

DEGREE IN INDUSTRIAL DESIGN ENGINEERING

TEACHING PLAN OF SUBJECT IMPLEMENTATION AND TECHNICAL DEVELOPMENT

ACADEMIC YEAR: 2026-27
YEAR: 3º
CHARACTER: Optional
SEMESTER: 6th
ECTS: 6
TEACHING HOURS: 45
HOURS OF SELF-EMPLOYMENT: 105
TOTAL HOURS: 150
LANGUAGE/S: English
ID: 17070

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PRESENTATION SUBJECT / OBJECTIVES

This subject will visualize how the entire product life cycle is managed (*Product Lifecycle Management*) from the phases of concept design, product development taking into account industrial processes, as well as product quality management for manufacturing and production.

The main objective will be to approach an engineering phase project for industrialization. To carry it out, it will be necessary in the realization of technical documentation of the product towards production (*Start Of Production*), where all the characteristics will be defined in detail in industrial processes (*Design For Manufacturing and Assembly*)

A next objective will be to introduce engineering for digital industrialization in Industry 4.0, under the *Lean Manufacturing* concept, to determine key indicators in manufacturing and that impact at the same time on product development. To carry it out, the product development will be validated for its optimization in manufacturing, assembly, quality in its processes and cost analysis. In terms of quality, the standards for manufacturing and assembly will be known based on the route of regulations for product approval, and how these indicators affect costs. In terms of costs, the technical product documentation for the management of quotations and relationship with industrialists will be developed.

At the same time, this subject aims to make a technical immersion in English during the development of a real project.

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

This subject does not specifically incorporate any SDG.

CONTENTS

Block-I: Product Lifecycle Management

- 1.1. Product *Data Management*
- 1.2. Use of program with PDM tool for CAD product data management, manufacturing, assembly and quality.
- 1.3. Data models, product states, process roles and design in context between engineers.
- 1.4. Dimensioning.

Block-II: Technical documentation

- 2.1. Analysis and optimization of product for manufacturing and assembly feasibility
- 2.2. Analysis for manufacturing capacity and processes. Indicators for industrialization 4.0.
- 2.3. Application of standards (regulations) to products for quality.
- 2.4. Route and indicators to understand product approval
- 2.5. Technical documentation for manufacture and assembly (3D and 2D).

Block-III: Project for the industrialization of product.

- 3.1. Real project case: Understanding the product life cycle
- 3.2. Work process from the concept of a product to its industrialization.
- 3.3. Analysis for manufacturing feasibility.
- 3.4. Technical documentation for industrialists.
- 3.5. Executive documentation of the project in English.

TEACHING METHODOLOGIES

- Work sessions with the whole class group with the teacher (PA)

COMPETENCES

- CB2 - The student knows how to apply their knowledge to their work or vocation in a professional way and possess the skills that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study

- T2 - Project the values of entrepreneurship and innovation in the exercise of the academic and professional personal trajectory through contact with different realities of practice and motivation towards professional development.
- T4 - Show skills for professional practice in multidisciplinary and complex environments, in coordination with networking teams, either in face-to-face or virtual environments, through the computer and informational use of ICT.
- T6 - Use different forms of communication, both oral and written or audiovisual, in one's own language and in foreign languages, with a high degree of correctness in use, form and content.
- E6 - Use different methodologies and work tools to correctly design any product, system or service.
- E10 - Understand the present industrial reality to function in the professional environment.
- E11 - Identify emerging technologies that can add value to the project.

LEARNING OUTCOMES

- Solves problems and situations of professional performance with entrepreneurial and innovative attitudes in the field of industry 4.0
- Virtually designs and validates the operation, use and industrialization of the product.
- Face the development of a project with a professional attitude
- Adds value to the project by identifying the right emerging technologies.

TRAINING ACTIVITIES

Each subject will present at the beginning of the course its WORK PLAN where the didactic activities per week / session / autonomous work are recorded.

EVALUATION

EVALUATION SYSTEMS

The evaluation of the subject will be based on a continuous monitoring of the student's academic work throughout the course.

EVALUATION SYSTEM	FINAL WEIGHTING
P2-Follow-up of the work done	30
P3-Reports from the students themselves, external tutors, court	10
P5-Realization of required works or projects	60

EVALUATION CRITERIA

The final grade of the subject will be the weighted average of the grades of the evaluable activities according to the following table

EVALUABLE ACTIVITY	WEIGHT	RECOVERABLE (up to 50%)	EVALUATION SYSTEM
Activity-1 Conducting exercises and participating in class	30%	NO	P-2
Activity-2 Individual contributions to the project	10%	NO	P-3
Activity-3 Presentation and communication of the project	20%	NO	P-5
Activity-4 Disciplinary project	40%	YES*	P-5

Students will have the option of re-examining themselves for recoverable tests. The recovery tests will be carried out in the period of the semester destined to this function, not being able to recover more than 50% of the subject.

* In the event that the Recoverable Evaluable Activities exceed 50%, the student may choose, up to a limit of 50%.

The unjustified non-presentation of any evaluable activity implies a grade of 0, even if the activity has been qualified as Recoverable.

The Recoverable Activities can only be subject to recovery when they have been delivered by the student on the indicated date and with a grade equal to or greater than 3.

If you renounce access to the recovery test, the grade achieved in the first instance will be maintained.

In case of presenting to recovery, the note obtained will be the last, even if it is less than the first.

Plagiarism or copying someone else's work is penalized in all universities and, according to the Rules of Coexistence of the University of Vic-Central University of Catalonia, they constitute serious or very serious offenses. That is why during the course of this subject any indication of plagiarism or misappropriation of other people's texts or ideas ([What is considered plagiarism?](#)) as well as the improper or undeclared use of Artificial Intelligence in an activity, will result automatically in failure of the subject and/or other disciplinary measures ([Norms of Coexistence of the University of Vic-Central University of Catalonia](#)).

For any questions or queries, see the ([Academic Regulations for the Degree of the Elisava Faculty of Design and Engineering UVic-UCC](#)).

BIBLIOGRAPHY AND TEACHING RESOURCES

- Daniel T., Jones, y Womack James P. 2012. *Lean Thinking*. Barcelona: Grupo Planeta.
- El Wakil, Sherif D. 2019. *Processes and Design for Manufacturing*. Milton: Chapman and Hall/CRC.
- González Babón, Jesús, y Jesús González Babón. 2017. *Gestión integral de la calidad: Implantación, control y certificación*. Profit.
- Liker, Jeffrey K. . 2004. *The Toyota Way: 14 management principals*. Michigan: McGraw-Hill Education.
- Păcurar, Ancuța. 2019. *Applications of Design for Manufacturing and Assembly*. Openbook: InTech.
- Schwab, Klaus. 2016. *The Fourth Industrial Revolution*. Cologny: World Economic Forum.

The teaching staff will provide a specific bibliography at the beginning of the subject, if applicable.