

**1. General information****Course:** ENGINEERING PROJECTS**Type:** CORE COURSE**Degree:** 353 - UNDERGRADUATE DEGREE PROG. IN MECHANICAL ENGINEERING (CR)**Center:** 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL**Year:** 4**Main language:** Spanish**Use of additional languages:****Web site:** <https://campusvirtual.uclm.es/>**Code:** 56329**ECTS credits:** 6**Academic year:** 2022-23**Group(s):** 20 21**Duration:** First semester**Second language:** English**English Friendly:** Y**Bilingual:** N**Lecturer:** JAVIER CONTRERAS SANZ - Group(s): 20

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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 a subject without fixed rules, where only recommendations or advice are given, in some cases not well defined, that can only be achieved by its usefulness and the way to use them when doing a job.

In this discipline the student can and should contribute with something; his/her attitude should not be passive, nor exclusively receptive, but should move to a creative phase where personal initiative is an important element, and even preponderant.

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**

Not established.

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

Not established.

**6. Units / Contents****Unit 1: INTRODUCTION TO THE PROJECT. DOCUMENTS. CONTENTS AND ELABORATION****Unit 2: ECONOMIC AND FINANCIAL EVALUATION****Unit 3: PLANNING, PROGRAMMING AND CONTROL OF A PROJECT****Unit 4: TIME AND COST MANAGEMENT TECHNIQUES OF A PROJECT****Unit 5: PROJECT'S RESOURCES MANAGEMENT****Unit 6: LEGAL PROCESSING AND INDUSTRIAL PROPERTY RIGHTS. LEGISLATION, QUALITY, SECURITY AND ENVIRONMENT****ADDITIONAL COMMENTS, REMARKS**

CONTENTS OF VERIFIED MEMORY	TOPICS
Introduction to the Project. Documents. Contents and Elaboration	1

Economic and Financial Evaluation	2
Legislation, Quality, Security, and Environment.	6
Human Resources and Property Rights.	5
Legal Processing of Projects.	6
Execution and Management of Projects.	4
Planning, Programming, and Control of Projects.	3

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	A0 A02 A03 A08 A09 A10 A11 A13 A15 A16 A18 A19 C12	0.8	20	Y	N	Participatory master class, with blackboard and projector
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	A0 A02 A03 A08 A09 A10 A13 A15 A18 A19	0.4	10	Y	N	Solving problems in the classroom in a participatory manner, with traditional tools and realization of project work
Computer room practice [ON-SITE]	Work with simulators	A0 A02 A03 A07 A08 A09 A10 A11 A13 A15 A18 A19	0.6	15	Y	Y	Computer Classroom, through specific programs
Practicum and practical activities report writing or preparation [OFF-SITE]	Work with simulators	A0 A02 A03 A07 A08 A09 A10 A11 A13 A15 A18 A19	0.4	10	Y	Y	Writing the report of the practice after its realization
Workshops or seminars [ON-SITE]	Workshops and Seminars	A0 A02 A03 A07 A08 A09 A13 A19	0.2	5	N	-	Talks and / or seminars given by professionals with experience in the realization of engineering projects
Writing of reports or projects [OFF-SITE]	Group Work	A0 A02 A03 A07 A08 A09 A10 A11 A13 A14 A15 A16 A18 A19 C12	3.2	80	Y	Y	Autonomous personal study of the student and supervised work.
Group tutoring sessions [ON-SITE]	Group tutoring sessions	A0 A02 A03 A07 A08 A09 A10 A11 A13 A14 A15 A16 A18 A19 C12	0.2	5	N	-	Group tutorials (or individualized if necessary). Direct interaction teacher-student
Progress test [ON-SITE]	Assessment tests	A0 A02 A03 A07 A08 A09 A10 A11 A13 A14 A15 A16 A18 A19 C12	0.06	1.5	Y	N	Written tests, practical laboratory tests and presentation and defense of individual or group academic works
Final test [ON-SITE]	Assessment tests	A0 A02 A03 A07 A08 A09 A10 A11 A13 A14 A15 A16 A18 A19 C12	0.14	3.5	Y	Y	Exam / Test / Final Defense
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
Laboratory sessions	15.00%	15.00%	In continuous assessment it consists of the delivery of the 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: 4.0
Progress Tests	40.00%	50.00%	In continuous assessment, it consists of several tests including theoretical-practical exercises similar to those carried out in the training activities throughout the course. In non-continuous assessment, it consists of taking a single evaluation test of the same contents. Minimum mark: 4.0
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 exam. Minimum mark: 4.0
Assessment of problem solving and/or case studies	10.00%	0.00%	In continuous assessment, it consists of the completion and delivery of practical exercises by students. In non-continuous assessment, the corresponding percentage will be included in the single test that evaluates the contents of the progress tests.

