

**1. General information****Course:** INNOVATION AND RESEARCH IN CIVIL ENGINEERING**Code:** 310820**Type:** CORE COURSE**ECTS credits:** 6**Degree:** 2343 - MASTERS DEGREE PROGRAMME IN ENGINEERING OF ROADS, CANALS AND PORTS**Academic year:** 2020-21**Center:** 603 - E.T.S. CIVIL ENGINEERS OF CR**Group(s):** 20**Year:** 1**Duration:** AN**Main language:** English**Second language:** English**Use of additional languages:****English Friendly:** N**Web site:****Bilingual:** N

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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	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	Apply the achieved knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to the area of study
CB09	Know how to communicate the conclusions and their supported knowledge and ultimate reasons to specialized and non-specialized audiences in a clear and unambiguous way
CB10	Have the learning skills which allow to continue studying in a self-directed or autonomous way
G05	Knowledge of the Civil Engineering profession and the activities that can be carried out in the field of civil engineering.
G07	Knowledge to apply technical and managerial skills in R&D&I activities in the field of civil engineering.
G18	Ability to participate in research projects and scientific and technological collaborations within its thematic area, in interdisciplinary contexts and, where appropriate, with a high knowledge transfer component.
G19	Knowledge of the latest developments and applications of technology to civil engineering in all its fields, as well as its new challenges.
G27	Ability to communicate in a second language.
G28	Ability to work in an international context.

5. Objectives or Learning Outcomes**Course learning outcomes**

Description

Students use databases and bibliographic sources to frame the state of the art of engineering problems in all its fields.

Students apply the scientific method to problem solving.

Students master oral and written communication tools (reports, presentations) for the transmission of research results.

Students know the latest scientific and technological advances and their application to the different fields of civil engineering.

Students know the latest lines of innovation in civil engineering in its various fields.

6. Units / Contents

Unit 1: Oral Communication

- Unit 1.1 How to use the best the features of the voice.
- Unit 1.2 How to express clearly every idea.
- Unit 1.3 How to structure your speech
- Unit 1.4 How to make up a good performance

Unit 2: Scientific Method

Unit 3: Writing Scientific Papers

- Unit 3.1 Scientific Databases
- Unit 3.2 Citations and References

Unit 4: Science and Technology System

Unit 5: Innovation and Research in Civil Engineering

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 G05 G18 G19 G28	0.8	20	Y	N	
Class Attendance (theory) [ON-SITE]	Workshops and Seminars	CB06 CB07 CB09 G07 G18 G19	0.8	20	Y	N	
Project or Topic Presentations [ON-SITE]	Individual presentation of projects and reports	CB06 CB09 G18	0.2	5	Y	Y	
Writing of reports or projects [OFF-SITE]	Self-study	CB06 CB07 CB09 G19 G27	3.8	95	Y	Y	
Analysis of articles and reviews [OFF-SITE]	Reading and Analysis of Reviews and Articles	CB06 CB07 CB09 G05 G07 G18 G19 G27 G28	0.4	10	Y	N	
Total:			6	150			
Total credits of in-class work: 1.8			Total class time hours: 45				
Total credits of out of class work: 4.2			Total hours of out of class work: 105				

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
Oral presentations assessment	75.00%	100.00%	Defence of works carried out
Assessment of active participation	25.00%	0.00%	
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
Project or Topic Presentations [PRESENCIAL][Individual presentation of projects and reports]	3
Writing of reports or projects [AUTÓNOMA][Self-study]	75
Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	8
Unit 1 (de 5): Oral Communication	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	8
Project or Topic Presentations [PRESENCIAL][Individual presentation of projects and reports]	2
Writing of reports or projects [AUTÓNOMA][Self-study]	10
Unit 2 (de 5): Scientific Method	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Writing of reports or projects [AUTÓNOMA][Self-study]	10
Unit 3 (de 5): Writing Scientific Papers	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	6

Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	2
Unit 4 (de 5): Science and Technology System	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Unit 5 (de 5): Innovation and Research in Civil Engineering	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Workshops and Seminars]	20
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	20
Class Attendance (theory) [PRESENCIAL][Workshops and Seminars]	20
Project or Topic Presentations [PRESENCIAL][Individual presentation of projects and reports]	5
Writing of reports or projects [AUTÓNOMA][Self-study]	95
Analysis of articles and reviews [AUTÓNOMA][Reading and Analysis of Reviews and Articles]	10
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
FECYT	Indicadores del Sistema Español de Ciencia y Tecnología				2016	
M. O'Connor, F.P. Woodford	Writing Scientific Papers in English.	Pitman M. Publishing Co.			1979	
A. Wallwork	English for Writing Research Papers.	Springer		978-1-4419-7922-3	2011	