



UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: PROJECTS
Type: CORE COURSE
Degree: 344 - CHEMICAL ENGINEERING
Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY
Year: 4

Code: 57728
ECTS credits: 6
Academic year: 2023-24
Group(s): 21
Duration: First semester
Second language: English
English Friendly: Y
Bilingual: N

Main language: Spanish

Use of additional languages:
Web site:

Lecturer: JESUS GARCIA GOMEZ - Group(s): 21				
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Lecturer: JESÚS GARCÍA GÓMEZ - Group(s): 21				
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Lecturer: M ^a JESUS RAMOS MARCOS - Group(s): 21				
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2. Pre-Requisites

Not established

3. Justification in the curriculum, relation to other subjects and to the profession

The overall objective to be achieved with the proposed program is to know how the execution of a project in the Chemical Industry is developed. For this, the subject has a theoretical part that comments the steps for the execution of a project in its different stages. In 1

4. Degree competences achieved in this course

Course competences

Code	Description
E07	Knowledge of applied thermodynamics and heat transmission. Basic principles and their application to solving engineering problems.
E08	Knowledge of the basic principles of fluid mechanics and their application to solving problems in the field of engineering. Calculation of pipes, channels and fluid systems.
E18	Knowledge and skills to organize and manage projects. Know the organizational structure and functions of a project office.
E19	Knowledge about material and energy balances, biotechnology, material transfer, separation operations, chemical reaction engineering, reactor design, and recovery and transformation of raw materials and energy resources.
E20	Capacity for analysis, design, simulation and optimization of processes and products.
E29	Ability to perform economic evaluations and establish the economic viability of a project
G01	Ability to write, sign and develop projects in the field of chemical engineering that are intended, according to the knowledge acquired as established in section 5 of order CIN / 351/2009 of February 9, construction, reform, repair, conservation, demolition, manufacture, installation, assembly or operation of: structures, mechanical equipment, energy installations, electrical and electronic installations, industrial facilities and processes and manufacturing and automation processes.
G02	Capacity for the direction, of the activities object of the engineering projects described in the competence G1.
G03	Knowledge in basic and technological subjects, which enables them to learn new methods and theories, and give them versatility to adapt to new situations.
G04	Ability to solve problems with initiative, decision making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of Chemical Engineering.
G05	Knowledge for the realization of measurements, calculations, valuations, appraisals, surveys, studies, reports, work plans and other analogous works.
G06	Ability to handle specifications, regulations and mandatory standards.
G07	Ability to analyze and assess the social and environmental impact of technical solutions.
G08	Ability to apply the principles and methods of quality.
G09	Capacity for organization and planning in the field of the company, and other institutions and organizations.
G10	Ability to work in a multilingual and multidisciplinary environment.
G11	Knowledge, understanding and ability to apply the necessary legislation in the exercise of the profession of Industrial Technical Engineer
G19	Capacity for teamwork
G25	Recognition of diversity, multiculturalism and gender equality

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To have the capacity to develop an industrial chemical project within a work team.
To know the operation of a chemical industrial plant, from the definition of it until the start-up and operation.
To be able to define, develop and manage a project in the field of industrial engineering.
To have the ability to apply the previous knowledge acquired in thermodynamics, heat transmission, fluid mechanics, transport phenomena, reaction engineering, etc. in the design and optimization of industrial plant equipment

6. Units / Contents

- Unit 1: Introduction
- Unit 2: Definition and scope of a project
- Unit 3: Process Engineering
- Unit 4: Detail Engineering and construction
- Unit 5: Start-up and operation
- Unit 6: Safety
- Unit 7: Environmental

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Lectures	E07 E08 E18 E19 E29 G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11	1.1	27.5	N	-	
Problem solving and/or case studies [ON-SITE]	Guided or supervised work	E20 G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11 G19 G25	0.2	5	Y	Y	
Final test [ON-SITE]	Assessment tests	E07 E08 E18 E19 E20 E29 G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11 G19 G25	0.1	2.5	Y	Y	
Workshops or seminars [ON-SITE]	Project/Problem Based Learning (PBL)	E20 E29 G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11 G19 G25	1	25	Y	Y	
Other off-site activity [OFF-SITE]	Self-study	E07 E08 E18 E19 E20 E29 G01 G02 G03 G04 G05 G06 G07 G08 G09 G10 G11 G19 G25	3.6	90	N	-	
Total:			6	150			
Total credits of in-class work: 2.4							Total class time hours: 60
Total credits of out of class work: 3.6							Total hours of out of class work: 90

As: Assessable training activity

Com: Training activity of compulsory overcoming (It will be essential to overcome both continuous and non-continuous assessment).

8. Evaluation criteria and Grading System

Evaluation System	Continuous assessment	Non-continuous evaluation*	Description
Final test	50.00%	50.00%	There will be a final test in which the theoretical and practical concepts acquired by the student throughout the course will be evaluated.
Assessment of problem solving and/or case studies	40.00%	50.00%	Execution of a practical case (Project): during the whole semester, the students, organized by groups, will participate in the design of a real chemical plant whose design specifications will be provided by the teaching team at the beginning of the course. This part will culminate with the delivery of the Process Engineering Book of the designed plant.
Other methods of assessment	10.00%	0.00%	A final presentation of the case study (Project) will be held where the main results and the resolution methodology of the same will be discussed. Both the exhibition and the work, participation and initiative of the student during the execution of the Project will be valued.
Total:	100.00%	100.00%	

According to art. 4 of the UCLM Student Evaluation Regulations, it must be provided to students who cannot regularly attend face-to-face training activities the passing of the subject, having the right (art. 12.2) to be globally graded, in 2 annual calls per subject.

an ordinary and an extraordinary one (evaluating 100% of the competences).

Evaluation criteria for the final exam:

Continuous assessment:

The student must participate in a mandatory way in the seminars of the practical case (Project).

The student, to be able to pass, must pass all parts of the assessment system with a grade equal to or greater than 5.

Students who do not participate in the preparation seminars of the project must present the day of the final test, a memory of an industrial chemical plant whose subject and scope must be previously agreed with the subject teacher.

Non-continuous evaluation:

Evaluation criteria not defined

Specifications for the resit/retake exam:

The evaluation criteria of this call are analogous to those of the ordinary call

Specifications for the second resit / retake exam:

Los criterios de evaluación de esta convocatoria son análogos a los de la convocatoria ordinaria y extraordinaria

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours hours

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
Costa Novella, E.	Ingeniería química	Alhambra		84-205-0989-2	1983	
Coulson, J. M. (John Metcalfe)	Ingeniería química. II : operaciones básicas /	Reverté,		84-291-7119-3	1987	
MacCabe W.L.; Smith J.C.; Harriot P.	Unit operations in chemical engineering (7th edition)	McGraw-Hill	Boston		2005	
Perry, Robert H.	Perry's chemical engineers handbook	McGraw-Hill		0-07-134412-8	1999	
Rase H.F.; Barrow M.H.	Ingeniería de proyectos para plantas de proceso	CECSA	Mexico		1984	
Cabra L.; de Lucas A.; Ruiz F.; Ramos M.J.	Metodologías de diseño aplicado y gestión de proyectos para	Ediciones de la Universidad de Castilla-La Mancha		978-84-8427-758-3	2010	