Course guide
340037 - GEPR-N7O17 - Project Management

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.

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

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

LECTURER

Coordinating lecturer: GEPR - Grau en Enginyeria de Disseny industrial i Desenvolupament del producte | Q2.
Manuel López Membrilla
GEPR - Grau en Enginyeria Mecànica, Elèctrica, i Electrònica Industrial i Automàtica | Q1.
Manuel López Membrilla

Others: Departament 717-EGD:
Manuel López Membrilla
Casellas Gordillo, Rosa Maria
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Anna Maria Mir Serra
Marta Díaz Boladeras
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DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
23. CE18. Know the organizational structure and functions of a project office.
24. D29. Knowledge of editing and technical documents representation.
25. D30. Knowledge of mythology, organization and management of projects.
26. D31. Knowledge of current rules, legislation and project transaction.
27. D32. Ability to carry out product projects, machines, mechanism and installations.
28. D42. Knowledge of design tools to apply them in design and redesign projects.
29. D43. Knowledge of design methodology.
30. D57. Ability to redesign products.
31. D58. Practical knowledge of industrial design methodology.
32. D60. Practical knowledge of design and component and complex product development.
33. D61. Practical knowledge of product detail design.
34. D63. Ability to edit, develop and manage an integral engineering project in an industrial design and product development context.
35. D64. Ability to handle with needed specifications, regulations, technique standards and legislation to develop the profession.
36. D9. Ability to analyze and solve machine and mechanism design problems.
37. CE17. Applied knowledge of business organization.
38. G6. Knowledge of the concept of enterprise as well as of its institutional and legal framework, of its organizational structure and management, marketing, financing, leadership and the organization of the production.

Transversal:

1. SELF-DIRECTED LEARNING - Level 3. Applying the knowledge gained in completing a task according to its relevance and importance. Deciding how to carry out a task, the amount of time to be devoted to it and the most suitable information sources.
2. SELF-DIRECTED LEARNING. Detecting gaps in one's knowledge and overcoming them through critical self-appraisal. Choosing the best path for broadening one's knowledge.
3. 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.
4. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 2. Using strategies for preparing and giving oral presentations. Writing texts and documents whose content is coherent, well structured and free of spelling and grammatical errors.
5. EFFICIENT ORAL AND WRITTEN COMMUNICATION - Level 3. Communicating clearly and efficiently in oral and written presentations. Adapting to audiences and communication aims by using suitable strategies and means.
6. EFFICIENT ORAL AND WRITTEN COMMUNICATION. Communicating verbally and in writing about learning outcomes, thought-building and decision-making. Taking part in debates about issues related to the own field of specialization.
7. ENTREPRENEURSHIP AND INNOVATION - Level 1. Showing enterprise, acquiring basic knowledge about organizations and becoming familiar with the tools and techniques for generating ideas and managing organizations that make it possible to solve known problems and create opportunities.
8. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.
9. ENTREPRENEURSHIP AND INNOVATION - Level 3. Using knowledge and strategic skills to set up and manage projects. Applying systemic solutions to complex problems. Devising and managing innovation in organizations.
10. ENTREPRENEURSHIP AND INNOVATION: Knowing about and understanding how businesses are run and the sciences that govern their activity. Having the ability to understand labor laws and how planning, industrial and marketing strategies, quality and profits relate to each other.
11. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 1. Analyzing the world¿s situation critically and systemically, while taking an interdisciplinary approach to sustainability and adhering to the principles of sustainable human development. Recognizing the social and environmental implications of a particular professional activity.
12. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 2. Applying sustainability criteria and professional codes of conduct in the design and assessment of technological solutions.
13. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.
14. SUSTAINABILITY AND SOCIAL COMMITMENT. Being aware of and understanding the complexity of social and economic phenomena that characterize the welfare society. Having the ability to relate welfare to globalization and sustainability. Being able to make a balanced use of techniques, technology, the economy and sustainability.
15. 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.
16. TEAMWORK - Level 2. Contributing to the consolidation of a team by planning targets and working efficiently to favor communication, task assignment and cohesion.
17. TEAMWORK - Level 3. Managing and making work groups effective. Resolving possible conflicts, valuing working with others, assessing the effectiveness of a team and presenting the final results.
18. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
19. EFFECTIVE USE OF INFORMATI0N 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.
20. EFFECTIVE USE OF INFORMATI0N RESOURCES - Level 2. Designing and executing a good strategy for advanced searches using specialized information resources, once the various parts of an academic document have been identified and bibliographical references provided. Choosing suitable information based on its relevance and quality.
21. EFFECTIVE USE OF INFORMATI0N RESOURCES - Level 3. Planning and using the information necessary for an academic assignment (a final thesis, for example) based on a critical appraisal of the information resources used.
22. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

