



## 1. General information

Course: CHEMICAL PROCEDURES FOR INDUSTRY  
 Type: ELECTIVE  
 Degree: 409 - CHEMISTRY  
 Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY  
 Year: 4

Code: 57335

ECTS credits: 6

Academic year: 2023-24

Group(s): 20

Duration: C2

Second language: English

English Friendly: Y

Bilingual: N

Main language: Spanish

Use of additional languages:

Web site:

Lecturer: ANA RAQUEL DE LA OSA PUEBLA - Group(s): 20				
Building/Office	Department	Phone number	Email	Office hours
Enrique Costa. Despacho 16	INGENIERÍA QUÍMICA	+34926051963	anaraquel.osa@uclm.es	Monday to Thursday, from 13:00 to 14:00 Wednesday and Thursday from 9:00 to 10:00
Lecturer: M <sup>º</sup> JESUS RAMOS MARCOS - Group(s): 20				
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## 2. Pre-Requisites

To have passed the basic training module

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

This subject is related to the subject of Chemical Engineering. The students learn different industrial chemical processes where basic operations are used (shown in the subject of Chemical Engineering). In addition, this subject gives a global vision of what is the ch

## 4. Degree competences achieved in this course

## Course competences

Code	Description
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
E05	Know the chemical elements and their compounds, their forms of obtaining, structure, properties and reactivity, as well as the main techniques for their analysis
E16	Plan, design and develop projects and experiments
G02	Be able to gather and interpret data, information and relevant results, obtain conclusions and issue reasoned reports on scientific, technological or other problems that require the use of chemical tools
G03	Know how to apply the theoretical-practical knowledge acquired in the different professional contexts of Chemistry
G04	Know how to communicate, orally and in writing, the knowledge, procedures and results of chemistry, both specialized and non-specialized
G05	Acquire and adapt new knowledge and techniques of any scientific-technical discipline with incidence in the chemical field
T03	Proper oral and written communication
T05	Organization and planning capacity
T06	Ability to approach decision making
T07	Ability to work as a team and, where appropriate, exercise leadership functions, fostering the entrepreneurial character
T08	Skills in interpersonal relationships
T10	Ability to use specific software for chemistry at user level
T11	Ability to obtain bibliographic information, including Internet resources

## 5. Objectives or Learning Outcomes

## Course learning outcomes

## Description

Learn to develop topics and acquire skills in the oral and written presentation at the time of the presentation of results.

Provide the student with knowledge about the occupational health and safety of the different chemical-industrial processes and their environmental impact, insisting that a good design of the process also implies that it is safe and ecological.

To ensure that the student is able to search and select information in the field of Chemistry and Chemical Engineering and that he / she is capable of processing and presenting it adequately both orally and in writing.

Develop your capacity for synthesis, being critical and objective.

Develop your ability to work as a team.

Encourage and promote in the student all those values and attitudes inherent to scientific activity.

To have a general vision about the different chemical-industrial processes, the economic importance that each one of them has and the industrial interest that the products and subproducts obtained have.

## Additional outcomes

To develop students' capacity for initiative in approaching and solving specific chemistry problems, as well as for interpreting the results obtained

## 6. Units / Contents

## Unit 1: The Industrial Chemistry

## Unit 2: Air Industry

## Unit 3: Water

## Unit 4: Nitrogen compounds of industrial interest

## Unit 5: Sulfur and Sulfuric acid

## Unit 6: Potassium ores

## Unit 7: Phosphate rocks

## Unit 8: Cement and plaster

## Unit 9: Use of Silica

## Unit 10: Safety and industrial hygiene

## 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	CB03 CB04 E05 E16 G02 G03 G04 G05	1	25	N	-	Master class
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB03 CB04 E05 G03 G04 G05 T07 T08	0.6	15	Y	N	Visit to companies and exhibition of works
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB03 CB04 E16 T03 T05 T06	0.4	10	Y	N	Resolution on the whiteboard of cases and exercises
Group tutoring sessions [ON-SITE]	Group Work	CB03 CB04 T06 T07 T08	0.1	2.5	N	-	Discussion and resolution of concepts and doubts
Writing of reports or projects [OFF-SITE]	Self-study	CB03 CB04 G02 G03 G05 T10 T11	2.6	65	Y	N	Autonomous work of the student
Study and Exam Preparation [OFF-SITE]	Self-study	CB03 CB04 E05 G04 T03 T05 T10 T11	1.1	27.5	N	-	Autonomous work of the student
Final test [ON-SITE]	Assessment tests	CB03 CB04 E05 G04 T03 T05 T10 T11	0.2	5	Y	Y	Two partial tests (Continuous Assessment) or one Final Test (Non-Continuous Assessment) will be carried out.
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.3</b>							<b>Total class time hours: 57.5</b>
<b>Total credits of out of class work: 3.7</b>							<b>Total hours of out of class work: 92.5</b>

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
Other methods of assessment	10.00%	0.00%	VISIT TO COMPANIES AND EXHIBITION OF WORKS
Final test	90.00%	100.00%	FINAL EXAM
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

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:

Modules are completed by taking either a single (final) module examination or two partial exams. The first partial will serve to eliminate matter in the ordinary final exam. The minimum grade required to make average between the two partials is 4.0 points.

To complete the program, the student shall have to obtain a minimum of 5.0 points.

The visit to companies and the exhibition of works will be 10% of the final grade.

The rest (90%) is the qualification of the exams, partial or final, as the case may be.

## Non-continuous evaluation:

Non-continuous assessment will be carried out by means of a final exam. The minimum mark to pass the course will be 5 out of 10.

**Specifications for the resit/retake exam:**

The same criteria as final exam

**Specifications for the second resit / retake exam:**

The same criteria as final exam

**9. Assignments, course calendar and important dates****Not related to the syllabus/contents**

Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Group tutoring sessions [PRESENCIAL][Group Work]	2.5
Writing of reports or projects [AUTÓNOMA][Self-study]	65
Study and Exam Preparation [AUTÓNOMA][Self-study]	27.5
Final test [PRESENCIAL][Assessment tests]	5

**Global activity**

Activities	hours
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Group tutoring sessions [PRESENCIAL][Group Work]	2.5
Writing of reports or projects [AUTÓNOMA][Self-study]	65
Final test [PRESENCIAL][Assessment tests]	5
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Study and Exam Preparation [AUTÓNOMA][Self-study]	27.5
<b>Total horas: 150</b>	

**10. Bibliography and Sources**

Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
A. Heaton	The Chemical Industry	Blackie A. & P.	London		1997	
A. Vian	Introducción a la Química Industrial.	Reverté	Barcelona		1994	
BUCHNER, W.; SCHLIEBS, R., WINTER, G.; BUCHEL, K.H.	Industrial Inorganic Chemistry	Verlag Chemie.	New York		1989	
F. ULLMANN,	Ullmann's Encyclopedia of Industrial Chemistry	Verlag Chemie.	Weinheim		1988	
G.T. AUSTIN,	Manual de Procesos Químicos en la Industria	Mc Graw Hill	Mejico		1992	
J. A. KENT,	Riegel's Handbook of Industrial Chemistry	Chemical Society	London		1974	
R. THOMPSON,	The Modern Inorganic Chemicals Industry	Chemical Society	London		1987	