UNIVERSIDAD DE CASTILLA - LA MANCHA

GUÍA DOCENTE

1. General information

Course: ENGINEERING PROJECTS
Code: 56329
Type: CORE COURSE
ECTS credits: 6
Degree: 421 - UNDERGRADUATE DEGREE PROG. IN MECHANICAL ENGINEERING
Academic year: 2022-23
Center: 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL
Group(s): 20 21
Year: 4
Duration: First semester
Main language: Spanish
Second language: English
Use of additional languages:
English Friendly: Y
Web site: https://campusvirtual.uclm.es/
Bilingual: N

Lecturer: **JAVIER CONTRERAS SANZ** - Group(s): **20**

Building/Office	Department	Phone number	Email	Office hours
Edificio Politécnico 2-D12	MECÁNICA ADA. E ING. PROYECTOS	Vía Teams	Javier.Contreras@uclm.es	Any time of the week, upon request via e-mail, according to availability and agenda.

Lecturer: **JOSE IGNACIO MUÑOZ HERNANDEZ** - Group(s): **21**

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2. Pre-Requisites

For students to achieve the learning objectives described is highly recommended to have passed the subjects of the preceding courses that allow them to have an idea of the whole, especially those of technological scope related to the calculation, design, and development of an engineering project.

Likewise, it is advisable to have knowledge of English, at least at a basic level.

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

We are faced with a discipline and a subject different from those dictated throughout the course of the degree, it can be said that it is atypical within the set of subjects, but nevertheless very typical within the engineering profession. We are facing a very formative subject, in which the student has to work as a team, must provide dedication, and in which he/she can glimpse something of what his/her profession is going to be.

It is not only that the student learns specific works that could be done throughout the course, what is involved is that he/she learns some methods, a way of working, a way of doing things that allows him to perform other different specific works. In addition, It is intended to acquire some qualities, a behavior and, why not say, a suitable temperament to work in the world of project engineering.

4. Degree competences achieved in this course

Course competences

Code	Description
CB02	Apply their knowledge to their job or vocation in a professional manner and show that they have the competences to construct and justify arguments and solve problems within their subject area.
CB03	Be able to gather and process relevant information (usually within their subject area) to give opinions, including reflections on relevant social, scientific or ethical issues.
CB04	Transmit information, ideas, problems and solutions for both specialist and non-specialist audiences.
CB05	Have developed the necessary learning abilities to carry on studying autonomously
CEC12	Knowledge and skills to organise and manage projects. Knowledge of the organisational structure and functions of a project office.
CG01	Ability to draft, sign and develop projects in the field of Industrial Engineering, in accordance with the knowledge acquired under the provisions of Order CIN/351/2009, for the construction, reform, repair, conservation, demolition, manufacture, installation, assembly or operation of: structures, mechanical equipment, energy installations, electrical and electronic installations, industrial installations and plants, and manufacturing and automation processes.
CG02	Ability to manage activities related to engineering projects in the field of industrial engineering.
CG04	Ability to solve problems with initiative, decision-making, creativity, critical reasoning and to communicate and transmit knowledge, skills and abilities in the field of industrial engineering.
CG05	Knowledge required to carry out measurements, calculations, valuations, appraisals, valuations, surveys, studies, reports, work plans and other similar work.
CG06	Ability to handle specifications, regulations and mandatory standards.
CG07	Ability to analyse and assess the social and environmental impact of technical solutions.
CG08	Ability to apply quality principles and methods.
CG09	Organisational and planning skills in the field of companies and other institutions and organisations.
CG10	Capacity to work in a multilingual and multidisciplinary environment.
CG11	Knowledge, understanding and ability to apply the necessary legislation necessary when working as an Industrial technical engineer.
CT02	Knowledge and application of information and communication technology.
CT03	Ability to communicate correctly in both spoken and written form.

CT04 Knowledge of ethical commitment and professional ethics.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Ability to manage any type of project.

Knowledge of the main computer applications used in the preparation, processing and control of projects.

Knowledge of the general aspects of environmental technologies and sustainability.

Knowledge of the different tasks to be performed in a project office.

To know the functions of the work management, its functions and all its responsibilities.

Ability to present and defend ideas, problems and solutions in the field of engineering projects.

Understanding and interpreting the importance of current regulations and legislation to be applied in industrial engineering works and their implementation in industrial projects.

Ability to analyse and compare different alternatives proposed from the economic perspective of a project.

Awareness of the need to adapt engineering projects so that they damage the environment as little as possible.

Ability to design, draft and manage all the documents that comprise the structure of an industrial project or any technical document that must be drawn up by this type of professional. Fundamental documents: report, plans, specifications, budget, health and safety documents, environmental documents, control of deadlines and times.

