each student in the different Specific Subjects is the main indicator of assessment and evaluation by the different Departments, these activities are defined in different written documents (a Report in the most technical or basic definition within engineering); which will contain text, images, graphics ... among others, will never be the same as a few images or just photos.

- Workshop Practice Sessions1 (TAD1).

Based on the statement of the Project published on the Digital Campus (Atenea) with the corresponding Guidelines for the development of each Specific Subject in each Department:

1) Study and individual Analysis with the Activity of each student on the different Subjects of the Project. Main indicator of monitoring and entrepreneurship of the subject. Individual Basic Activity.

2) Study and Group Analysis in each Workshop Group (WG) to define the best proposed solution of the Project. The Group Decision.

3) Preparation of the corresponding Documentation. The Technical Supporting Documentation.

4) Elaboration and definition of the final Model of the Project. Volumetric Formal GT Proposal.

- The internship sessions involve the active participation of all the students who are members of the WG through the presentation and discussion of the individual activities developed as well as the final group project with the proposed solution.

- Teachers will make global or specific comments, both in the Plenary Sessions and in the Workshop Sessions so that students can carry out the activities corresponding to the proposed projects, as well as a guided or tutored follow-up in each WG to achieve a specific result.

Continued attendance at the Design Workshops is of vital importance and importance to achieve a good follow-up, development and final result of the Project, both individually and in groups.

Non-face-to-face autonomous learning is aimed at assimilating and developing the contents of the different Subjects of the subject, as well as the Presentation of the Project, search for information ..., among others.

LEARNING OBJECTIVES OF THE SUBJECT

The general objective of the subject is to provide students with the knowledge that will enable the application of engineering studies carried out in the development and definition of a basic Conceptual Project as it corresponds to TAD1.

- Acquire a general basic conceptual training on a Basic Project from some social, technical, human requirements ... among others on a product, as well as become familiar with and know the different parts that make it up (modules and components).
- Enhance the skill, ingenuity and ability to analyze, manipulate and contextualize a industrial product. As well as its own content in the definition and management of a Design or Product Engineering Project.
- That they develop a minimum technical capacity that allows to solve the Proposed projects and the ideas they generate themselves.
- Interpret the process of product development from knowledge theoretical and functional basics of the different Subjects that make up the Design Workshop.
- To interpret the process of development of the Product at individual and group level and the importance of the relationship with the user and the environment (H-O-E).
- Product Overview. Product and its life cycle.
- To develop a critical and self-critical attitude towards their own activities and those of activities and work of colleagues in the working group or Workshop Group (WG).

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	15.15
Self study	138,0	69.70
Hours large group	30,0	15.15

Total learning time: 198 h

CONTENTS

-

Description:

-

Specific objectives:

-

Full-or-part-time: 5h

Theory classes: 5h

2. Components Analysis: Conception of Volum and Form.

Description:

-

Full-or-part-time: 5h

Theory classes: 5h



3. Product Analysis: Form, Function and Aesthetics.

Description:

-

Full-or-part-time: 5h

Theory classes: 5h

4. Product and Materials. Product and Resistance.

Description:

-

Full-or-part-time: 5h

Theory classes: 5h

5. Construction Techniques. Processes.

Description:

-

Full-or-part-time: 5h

Theory classes: 5h

6. Market Demand Analysis. Types of Clients.

Description:

-

Full-or-part-time: 5h

Theory classes: 5h

-

Description:

-

Full-or-part-time: 30h

Laboratory classes: 30h

title english

Description:

-

Full-or-part-time: 90h

Self study : 90h

GRADING SYSTEM

The evaluations of the different Departments with their Specific Subjects that make up the TAD1 subject are linked to the percentages corresponding to the final grade of the subject:

BUSINESS ORGANIZATION -OE 30%
GRAPHIC AND DESIGN ENGINEERING -EG 30%
MECHANICAL ENGINEERING -EM 15%
ELASTICITY AND RESISTANCE OF MATERIALS -RM 15%
SCIENCE AND ENGINEERING OF MATERIALS -CM 10%