**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 exam or written test that will consist of theoretical questions and practical exercises. The course follow-up is based on:

- 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 the assimilation of concepts and procedures through written tests.
- 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 attendance to the practices, 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:

- The grade obtained in the progress tests (partials) is saved until the ordinary call. To pass and be able to weight the subject of each partial, a minimum grade of 4 points must be obtained.
- The grade obtained in the elaboration of reports of practices is saved until the extraordinary call.
- The grade obtained in the elaboration of reports or works (the project of the subject) is saved until the extraordinary call.
- Regular attendance to the practical classes is compulsory both to be able to pass through continuous assessment and to save the grade of the different partial exams until the ordinary call.

##### Non-continuous evaluation:

As in the continuous assessment except for the assessment of problem solving and/or case studies, whose weight becomes part of the final exam. The rest of works and exercises that count for the final qualification can be performed remotely, since the software will be accessible free of charge for its individual installation.

#### Specifications for the resit/retake exam:

Students who have not passed the subject (grade 5 or higher) will attend it. To pass the subject in the extraordinary call, they must pass the practical test, deliver and defend the project of the subject and take the final test that will include all the contents of the subject.

Students who do not attend the extraordinary session will be considered as NOT PRESENTED.

#### 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
Computer room practice [PRESENCIAL][Work with simulators]	15
Practicum and practical activities report writing or preparation [AUTÓNOMA][Work with simulators]	10
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	5
Writing of reports or projects [AUTÓNOMA][Group Work]	80
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	5
Progress test [PRESENCIAL][Assessment tests]	1.5
Final test [PRESENCIAL][Assessment tests]	3.5
Unit 1 (de 6): INTRODUCTION TO THE PROJECT. DOCUMENTS. CONTENTS AND ELLABORATION	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Unit 2 (de 6): ECONOMIC AND FINANCIAL EVALUATION	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Unit 3 (de 6): PLANNING, PROGRAMMING AND CONTROL OF A PROJECT	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	4
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Unit 4 (de 6): TIME AND COST MANAGEMENT TECHNIQUES OF A PROJECT	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
Unit 5 (de 6): PROJECT'S RESOURCES MANAGEMENT	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3

Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	2
<b>Unit 6 (de 6): LEGAL PROCESSING AND INDUSTRIAL PROPERTY RIGHTS. LEGISLATION, QUALITY, SECURITY AND ENVIRONMENT</b>	
<b>Activities</b>	<b>Hours</b>
Class Attendance (theory) [PRESENCIAL][Lectures]	2
<b>Global activity</b>	
<b>Activities</b>	<b>hours</b>
Computer room practice [PRESENCIAL][Work with simulators]	15
Practicum and practical activities report writing or preparation [AUTÓNOMA][Work with simulators]	10
Workshops or seminars [PRESENCIAL][Workshops and Seminars]	5
Writing of reports or projects [AUTÓNOMA][Group Work]	80
Group tutoring sessions [PRESENCIAL][Group tutoring sessions]	5
Progress test [PRESENCIAL][Assessment tests]	1.5
Final test [PRESENCIAL][Assessment tests]	3.5
Problem solving and/or case studies [PRESENCIAL][Project/Problem Based Learning (PBL)]	10
Class Attendance (theory) [PRESENCIAL][Lectures]	20
<b>Total horas: 150</b>	

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, EEUU	0-13-556458-1	1994	Engineering project management
Carl Chatfield, Timothy Johnson	Microsoft Project 2016 Step by Step	Microsoft Press	Redmond, Washington	978-0735698741	2016	Practice book with examples and cases to learn the management of the MS Project 2016 program
Javier Contreras Sanz, José Ignacio Muñoz Hernández	PROYECTOS	UCLM	Ciudad Real	978-84-608-0640-0	2007	Project engineering
Adedeji B. Badiru, P. Simin Pulat	COMPREHENSIVE PROJECT MANAGEMENT: INTEGRATING OPTIMIZATION MODELS, MANAGEMENT PRINCIPLES, AND COMPUTERS	Prentice Hall	New Jersey, EEUU	978-0130309259	1994	Engineering project management
Roberto Soriano Domènech	Project 2016. Curso práctico paso a paso	Altaria		978-84-944776-4-5	2016	Practice book with examples and cases to learn the management of the MS Project 2016 program