COURSE DATA

DATA SUBJECT

Code: 34771
Name: Project management
Cycle: Undergraduate Studies
ECTS Credits: 6
Academic year: 2025-26

STUDY (S)

Degree	Center	Acad. year	Period
1401 - Degree in Chemical Engineering	Escola Tècnica Superior d'Enginyeria	4	First quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1401 - Degree in Chemical Engineering	Projects	COMPULSORY

COORDINATION

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SUMMARY

The subject Project Management is a part of the matter Projects, whose overall objective is that students gain the ability to properly apply all previously acquired knowledge about design, development and evaluation of projects and reports, by applying the appropriate methodology and the basic principles of economics, management, quality and organization, as well as legislation, regulation and standardization in the field of industrial chemical engineering. To do this, the matter of Projects covers both organizational and managerial aspects of production, as well as project management. As far as the subject of Project Management is concerned, it is a compulsory subject, four-monthly, which is taught in the fourth year of an undergraduate degree in Chemical Engineering in the first quarter. The curriculum consists of a total of 6 ECTS.
This course aims to give students an overview of the great complexity involved in conducting an engineering project in the field of chemical industry. This will provide the methodology to be followed in the preparation of this project, with special emphasis on some stages from conception of the original problem, the study of plausible alternatives, development and design of process equipment for the most appropriate alternative to their economic evaluation to determine the feasibility of the project. In this course students will also be introduced to concepts related to the various activities that make up the organization and management of industrial projects. Moreover, aspects of the documentation to be submitted, applicable laws and regulations in the development of such projects will be considered. Finally, we provide a basic understanding of the organizational structure and functions of a technical office.

The contents of the course are:
Organizational structure and functions of a technical office.
Methodology and project organization.
Collection and use of information.
Project conception. Synthesis of alternatives.
Calculation and design of equipment and facilities.
Economic evaluation of projects.
Project management. Law and administrative procedures. Professional organization and Basic Procedures in the field of construction and industry.
Management and application specifications, regulations and technical standards.
Seminar: Preliminar design of a chemical plant.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

There are no specified enrollment restrictions with other subjects of the curriculum.

OTHER REQUIREMENTS

Given the general nature of the subject in order to address it successfully it is recommended that the student possesses the prior knowledge obtained in the subjects studied in the first six semesters and / or simultaneously in the seventh semester. The world perception of the company and the role of the engineer in the company is presented in the subjects *Business* and *Engineering, Society and University*. The skills and knowledge of mathematics and use of ofimatic tools should be developed in areas and subjects such as *Mathematics* and *Informatics*. The knowledge related to the design and operation of equipment and production processes in the field of chemical engineering have been developed in matters such as *Basis of Chemical Engineering*, *Unit Operations of Chemical Engineering*, *Chemical Reaction Engineering* and *Materials Science*, and subjects such as *Process and Product Engineering I*. Furthermore it is recommended that the student possesses the knowledge provided by the subject *Management and Organization of Production*, from which is complementary.

COMPETENCES / LEARNING OUTCOMES

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Act autonomously in learning, make informed decisions in different contexts, issue judgements based on experimentation and analysis and transfer knowledge to new situations.

Analyse and evaluate the social and environmental impact of technical solutions.

Be able to understand and apply the legislation required for the practice of the profession of technical industrial engineer.

Collaborate effectively in work teams, assume responsibilities and leadership roles, and contribute to collective improvement and development.

Contribute to the design, development and implementation of solutions that respond to social demands,

guided by the Sustainable Development Goals.

Demonstrate critical and self-critical thinking, considering professional ethics, moral values and social implications of the different activities carried out throughout the degree.

Draft, sign and develop projects within the field of industrial engineering, aimed at constructing, renovating, repairing, maintaining, demolishing, manufacturing, installing, assembling or operating structures, mechanical equipment, energy systems, electrical and electronic installations, industrial facilities and plants, and manufacturing and automation processes, in accordance with the knowledge acquired through the specific technology of industrial chemistry.

Know and understand, within the area of the degree, inequalities based on sex and gender in society; integrate different needs and preferences based on sex and gender into the design of solutions and problem-solving.

Organise and manage projects, and understand the organisational structure and functions of a project office.

Propose creative and innovative solutions to complex situations or problems, typical of the area of ¿¿¿¿connection, to donate responses to the various professional and social needs

Solve problems with initiative, make decisions, think creatively and critically, and communicate and convey knowledge, skills and competences in the field of industrial engineering.

Work in a multilingual and multidisciplinary environment.

DESCRIPTION OF CONTENTS

1. THE PROJECT

Definition. Types of projects. The industrial project. Classification of industrial projects. Characteristics of engineering projects.

