



## 1. General information

**Course:** SAFETY AND KNOWLEDGE MANAGEMENT IN THE CHEMICAL INDUSTRY

**Code:** 310750

**Type:** CORE COURSE

**ECTS credits:** 6

**Degree:** 2336 - MASTER DEGREE PROGRAM IN CHEMICAL ENGINEERING

**Academic year:** 2020-21

**Center:** 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY

**Group(s):** 20

**Year:** 1

**Duration:** C2

**Main language:** Spanish

**Second language:** English

**Use of additional languages:**

**English Friendly:** Y

**Web site:**

**Bilingual:** N

**Lecturer:** JUAN FRANCISCO RODRIGUEZ ROMERO - Group(s): 20

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**Lecturer:** MARIA LUZ SANCHEZ SILVA - Group(s): 20

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## 2. Pre-Requisites

Not established

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

Not established

## 4. Degree competences achieved in this course

## Course competences

Code	Description
CB06	To possess and understand knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
CB07	To be able to apply acquired knowledge and problem-solving skills in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study
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
CB10	To possess the learning skills to continue studying in a largely self-directed or autonomous manner.
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.
E09	To manage Research, Development and Technological Innovation, taking into account technology transfer and property and patent rights.
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.
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.
G04	To conduct appropriate research, undertake design and direct the development of engineering solutions, in new or unfamiliar environments, relating creativity, originality, innovation and technology transfer.
G07	To integrate knowledge and deal with the complexity of making judgments and decisions, based on incomplete or limited information, including reflections on the social and ethical responsibilities of professional practice
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
G11	To possess the skills of autonomous learning in order to maintain and improve the competences of chemical engineering that allow the 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

MC4	relevant, reflection on social, scientific or ethical issues in the field of chemical engineering. 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 be able to handle with ease the sources of scientific and technical information that are made available to them in the scientific field.

To acquire skills in managing equipment and human resources

To acquire sufficient knowledge of the mechanisms for the protection, transfer and exploitation of research results

To know the key elements of BS 8800/OHSAS 18001

To achieve a knowledge of the legal framework in which the whole of the research is framed, as well as the related institutions that allow the financing of the R+D+i activity

To be able to prepare applications for funding for research projects, technical reports and scientific articles

To be able to evaluate the exposure of workers to physical and chemical pollutants in the working environment and propose actions for improvement. To know the fundamentals and to handle the tools for the analysis of the consequences and management of the prevention of serious accidents in the chemical industry

## 6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:

Unit 5:

Unit 6:

Unit 7:

Unit 8:

Unit 9:

Unit 10:

Unit 11:

Unit 12:

## 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	CB06 CB07 CB09 CB10 E08 E09 E10 G01 G04 G07	1.2	30	N	-	
Workshops or seminars [ON-SITE]	Project/Problem Based Learning (PBL)	CB06 CB07 CB09 CB10 E08 E09 E10 G01 G04 G07	0.4	10	Y	Y	
Other on-site activities [ON-SITE]	Other Methodologies	CB08 CB09 G01 G07 G09 G10 G11	0.32	8	Y	N	
Computer room practice [ON-SITE]	Group Work	CB06 CB07 CB08 CB09 CB10 E08 E09 E10 G04 G07 G08 G09 G10 G11	0.4	10	Y	Y	
Writing of reports or projects [OFF-SITE]	Problem solving and exercises	CB06 CB07 CB08 CB09 CB10 E08 E09 E10 G01 G04 G07 G08 G09 G10 G11 MC1 MC2 MC3 MC4 MC5 MC6	3.6	90	Y	Y	
Group tutoring sessions [ON-SITE]	Group tutoring sessions	CB06 CB08 CB09 G01	0.08	2	N	-	
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.4</b>			<b>Total class time hours: 60</b>				
<b>Total credits of out of class work: 3.6</b>			<b>Total hours of out of class work: 90</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
Practicum and practical activities reports assessment	30.00%	30.00%	
Oral presentations assessment	30.00%	30.00%	
Other methods of assessment	5.00%	0.00%	
Assessment of problem solving and/or case studies	35.00%	40.00%	
<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).

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	Citv	ISBN	Year	Description
Pérez Álvarez-Ossorio, J. R.	Introducción a la información y documentación científica	Alhambra		84-205-1969-3	1990	
Santamaría Ramiro, J.M.	Análisis y reducción de riesgos en la industria química	Mapfre		84-7100-969-2	1994	
	Fundamentos de información y documentación	EUDEMA (Ediciones de la Universidad Complutense)		84-7754-054-3	1990	