TEACHING METHODOLOGY

Teaching methodology
Expository method / master class: it consists of the presentation of a logically structured topic in order to provide organized information, following appropriate criteria, which lead to a specific objective. This methodology is mainly focused on the oral presentation of the contents of the subject and carried out by the professors.
Expository / participatory class: assuming the characteristics of the expository method, this kind of lessons includes time for student participation and intervention through short activities in the classroom, such as direct questions, expositions of specific topics or problem-solving exercises linked to the given theoretical approach.
Cooperative learning: interactive approach to the work organization inside and outside the classroom, in which the students are responsible for their own learning and that of their classmates, in a joint responsibility relationship to achieve common goals.
Activities-solving exercises: situations in which students are asked to develop suitable or correct solutions by applying procedures for transforming the available information and interpreting the results.
Project-based learning: learning method based on the presentation of a problem proposed by the professors, which has to be solved by students, or in which students have to develop a scheduled project to solve a problem or deal with a task by planning, designing and carrying out a series of activities. Learning by discovery is the basis of these methods. The initial information provided by the professors is incomplete and the students have to complement it by studying the appropriate sources. The solution does not have to be unique.
Cases study: intensive and complete analysis of a fact, a problem or a real event in order to know it, interpret it, solve it, generate hypothesis, contrast the data, reflect on it, complete knowledge, diagnose it and, at times, test the possible alternative procedures to solve it.

LEARNING OBJECTIVES OF THE SUBJECT

The general objective of the subject is to provide students with the knowledge that enables the application of engineering studies carried out in the development and definition of the Industrial Project and its Management in products, in services, facilities, as well as also in the development of other activities proper to the engineering profession.
Ability to develop and manage the content of the documentation generated in the field of industrial engineering: The different types of reports, the preliminary project and the comprehensive engineering project. Provide students with the ability to tackle an Industrial Project by integrating concepts such as collaborative engineering or co-engineering.
Know and understand the organization of a company and the sciences that govern its activity; ability to understand labor rules and the relationships between planning, industrial and business strategies, quality and profit.
Develop entrepreneurial skills by developing a viable business plan with the right quality according to the most common standards to communicate the solvency of a business plan (to the administration, potential investors, etc.).
Know and understand the complexity of the economic and social phenomena typical of the welfare society; ability to relate well-being to globalization and sustainability; ability to use technique, technology, economics and sustainability in a balanced and compatible way.
Communicate orally (in the language of engineering) and in writing (based on technical documentation, as well as in corresponding presentations) with other people about the process and results of learning, the elaboration of the thinking and decision making; participate in debates on topics of their own specialty.
Be able to work as a member of one of the project groups, either as another member, or performing management tasks in order to contribute to developing projects with pragmatism and a sense of responsibility, assuming commitments considering the available resources and the human considerations of the group members.
Manage the acquisition, structuring, analysis and visualization of data and information in the field of specialization and critically evaluate the results of this management.
Detect gaps in one's own knowledge and overcome them through critical reflection and the choice of the best action to expand this knowledge.

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	20.00
Hours small group	30,0	20.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

(ENG) -Project theory

Description:
Project general theory:
- Contents and specificities of the different technical documents in engineering.
- Contents and specificities of industrial projects.
- Activities projects.
- Projects of specific facilities.
- Project files processing.
- Machines and mechanisms projects.
- Planning and programming of projects.
- Attributions and professional associations.

Product projects:
- Structure and content.
- Regulations.
- Industrial design.
- Ecodesign.
- Product lifecycle management (PLM).
- Innovation of new products.
- Circular Economy.

Specific objectives:
Specifically, the aim is to introduce students to the procedures and methods for the correct realization of the technical documents of engineering and industrial projects: the understanding of the basic concepts to design, the application of work methodologies (both in groups as individuals) for the development of projects, the analysis of the problems to be solved and the conditions surrounding the realization of projects and, finally, and the evaluation of the solutions adopted in the development of the project. It is intended to introduce students to the procedures for defining the profession or possible activities of the engineer, with the fundamental objective of defining and managing industrial projects.

Related activities:
The proposal is learning by activities and projects, is based mainly on solving real engineering problems, where the solution is not pre-established, so that it brings students closer to the daily practice of professional work and is a synthesis of the knowledge acquired.
The pedagogical approach consists of helping students to solve the problems that arise, through the supervision of their work and the necessary support classes, as well as evaluating the work done and what should be its development within the limitations of a subject.
Know and experience all the fundamental processes in the planning of works and projects. We aim for the student to be able to define, plan, control and manage a project.

Full-or-part-time: 10h
Theory classes: 10h

(ENG) -Gestió de Projectes

Description:
It is intended to introduce students to the definition and use of the various technical documents specific to engineering as the procedures for the definition and management of industrial projects.

Specific objectives:
Technical Documentation in Engineering. Industrial Activity and Project Management: Project planning, scheduling and control.

Related activities:
Know and experience all the fundamental processes in the planning of works, activities and projects. We aim for the student to be able to define, plan, control, and manage an industrial project.

Full-or-part-time: 10h
Theory classes: 10h

-Business Plan

Description:
In this block, a viable business plan will be developed to market the product / service projected in the other part of the course. with the right quality according to the most common standards to communicate the solvency of a business plan (to the administration, potential investors, etc.).

