UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: FOUNDATIONS OF HOMOGENEOUS CATALYSIS
Code: 310589
Type: ELECTIVE
ECTS credits: 6
Degree: 2326 - MASTER DEGREE PROGRAMME IN CHEMICAL RESEARCH
Academic year: 2019-20
Center: 1 - FACULTY OF SCIENCE AND CHEMICAL TECHNOLOGY
Group(s): 20
Year: 1
Duration: C2
Main language: Spanish
Second language:
Use of additional languages:
English Friendly: Y
Web site:
Bilingual: N

Lecturer: **ANTONIO FERMIN ANTIÑOLO GARCIA** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
San Alberto Magno	QUÍMICA INORG., ORG., Y BIOQ.	3471	antonio.antinolo@uclm.es	Wednesday and Thursday from 16:30 to 17:30

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
E05	Knowing the usefulness of separation techniques, analysis and structural determination, their joint application in the resolution of research problems, as well as possessing skills in the use of such techniques.
E06	Knowing the main concepts and applications of coordination and organometallic chemistry.
E07	Knowing the principles of sustainable chemistry and safety standards for handling known chemicals
E08	Knowing the kinetics of chemical processes, including catalysis, reaction mechanisms and the methods and techniques used to determine them.
E10	Being able to address synthesis problems, including planning and development of preparation of compounds with new properties, methods of control of selectivity, especially the stereoselective methods.
G01	Knowing the precision of the experimental data and its use for the planning of experimental research work.
G02	Having the necessary ability to perform advanced laboratory procedures and the use of instrumentation in synthetic and analytical work.
T02	Ability to work in a team and to exercise leadership functions, fostering the entrepreneurial character
T05	Ability to obtain bibliographic information at the research level, including Internet resources (databases, specialized scientific bibliography, social networks, etc ...), as well as carry out a selection and classification of it.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Knowing the foundation and the information they provide different techniques, both electron microscopy and spectroscopic characterization of surfaces and coordination compounds.

Understand the basic principles and their application and interpretation of modern characterization techniques for structure determination of catalysts or precatalysts molecular and supported.

Knowing the main instrumental techniques for structure determination of inorganic compounds.

Know the criteria for reactivity modulation of organometallic compounds.

Establishing selection criteria of a catalyst according to their chemical properties

Knowing how to use the appropriate techniques and obtain information for the characterization of catalysts and precatalysts.

Know in depth the concepts of organometallic chemistry. Discloses the preparation of organometallic compounds, their reactivity and their application in organic synthesis and in the design of homogeneous catalysts.

Knowing the different types of organometallic ligands, from the point of view of its link to the metal structure and electronic properties.

6. Units / Contents

Unit 1:
Unit 2:
Unit 3:
Unit 4:
Unit 5:

7. Activities, Units/Modules and Methodology

Training Activity	Methodology	Related Competences (only degrees before RD 822/2021)	ECTS	Hours	As	Com	R	Description
Class Attendance (theory) [ON-SITE]	Lectures		1	25	Y	N	Y	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities		0.8	20	Y	N	Y	
Workshops or seminars [ON-SITE]	Guided or supervised work		0.3	7.5	Y	N	Y	
Problem solving and/or case studies [ON-SITE]	Group tutoring sessions		0.1	2.5	Y	N	Y	
Self-study [OFF-SITE]	Self-study		3.1	77.5	Y	N	Y	
Study and Exam Preparation [OFF-SITE]	Self-study		0.7	17.5	Y	N	Y	
		Total:	**6**	**150**				
		Total credits of in-class work: 2.2						**Total class time hours: 55**
		Total credits of out of class work: 3.8						**Total hours of out of class work: 95**

As: Assessable training activity
Com: Training activity of compulsory overcoming
R: Rescheduling training activity

8. Evaluation criteria and Grading System

	Grading System		
Evaluation System	**Face-to-Face**	**Self-Study Student**	**Description**
Assessment of problem solving and/or case studies	25.00%	25.00%	
Laboratory sessions	25.00%	25.00%	
Final test	50.00%	50.00%	
Total:	**100.00%**	**100.00%**	

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
No se ha introducido ningún elemento bibliográfico						