The Departments that are part of the TAD1 subject will assess the different Parts that define the Project developed by the Workshop Group and linked to the corresponding individual and group Activities, based mainly on the following sections:

NOTE A. Project Definition and Content

- Report of the Project of the Workshop Group..... 20%.
- Presentation and Technical Exhibition of the Project.....10%.
- Specific Matter Developed.....35%.
- Definition of the Final Model of the GT.....35%

ASSESSMENT B. Project Management and Monitoring.

- In this section, monitoring and good planning and management by the Workshop Group (GT) and the students who train it. Not having an entrepreneurial attitude in Project Management can penalize Grade A (Definition and Follow-up of the project) up to 20% less, contemplated from their individual activity, as well as the group.

This assessment B affects the final grade of the project and consequently the overall grade of the subject. The main indicator of this evaluation, among others, is the one established in the Regulations and Guidelines for carrying out the Activities.

The individual Activity developed for each Specific Subject by each GT student is the main basis for their evaluation, this activity is projected on the project and other GT activities, thus obtaining the individual and group grade.

Attendance at the Laboratory or Design Workshops is a necessary condition to pass the course.

The re-evaluation according to the Academic Regulations of the EPSEVG Degree and Master's studies, in this Project-based subject does not correspond to do it.

Regarding the operation, monitoring and evaluation and qualification system of the subject, what is established in the digital campus (Atenea) will always prevail.

EXAMINATION RULES.

It is mandatory to attend and actively participate in the Design Workshop and have a respectful, critical and active attitude to improve the results obtained.

- To define the Activity and its content (Note A) and its Follow-up based on the Entrepreneurial attitude (Value B) of each student, (the main indicator in the personal evaluation) as well as that of the rest of the students of the Workshop Group (GT) , in each Project it is necessary to do:

- 1) The Weekly Monitoring Act (AS).
- 2) The Global Monitoring Act (GA).
- 3) The corresponding documentation.

The Projects or Works will be delivered according to the Guidelines and Format established in the Digital Campus (Atenea).



BIBLIOGRAPHY

Basic:

- Hudson, Jennifer. Proceso : 50 productos de diseño : del concepto a la fabricación. Barcelona: BLUME, 2009. ISBN 9788498013832.
- Kalpakjian, Serop; Schmid, Steven R. Manufacturing engineering and technology. 8th ed. Harlow: Pearson Education Limited, 2023. ISBN 9781292422244.
- Ashby, M. F.; Johnson, Kara. Materials and design : the art and science of material selection in product design [on line]. 2nd ed. Amsterdam [etc.]: Elsevier Butterworth Heinemann, 2010 [Consultation: 20/02/2024]. Available on: <https://www.sciencedirect-com.recursos.biblioteca.upc.edu/book/9781856174978/materials-and-design>. ISBN 9781856174978.
- Earle, James H. Diseño gráfico en ingeniería. Bogotá [etc.]: Fondo Educativo Interamericano, 1976.

Complementary:

- Budynas, Richard G.; Nisbett, J. Keith. Diseño en ingeniería mecánica de Shigley [on line]. 10a ed. Ciudad de México: McGraw-Hill, 2018 [Consultation: 14/02/2024]. Available on: <https://ebookcentral-proquest-com.recursos.biblioteca.upc.edu/lib/upcatalunya-ebooks/detail.action?pq-origsite=primo&docID=5485813>. ISBN 9781456262112.
- Quarante, Danielle. Diseño industrial, vol. 1, Elementos introductorios. Barcelona: CEAC Barcelona, 1992. ISBN 8432956171.
- Calero Pérez, Roque; Carta Gonzalez, José Antonio. Fundamentos de mecanismos y máquinas para ingenieros. Madrid [etc.]: McGraw-Hill, 1999. ISBN 844812099X.