Specific objectives:
Acquire entrepreneurial skills and attitudes, and knowledge of all relevant aspects both in the development of the business plan (soundness of the idea and competitive advantage, the solvency of the team and economic viability), and the processing of the start of the activity.

Exercise attitudes such as self-confidence and the ability to take risks and manage uncertainty, to respond effectively to change.

Related activities:
1. Develop and clearly describe the business idea and opportunity with a market orientation (consumer and competition)
a) Analyze strengths and weaknesses and opportunities and threats
b) Define the business model and strategic direction
c) Know and take advantage of the opportunities and resources available for entrepreneurship

2. Define to whom our product / service is addressed and in which competitive environment
a) Determine the target market
b) identify the commercial requirements based on the customer / consumer of the product / service.
c) Analyze the sector of activity
d) Identify the main competitors and the competitive and regulatory conditions.
e) Make a positioning map
f) Always consider the global market in analysis and planning

3. Plan actions in a systematic and coherent way to achieve business objectives
a) Elaboration of the commercial plan
b) Carry out an investment and initial financing plan
c) Carry out a 3-year economic viability forecast, based on various scenarios
d) Prepare the plan of operations
e) Decide on the legal form of the company, its internal organization and the human team

4. Plan the procedure for the start-up of the Company

Full-or-part-time: 10h
Theory classes: 10h

(ENG) -Pràctiques

Description:
It is intended that students work on the most appropriate methodologies for the development of industrial projects.

Specific objectives:
1. To apply the technical and normative knowledge in the elaboration of the Technical documentation, as well as of homologable and competitive technologically based Projects.

1.1. Learn to analyze needs, pose challenges and design and develop products, machines, mechanisms, services and facilities that meet them.
a) Know and practice the design and development of complex components and products.
b) To know the handling of specifications, regulations, technical norms and the necessary legislation for the elaboration of the projects and the development of the profession.

1.2. Learn to plan, develop and manage the realization of industrial projects.
a) Know the methodology, organization and management of projects.
b) Know the design tools to apply them in product design and re-design projects.
c) Know techniques and tools for planning, organizing, developing and managing engineering proposals and projects.

1.3. Efficiently manage information resources.
a) Manage the acquisition, structuring, analysis and visualization of data and information in the field of specialization and critically evaluate the results of this management.
b) Identify one’s own information needs and use the collections, spaces, services available to design and execute searches appropriate to the thematic area.

1.4. Prepare presentations and select technical documentation
a) Improve oral communication skills in presentations, debates, working meetings with the appropriate strategies and means for each communicative situation
b) Write correctly technical documents with their own structure and contents, as appropriate to the communication objectives.

2. Application of efficient methodologies in the development of Projects in multidisciplinary work teams.
2.1. Multidisciplinary technical team work.
a) To be able to work as a member of a team, either as another member, or performing management tasks, in order to contribute to developing projects with pragmatism and a sense of responsibility, assuming commitments considering the available resources .
b) Know and put into practice the dynamics of multidisciplinary and self-organized teamwork.
c) Detect deficiencies in one's own knowledge and overcome them through critical reflection and the choice of the best action to expand this knowledge.

Full-or-part-time: 30h
Laboratory classes: 30h

GRADING SYSTEM

The assessments of the different Departments in GEPR include the following percentage in the final grade of the subject:

- Graphic Engineering and Design (EGD) 75%.
Tipos de traducción
Traducción de texto
Texto original
1.004 / 5.000
Resultados de traducción
The follow-up structure is based on Theoretical/Practical Concepts and Activities linked to the development of the specific Technical documentation of an engineer, all of which implies the Definition and Management of an Industrial Project as a result.
Regarding this part or Specific Matter of the subject, its assessment is contemplated in principle:
A. Project DEFINITION NOTE
Proposed activities..... (20%)
The Engineering Project. Documentation.. (30%)
Presentations made..... (10%)
The Theoretical / Practical evaluation test.. (40%)
B. ASSESSMENT of the MANAGEMENT of the Project.
This section will assess the monitoring and good planning, programming and control of the Group of
Projects (GP) and the students that form it. Not having an entrepreneurial attitude in the Management of the
Project can penalize the grade A (Project Definition) up to 20% less.

- Business Organization (OE) 25%.
The monitoring structure is based on theoretical-practical concepts and activities linked to developing entrepreneurial skills by developing a viable business plan with the right quality according to the most common standards to communicate the solvency of a business plan (to the administration , potential investors, etc.). Regarding this part of the subject, the following elements are considered for the evaluation:
• Business Plan (50%, written report of the group work)
• Elevator pitch (20%, individual presentation of the business idea)
• Evaluation test of the theoretical concepts and reflection of the business plan carried out (30%, individual evaluation)

Each department involved will establish its evaluation criteria: for continuous evaluation, partial tests or final exam.
The evaluation system, in accordance with article 4.1.3 of the current Academic Regulations for Undergraduate and Master's Studies at EPSEVG, also includes the re-evaluation that, for this subject, corresponds to the Theoretical / Practical part. of the partial tests or final exam.
Regarding the operation, monitoring and evaluation and qualification system of the subject, what is established on campus will always prevail.
digital (Athena).