UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

Course: ENGINEERING PROJECTS

Type: CORE COURSE

Degree: 413 - UNDERGRADUATE DEGREE PROGRAMME IN ELECTRICAL ENGINEERING

Center: 605 - SCHOOL OF INDUSTRIAL ENGINEERS. AB

Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 56415

ECTS credits: 6

Academic year: 2022-23

Group(s): 10

Duration: First semester

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: **ANA FERNÁNDEZ GUILLAMÓN** - Group(s): **10**

Building/Office	Department	Phone number	Email	Office hours
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Lecturer: **LUIS SERRANO GOMEZ** - Group(s): **10**

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2. Pre-Requisites

In order for the students to achieve the learning objectives described, it is highly recommended to have passed the subjects of the previous courses that allow the student to have a general idea of this subject, especially those related to technology, calculation, design and development of an engineering project. Likewise, it is advisable to have knowledge of English, office automation and computer-aided design software, at least at a basic level.

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

In this subject, the professional attributions of the Graduate in Industrial Engineering are described. It also studies the morphology and contents of Industrial Projects, Technical Reports, Assessments and Appraisals, Health&Safety and Prevention Studies, Construction Management, Planning and Control, Cost Control, etc.

The development of generic skills and competences such as teamwork, autonomous learning, use of computer tools and the ability to apply knowledge to practice is also encouraged.

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

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

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

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

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

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.

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

Ability to manage any type of project.

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

Knowledge of the general aspects of environmental technologies and sustainability.

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

6. Units / Contents

Unit 1: Introduction.

Unit 2: Documents, Contents and Elaboration.

Unit 3: Economic and Financial Assessment.

Unit 4: Project Planning, Programming and Control.

Unit 5: Project Execution and Management

Unit 6: Human Resources and Industrial Property Rights.

Unit 7: Legislation, Quality, Safety and Health and Environmental Management.

Unit 8: Legal Processing of Projects.

ADDITIONAL COMMENTS, REMARKS

Workshop 1: Project Budgeting with Arquímedes.

Workshop 2: Project Profitability Assessment with Excel.

Workshop 3: Project Scheduling with Project.

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 CB04 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	1.28	32	Y	N	Interactive master class, with blackboard and projector
Problem solving and/or case studies [ON-SITE]	Project/Problem Based Learning (PBL)	CB02 CB05 CEC12 CG01 CG02 CG04 CG05 CG06 CG09 CG10 CG11 CT03 CT04	0.2	5	Y	Y	Solving problems or case stydies during the class in a interactive manner
Class Attendance (practical) [ON-SITE]	Practical or hands-on activities	CB02 CB03 CB04 CB05 CG01 CG02 CG04 CG05 CG06 CG07 CG08 CG09 CG10 CG11 CT02 CT03 CT04	0.6	15	Y	Y	Workshops with PCs and specific software.
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	Activities and workshops reporting
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	Y	Y	Autonomous self study of the student, supervised by the teacher.
		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	40.00%	40.00%	Industrial engineering project's documents elavoration, report and presentation
Assessment of activities done in the computer labs	20.00%	20.00%	Workshops at PC lab, using specific software.
Final test	40.00%	40.00%	Written exam with theoretical questions, computer tests, case studies, exercises and/or problems.
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 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 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, taking into account the following remarks:

- The grade obtained in the progress tests (partial exams) 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.

Non-continuous evaluation:

Attendance at seminars may be replaced by individual work related to the presentations.

The software installed in the computer lab to perform the practices will be accessible free of charge for individual installations. The final exam have to be carried out in the computer lab.

Specifications for the resit/retake exam:

The students who have not attended and delivered the practice reports and / or the project of the subject will attend it. In order to pass the subject in the extraordinary call, they must deliver the practice reports and the project of the subject in addition to take the final test that will include all the contents of the subject.

Non-continuous evaluation:

- The software installed in the computer lab to perform the practices will be accessible free of charge for individual installations. The final exam will be replaced by a job.

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

Specifications for the second resit / retake exam:

As in the first resit

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][Project/Problem Based Learning (PBL)]	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][Project/Problem Based Learning (PBL)]	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
Class Attendance (theory) [PRESENCIAL][Lectures]	32
Total horas:	150

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	City	ISBN	Year	Description
A. Gonzalez Marcos et al.	INGENIERÍA DE PROYECTOS	Dextra	Madrid	978-84-16277-01-8	2014	Compendio de la Ingeniería de Proyectos
J. Contreras Sanz, J. I. Muñoz Hernández	PROYECTOS	UCLM	Ciudad Real	978-84-608-0640-0	2007	Proyectos de ingeniería
J. Oliver Sánchez	MANUAL-GUÍA DE COORDINACIÓN DE SEGURIDAD Y SALUD EN OBRAS INDUSTRIALES	Aprender	Albacete	978-84-938959-9-0	2014	Prevención de Riesgos Laborales
M. de Cos Castillo	TEORÍA GENERAL DEL PROYECTO Vol. II: INGENIERÍA DE PROYECTOS	Síntesis	Madrid	978-84-773845-2-6	2007	Ingeniería de proyectos
C. Chatfield, T. Johnson	STEP BY STEP - MS PROJECT 2013	Microsoft Press	Redmond	978-0-7356-6911-6	2015	Manual de Software
R. Soriano Domenech	PROJECT 2016 CURSO PRÁCTICO PASO A PASO	Altaria	Tarragona	978-84-944776-4-5	2016	Manual de Software