UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: LABORATORY MANAGEMENT SYSTEMS AND THE I+D+I
Code: 311120
Type: CORE COURSE
ECTS credits: 6
Degree: 2366 - MASTER DEGREE PROGRAMME IN CHEMICAL
Academic year: 2023-24
Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY
Group(s): 20
Year: 1
Duration: First semester
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **ALBERTO NOTARIO MOLINA** - Group(s): **20**

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Edificio Marie Curie, primera planta	QUÍMICA FÍSICA	6347	alberto.notario@uclm.es	

Lecturer: **FRANCISCO JAVIER POBLETE MARTIN** - Group(s): **20**

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Lecturer: **ANGEL RIOS CASTRO** - Group(s): **20**

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San Alberto Magno	Q. ANALÍTICA Y TGIA. ALIMENTOS	3405	angel.rios@uclm.es	

Lecturer: **MARIA SAGRARIO SALGADO MUÑOZ** - Group(s): **20**

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EDIFICIO MARIE CURIE	QUÍMICA FÍSICA	3450	sagrario.salgado@uclm.es	

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
CB07	Students are able to apply their acquired knowledge and problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their field of study.
CB09	Students are able to communicate their conclusions and the ultimate knowledge and rationale behind them to specialist and non-specialist audiences in a clear and unambiguous way.
CB10	Students possess the learning skills that will enable them to continue studying in a largely self-directed or autonomous way.
CE01	Apply the principles of metrology for the development of advanced quality research in the field of chemistry, as well as its integration in the management systems of laboratories that comply with the requirements of international standards.
CE06	Assess the principles of sustainable chemistry and safety standards for the handling of known or newly synthesised chemicals.
CG04	Acquire laboratory management skills, both from the point of view of work organisation, responding to principles of quality, safety, environmental and social commitment, as well as the involvement of computer tools and scientific information useful in research and/or routine laboratories.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowledge of R+D+I management and knowledge transfer.

Knowledge of management principles and their role in the organisation of laboratories.

Knowledge and application of metrological tools to ensure traceability of results, validation of analytical methods, and internal quality control.

Knowledge of how to deal with laboratory certification and/or accreditation processes.

Knowledge to apply management systems in testing and calibration laboratories: quality, environment and safety.

To be familiar with the different management systems applied in laboratories and their respective standards.

6. Units / Contents

Unit 1:

Unit 2:

Unit 3:

Unit 4:
Unit 5:
Unit 6:
Unit 7:
Unit 8:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Writing of reports or projects [OFF-SITE]	Self-study		2.2	55	Y	N	
Class Attendance (theory) [ON-SITE]	Lectures		1.04	26	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study		2.24	56	Y	N	
Progress test [ON-SITE]	Assessment tests		0.08	2	Y	Y	
Group tutoring sessions [ON-SITE]	Problem solving and exercises		0.08	2	Y	N	
Workshops or seminars [ON-SITE]	Case Studies		0.2	5	Y	N	
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)		0.16	4	Y	N	
		Total:	**6**	**150**			
		Total credits of in-class work: 1.56					**Total class time hours: 39**
		Total credits of out of class work: 4.44					**Total hours of out of class work: 111**

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
Progress Tests	100.00%	0.00%	
Final test	0.00%	100.00%	
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).

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	7

Unit 1 (de 8):

Activities	**Hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	2
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	4
Progress test [PRESENCIAL][Assessment tests]	.5

Unit 2 (de 8):

Activities	**Hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	10
Class Attendance (theory) [PRESENCIAL][Lectures]	11
Study and Exam Preparation [AUTÓNOMA][Self-study]	15
Progress test [PRESENCIAL][Assessment tests]	.5

Unit 3 (de 8):

Activities	**Hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	5
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Progress test [PRESENCIAL][Assessment tests]	.5

Unit 4 (de 8):

Activities	**Hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	6
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Workshops or seminars [PRESENCIAL][Case Studies]	3

Unit 5 (de 8):

Activities	**Hours**

Writing of reports or projects [AUTÓNOMA][Self-study]	8
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	2
Group tutoring sessions [PRESENCIAL][Problem solving and exercises]	2
Workshops or seminars [PRESENCIAL][Case Studies]	1
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	1
Unit 6 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Workshops or seminars [PRESENCIAL][Case Studies]	1
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	1
Unit 7 (de 8):	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Unit 8 (de 8):	
Activities	**Hours**
Writing of reports or projects [AUTÓNOMA][Self-study]	4
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
Progress test [PRESENCIAL][Assessment tests]	.5
Global activity	
Activities	**hours**
Group tutoring sessions [PRESENCIAL][Problem solving and exercises]	2
Writing of reports or projects [AUTÓNOMA][Self-study]	55
Study and Exam Preparation [AUTÓNOMA][Self-study]	56
Progress test [PRESENCIAL][Assessment tests]	2
Workshops or seminars [PRESENCIAL][Case Studies]	5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	4
Class Attendance (theory) [PRESENCIAL][Lectures]	26
	Total horas: 150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
	Reglamento comunitario 1221/2009 (EMAS)	UE			2009	
	Norma UNE-EN-ISO 14001:2015	AENOR			2015	
B.W. Wenclawiak, M. Koch, E. Hadjicostas	Quality Assurance in Analytical Chemistry	Springer			2003	
Carmen Orozco Barrenetxea y col	Contaminación ambiental Una visión desde la química	Paraninfo			2002	
Antonio Carretero Peña	Aspectos ambientales. Identificación y evaluación	AENOR			2016	
	Norma UNE-EN ISO 9001:2015	AENOR			2015	
	Norma UNE-EN ISO 17025:2017	AENOR			2017	
José Luis Valdés Fernández	Guía para la aplicación de UNE-EN ISO 14001:2015	AENOR			2016	
R. Compañó y A. Ríos	Garantía de la Calidad en los Laboratorios Analíticos	Síntesis			2002	