6. Units / Contents

Unit 1: Introduction to the project

Unit 2: Documents. Contents and ellaboration

Unit 3: Economic and financial evaluation

Unit 4: Planning, programming and project control

Unit 5: Execution and project management

Unit 6: Human resources and industrial property

Unit 7: Legislation, quality, safety and environment

Unit 8: Legal procedures of projects

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	CB02 CB03 CB05 CEC12 CG01 CG02 CG04 CG06 CG07 CG08 CG09 CG10 CG11 CT04	1.28	32	N	-	Participatory master class, with blackboard and projector
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB02 CB03 CB05 CEC12 CG02 CG04 CG05 CG08 CG09 CT03	0.2	5	N	-	Problem solving by the teacher in the classroom with active participation of students
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB02 CB03 CB05 CEC12 CG02 CG04 CG05 CG09 CG10 CT02 CT03	0.6	15	Y	Y	Computer Classroom, through specific programs
Formative Assessment [ON-SITE]	Assessment tests	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	0.32	8	Y	Y	Written tests, practical laboratory tests and presentation and defense of individual or group academic works
Study and Exam Preparation [OFF-SITE]	Self-study	CB02 CB03 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	3.6	90	N	-	Autonomous personal study of the student and supervised work
		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
Projects	35.00%	35.00%	In continuous assessment, it consists of the completion and delivery of academic work done outside of class, presented in class and supervised by the teacher individually or in small groups. In non-continuous assessment, it consists of the completion of an academic work done outside of class individually that will be delivered and presented on the day of the final test. Minimum mark for both evaluations: 4.0
			In continuous assessment it consists of the delivery of the

Assessment of activities done in the computer labs	15.00%	15.00%	practical exercises carried out in the sessions as well as taking a test of the contents of the practices. In non-continuous assessment, it consists of taking a test of the contents of the practices. Minimum mark for both evaluations: 4.0
Final test	0.00%	40.00%	It consists of taking a single evaluation test including theoretical-practical exercises similar to those carried out in the training activities throughout the course.
Assessment of problem solving and/or case studies	10.00%	10.00%	In continuous assessment, it consists of the completion and delivery of problems by the students. In non-continuous assessment, there will be a test related to these problems on the day of the final test.
Mid-term tests	40.00%	0.00%	It consists of several tests including theoretical-practical exercises similar to those carried out in the training activities throughout the course. Minimum mark for each partial: 4.0
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:

Continuous evaluation of all training processes that will be weighted to obtain a final grade between 0 and 10 according to the current legislation (Real Decreto 1125/2003 de 5 de septiembre). The evaluation of the student is the result of the course follow-up and / or the exams or written tests that will consist of theoretical questions and practical exercises. The course follow-up is based on:

- Evaluation of the assimilation of concepts and procedures through written tests.

- Evaluation of the acquisition of practical skills through an ad-hoc built profile of competences that considers the documentation submitted by the student, individually or in small groups, through reports, the work developed, and the skills and attitudes shown during assessments and guided practical activities.

- Evaluation of academic work carried out by students outside of class and supervised by the professor, individually or in small groups. The student must make, deliver, and defend before the professor a report with some of the proposed exercises. The professor will assess the presentation, exhibition, defense, and difficulty of the chosen exercises.

- Evaluation of laboratory practices in the computer room with application of specific software by assessing the delivery of the work done in class and the realization of a practical test in the same classroom.

The final grade of the student is from 0 to 10 points, with the following nuances:

- To pass and be able to weight the subject of each partial, a minimum grade of 4 points must be obtained. Partial tests whose marks are less than 4 must be recovered along with the final test.

- The grade obtained in the exercises of practices is saved until the extraordinary call.

- The grade obtained in the elaboration of the project and the assessment of problem solving are saved until the extraordinary call.

- Regular attendance at the practical classes is compulsory to be able to pass through continuous assessment.

Non-continuous evaluation:

To pass the subject in the continuous assessment, they must pass the practical test, deliver and defend the work of the subject and take the final test that will include all the contents of the subject together with another test to evaluate the assessment of problem solving.

Specifications for the resit/retake exam:

To pass the subject in the extraordinary call, they must pass the practical test, deliver and defend the work of the subject and take the final test that will include all the contents of the subject together with another test to evaluate the assessment of problem solving.

Specifications for the second resit / retake exam:

As in the extraordinary call.

9. Assignments, course calendar and important dates

Not related to the syllabus/contents

Hours	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	5
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Formative Assessment [PRESENCIAL][Assessment tests]	8
Study and Exam Preparation [AUTÓNOMA][Self-study]	90

Global activity

Activities	**hours**
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	5
Class Attendance (practical) [PRESENCIAL][Practical or hands-on activities]	15
Formative Assessment [PRESENCIAL][Assessment tests]	8
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Avraham Shtub, Jonathan F. Bard, Shlomo Globerson	Project management: Engineering, technology, and implementation	Prentice Hall	New Jersey, USA	0-13-556458-1	1994	Gestión de proyectos de ingeniería
Cindy Lewis, Carl Chatfield, Timothy Johnson	Microsoft Project 2019 step by step	Microsoft Press	Redmond, USA	978-1-5093-0742-5	2019	Libro de prácticas con ejemplos y casos para aprender el manejo del programa MS Project 2019
Javier Contreras Sanz, José Ignacio Muñoz Hernández	Proyectos	UCLM	Ciudad Real	978-84-608-0640-0	2007	Ingeniería de proyectos
Adedeji B. Badiru, P. Simin Pulat	Comprehensive project management: Integrating optimization models, management principles, and computers	Prentice Hall	New Jersey, USA	978-0130309259	1994	Gestión de proyectos de ingeniería
Ana González Marcos, Fernando Alba Elías, Joaquín Ordieres Meré	Ingeniería de proyectos	Dextra	Madrid	978-8416277018	2014	Ingeniería de proyectos
Manuel de Cos Castillo	Teoría general del proyecto vol. II: Ingeniería de proyectos	Síntesis, S. A.	Madrid	978-8477384526	1997	Ingeniería de proyectos