COURSE DATA

DATA SUBJECT

Code: 34770
Name: Production organization and 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	3	Second quarter
1934 - Double Degree Program in Chemistry-Chemical Engineering	Facultat de Química	4	Second quarter

SUBJECT-MATTER

Degree	Subject-matter	Character
1401 - Degree in Chemical Engineering	Projects	COMPULSORY
1934 - Double Degree Program in Chemistry-Chemical Engineering	Cuarto curso	COMPULSORY

COORDINATION

CERISUELO FERRIOLS JOSEP PASQUAL

SUMMARY

The Production Organization and Management course is part of the Projects program. Its overall objective is to enable students to appropriately apply all previously acquired knowledge to the development, preparation, and evaluation of projects and reports, applying appropriate methodology and the basic principles of economics, management, quality, and business organization, as well as the legislation, regulations, and standardization of industrial engineering. To this end, the course addresses aspects of production organization and management, as well as technical office management. Production Organization and Management is a compulsory course taught during the second semester of the third year of the Chemical Engineering degree. The curriculum includes a total of 6 ECTS credits.

This course aims to provide an overview of the necessary knowledge and fundamentals related to management, production, and manufacturing systems, including principles and methods of quality and industrial and occupational safety. To this end, the course is divided into three thematic units. In the first and main unit, students will be introduced to the tools and methods of planning, programming, and organization of the production system, including the development of programming and control of a production system using a computer tool. The second unit will introduce students to quality organization

and management, quality management systems, and basic tools for statistical quality control. The final unit will focus on occupational and industrial safety, covering aspects related to industrial safety regulations and occupational risk prevention, as well as techniques and methods for controlling and managing occupational and industrial risks.

PREVIOUS KNOWLEDGE

RELATIONSHIP TO OTHER SUBJECTS OF THE SAME DEGREE

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

OTHER REQUIREMENTS

It might be recommended to revise concepts and methodologies of statistics from teh subjects of Maths.

COMPETENCES / LEARNING OUTCOMES

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

Apply knowledge of business organisation.

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.

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.

Knowledge for carrying out measurements, calculations, valuations, appraisals, expert opinions, studies, reports, work plans and other similar work.

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.

Understand the basic principles of production and manufacturing systems.

Work in a multilingual and multidisciplinary environment.

DESCRIPTION OF CONTENTS

1. Production and manufacturing systems

The company and production systems. Product and product design techniques. Plant layout. Production system organization: time, cost, and resource planning. Project monitoring. Supply, storage, and distribution logistics.

2. Principles and methods of quality

Introduction to quality. Quality management. Quality planning, control, and improvement. Statistical techniques for quality control. Natural process variability. The standardized normal distribution. Process capability. The binomial and Poisson distributions. Total and conditional probability of occurrence: Bayes' theorem. Variable and attribute control charts.

3. Industrial and occupational safety

Introduction to occupational and industrial safety: basic concepts on health and safety; basic regulatory framework on safety and occupational risk prevention: occupational risk prevention act (LPRL) 31/1995 and occupational risk prevention policy. Industrial safety and occupational risk prevention regulations: regulations implementing the LPRL: RD39/1997, RD486/1997, RD1215/1997 and technical regulations; industrial legislation: industrial safety act (21/1992) and regulations; case studies: application of fire safety regulations. Analytical risk control techniques: pre- and post-accident techniques; operational control. Occupational and industrial risk prevention management: prevention organization: policy, responsibilities, planning, procedures; occupational risk prevention plan; occupational risk assessment; industrial risk management; prevention control.

WORKLOAD

PRESENCIAL ACTIVITIES

Activity	Hours
Theory	35,00
Laboratory	6,00
Classroom practices	19,00
Total hours	**60,00**

NON PRESENCIAL ACTIVITIES

Activity	Hours

Attendance at other activities	0,00
Individual or group project	24,00
Independent study and work	40,00
Preparation of lessons	26,00
Preparation for assessment activities	0,00
Resolution of case studies	0,00
Total hours	**90,00**

TEACHING METHODOLOGY

The course is structured around theory and problem-solving classes, computer laboratory practice, and evaluable activities.

- The lecture model will be used in theory classes. The professor will present and/or explain the content of each topic, emphasizing key aspects for its understanding.

- The practical problem-solving classes will follow two models. In some classes, the professor will solve a series of standard problems so that students can learn to identify the essential elements of problem-solving and resolution. In other problem-solving classes, students, individually or in groups, will solve similar problems under the professor's supervision.

- In the computer laboratory sessions, the activities to be carried out will be scheduled, and a case study of programming and controlling a production system will be developed using a computer tool. Using a previously defined sector or process, and under the supervision of the laboratory professor, students will analyze and complete the organization of the production system.

- The evaluable activities will consist of problem-solving and study cases related to the content taught in each thematic unit. Some of these activities will be conducted in class, while the rest will be scheduled for completion and submission by students.

EVALUATION

The knowledge acquired by the student in the course will be evaluated through a continuous evaluation system, where the involvement and performance shown by the student in the following activities will be assessed:

a) Individual objective test of theoretical-practical nature (EX): where the contents taught in the theory and problems master sessions will be evaluated.

b) Case study on programming and control of a production system (CS): where the documentation generated for the case study prepared in the computer laboratory sessions will be evaluated. This activity will be considered recoverable.

c) Evaluable activities (AC): where the resolution of the problems and study cases proposed in each thematic unit will be evaluated. This activity will be considered non-recoverable.

To pass the course it will be necessary to have achieved a minimum grade of 5 points out of 10 in the objective test (EX) and in the case study (CS), obtaining in this case the overall grade of the course as the weighted average of the previous activities, according to the following equation:

Overall grade = 60 % EX + 20 % CS + 20 % AC

In case the previous requirement is not met, the overall grade of the course will correspond to the lower of the grades achieved in the previous activities.

The obvious copying or plagiarism of any activity that forms part of the assessment will make it impossible to pass the course, and the student will then be subject to the appropriate disciplinary procedures indicated in the PROTOCOL D'ACTUACIÓ DAVANT PRÀCTIQUES FRAUDULENTES A LA UNIVERSITAT DE VALÈNCIA (ACGUV 123/2020).

In any case, the evaluation system will always be governed by the provisions established in the Reglament d'Avaluació i Qualificació de la Universitat de València per a Títols de Grau i Màster (ACGUV 108/2017).

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