UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course:	MANAGEMENT IN THE CHEMICAL, ENERGY AND ENVIRONMENTAL INDUSTRY	**Code:**	310751
Type:	CORE COURSE	**ECTS credits:**	6
Degree:	2336 - MASTER DEGREE PROGRAM IN CHEMICAL ENGINEERING	**Academic year:**	2023-24
Center:	1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY	**Group(s):**	20
Year:	2	**Duration:**	First semester
Main language:	Spanish	**Second language:**	English
Use of additional languages:		**English Friendly:**	Y
Web site:		**Bilingual:**	N

Lecturer: **FRANCISCO JESUS FERNANDEZ MORALES** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
ITQUIMA / 1	INGENIERÍA QUÍMICA	926 05 21 79	fcojesus.fmorales@uclm.es	M-F from 9:00 until 10:00

Lecturer: **IGNACIO GRACIA FERNANDEZ** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Enrique Costa Novella	INGENIERÍA QUÍMICA	3419	ignacio.gracia@uclm.es	Wednesday and Thursday from 12:00 to 13:00

Lecturer: **ANTONIO DE LUCAS MARTINEZ** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Enrique Costa Novella. Ingeniería Química.Despacho 10.	INGENIERÍA QUÍMICA	Ext. 3410	antonio.lucasm@uclm.es	Tuesday from 9:30 to 10:30

2. Pre-Requisites

Not established

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

The subject addresses key aspects for the development of the professional activity of the Chemical Engineer, related to the managerial function and decision making, taking into account the economic, energy and environmental evaluation of chemical-industrial processes.

4. Degree competences achieved in this course

Course competences

Code	Description
CB08	To be able to integrate knowledge and deal with the complexity of making judgements on the basis of incomplete or limited information, including reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
CB09	To be able to communicate their findings, and the ultimate knowledge and reasons behind them, to specialist and non-specialist audiences in a clear and unambiguous manner
E07	To manage and organize companies, as well as production and service systems, applying knowledge and skills in industrial organization, commercial strategy, planning and logistics, commercial and labor legislation, financial and cost accounting.
E08	To direct and manage the organization of work and human resources applying criteria of industrial safety, quality management, prevention of occupational risks, sustainability, and environmental management.
E10	To adapt to structural changes in society caused by factors or phenomena of an economic, energy or natural nature, in order to solve the resulting problems and provide technological solutions with a high commitment to sustainability.
E13	To learn about the particularities of the energy and environmental industries, their evolution and new developments.
E14	To direct and manage environmental and/or energy activities.
G01	To have adequate knowledge to apply the scientific method and the principles of engineering and economics, to formulate and solve complex problems in processes, equipment, facilities and services, in which matter undergoes changes in its composition, state or energy content, characteristic of the chemical industry and other related sectors including the pharmaceutical, biotechnological, materials, energy, food or environmental sectors.
G02	To conceive, project, calculate and design processes, equipment, industrial facilities and services, in the field of chemical engineering and related industrial sectors, in terms of quality, safety, economy, rational and efficient use of natural resources and environmental conservation.
G03	To direct and manage technically and economically projects, installations, plants, companies and technology centres in the field of chemical engineering and related industrial sectors.
G06	To have the capacity of analysis and synthesis for the continuous progress of products, processes, systems and services using criteria of safety, economic viability, quality and environmental management.
G08	To lead and define multidisciplinary teams capable of solving technical changes and management needs in national and international contexts
G09	To communicate and discuss proposals and conclusions in multilingual forums, specialized and non-specialized, in a clear and unambiguous way
G10	To adapt to changes, being able to apply new and advanced technologies and other relevant developments, with initiative and entrepreneurial spirit
	To possess the skills of autonomous learning in order to maintain and improve the competences of chemical engineering that allow the

G11	continuous development of the profession
MC1	To have acquired advanced knowledge and demonstrated an understanding of the theoretical and practical aspects and of the working methodology in the field of Chemical Engineering with a depth that reaches the forefront of knowledge
MC2	To be able, through arguments or procedures developed and supported by themselves, to apply their knowledge, understanding and problem-solving skills in complex or professional and specialized work environments that require the use of creative or innovative ideas
MC3	To have the ability to collect and interpret data and information on which to base their conclusions including, where necessary and relevant, reflection on social, scientific or ethical issues in the field of chemical engineering
MC4	To be able to deal with complex situations or those that require the development of new solutions in the academic, work or professional field of study of Chemical Engineering
MC5	To know how to communicate to all types of audiences (specialized or not) in a clear and precise way, knowledge, methodologies, ideas, problems and solutions in the field of the study of Chemical Engineering
MC6	To be able to identify their own training needs in the field of study of Chemical Engineering and work or professional environment and to organize their own learning with a high degree of autonomy in all kinds of contexts (structured or unstructured).

5. Objectives or Learning Outcomes

Course learning outcomes

Description

To have skills in the basics of accounting in a company in the chemical sector

To be able to perform the managing tasks of a chemical engineer board

To be able to make an economic forecast and a business plan of a business project in the chemical sector

To acquire the basic concepts of financial management (financial analysis and business plan) and marketing applied to the chemical industry sector

6. Units / Contents

Unit 1: Strategic Management

Unit 2: Chemical Engineer and Chemical Industry

Unit 3: Management Function

Unit 4: Economic Forecast

Unit 5: Financial Accounting Bases

Unit 6: Introduction to Financial Management

Unit 7: Financing

Unit 8: Introduction to Macroeconomics

Unit 9: Preparation of the Business Plan

Unit 10: Introduction to Marketing

Unit 11: Analysis of Investment Projects

Unit 12: Budgeting in R&D Projects

Unit 13: The Creation of Companies

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	CB08 E07 E10 E13 G01 G02 G03 G06 MC1 MC3 MC4 MC6	0.48	12	N	-	
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	CB08 CB09 E07 E08 E10 E14 G01 G02 G03 G06 G08 G09 G10 MC1 MC2 MC3 MC4 MC5 MC6	1.6	40	Y	N	
Other on-site activities [ON-SITE]	Debates	CB08 CB09 E07 E08 E10 E13 E14 G01 G02 G03 G06 G08 G09 G10 G11 MC1 MC2 MC3 MC4 MC5 MC6	0.32	8	Y	N	
Study and Exam Preparation [OFF-SITE]	Combination of methods	G11 MC2	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
Assessment of problem solving and/or case studies	80.00%	80.00%	
Oral presentations assessment	20.00%	20.00%	
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:

Preparation of memories or reports on seminars (cases, problems and projects) 80%
Oral tests and defense of works 20%

Non-continuous evaluation:

Final evaluation test consisting of the elaboration of a report on cases, problems and projects (80%) and an oral test of defense of works (20%).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	12
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	40
Other on-site activities [PRESENCIAL][Debates]	8
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	90

Global activity

Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	12
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	40
Other on-site activities [PRESENCIAL][Debates]	8
Study and Exam Preparation [AUTÓNOMA][Combination of methods]	90
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Antonio de Lucas Martínez (Dir.) Francisco Jesús Fernández Morales (Coord.) Jesús David Sánchez de Pablo González del Campo (Coord.) Ignacio Gracia Fernández (Coord.)	Bases de economía para la función directiva del ingeniero químico	Ediciones de Castilla-La Mancha		978-84-9044-232-6		
	http://publicaciones.uclm.es/bases-de-economia-para-la-funcion-directiva-del-ingeniero-quimico/					