2. PROJECT METHODOLOGY AND ORGANIZATION

Process System. Design stages of a process. Process engineering. Methodology for the implementation of a project. Engineering projects. Organization of a chemical engineering project.

3. INFORMATION ON PROCESS ENGINEERING

Need for information in process engineering. Classification of information sources. Selection criteria for the information. Information in form of diagrams.

4. PROJECT CONCEPTION. SYNTHESIS OF ALTERNATIVES

Preliminary study. Project conception: Initial approach to the problem. Creating alternatives. Analysis and preliminary screening of alternatives.

5. EQUIPMENT AND FACILITIES DESIGN

Summary of procedures for design and operation of equipment used in chemical process industry. Rules of thumb.

6. ECONOMIC EVALUATION OF PROJECTS. BASICS

Investment: components and estimation methods. Costs: classification and estimation methods. Sales revenue. Income tax.

7. ECONOMIC EVALUATION AND SELECTION OF PROJECTS

Annual net profits and net cash flows. Alternative methods of investment evaluation: classification and description. Criteria for the selection of investment alternatives.

8. PROJECT DOCUMENTS

The Memory. The Plans. The specifications. The budget.

9. INDUSTRIAL PROJECT LEGAL

Project authorization of facilities and industrial plants. The legislation and the project. Standards. Legal scope of the industrial project. Legal provisions related to industrial projects.

10. PROJECT MANAGEMENT

Introduction to planning, programming, monitoring and control of Industrial Projects.

11. ORGANIZATION STRUCTURE OF ENGINEERING COMPANY

Operations and structural engineering company. Free exercise engineer. The project technical office. The company projects. Professional organization: professional associations.

12. SEMINAR

Preliminary design of an industrial plant for the production of acetic anhydride.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	20,00
Laboratory	14,00
Classroom practices	26,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours
Attendance at other activities	0,00
Individual or group project	10,00
Independent study and work	35,00
Preparation of lessons	25,00
Preparation for assessment activities	5,00
Resolution of case studies	15,00
Total hours	**90,00**

TEACHING METHODOLOGY

The development of the course is structured around theory and problems classes, laboratory sessions (seminar) and the performance of works.

In the theory classes the lecture model will be used. Professors will explain the contents of each issue, focusing on key aspects for their comprehension.

Practical classes of problems will be developed following two different models. In some classes the professors solves a series of sample problems so that students learn to identify the essential elements of the approach and resolution of the problems. In the other classes of problems the students will solve, individually or in groups, similar problems under the supervision of the professors. After the work, the problems will be collected, analyzed and corrected by the professors or by the students themselves. These are non-recoverable activities.

Laboratory practice sessions will be a seminar, in which the preliminary design of a chemical process plant will take place. These sessions will be held in small groups under the supervision of the professor. Activities of introduction to the design of process equipment, development and analysis of the results, leading to its economic evaluation will be scheduled. For these activities, a timetable for completion and delivery of work, by student groups, will follow. Attendance at laboratory is a non-recoverable activity and

mandatory to pass the course.

The proposed work for the students will be of several types: Questions or short exercises, problems similar in complexity to those of exams, questionnaires and coursework related to the contents of the course. All of these activities will be done in class or at home, and will have a timetable for completion and delivery. After correction, the students will be informed of their results with a summary of their most common mistakes. These are non-recoverable activities.

EVALUATION

In the first call, the evaluation of the students' learning will be carried out from the mark of a final examination, the activities that have been delivered on time throughout the course and the mark of the laboratory. The average mark of the exam must be equal to or greater than 4.5. The final grade will be obtained as the highest of the next two options:

1. The weighting of the grades obtained according to the following percentages:

    5% of the non-qualified activities

    25% of the qualified activities

    20% of the laboratory

    50% of the final examination

2. The weighting of the grades obtained according to the following percentages:

    5% of the qualified activities

    20% of the laboratory

    75% of the final examination

To pass the subject, you must obtain a final grade equal to or greater than 5. If the final exam grade is lower than 4.5, the grade of the first call will be that of the final exam.

Students who have not passed the subject in first call must take the examination of a second call, and the final grade will be calculated following the same criteria as in the first call.

For the advancement of the assessment it is essential to assist the laboratory in a previous year.

Anyhow, the evaluation system will be based on the guides stated in the Reglament d'Avaluació i Qualificació de la Universitat de València per a Graus i Màsters (ACGUV 108/2017).

Copying or plagiarism of any activity that is part of the evaluation will result in the impossibility of passing the course, and the student will then be subject to the appropriate disciplinary procedures indicated in the ACTION PROTOCOL FOR FRAUDULENT PRACTICES AT THE UNIVERSITY OF VALENCIA (ACGUV 123/2020).

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