



1. General information

Course: WELDING ENGINEERING

Type: ELECTIVE

Degree: 419 - UNDERGRADUATE DEGREE PROG. IN MECHANICAL ENGINEERING

Center: 106 - SCHOOL OF MINING AND INDUSTRIAL ENGINEERING

Year: 4

Main language: Spanish

Use of additional languages:

Web site:

Code: 56353

ECTS credits: 4.5

Academic year: 2023-24

Group(s): 56

Duration: C2

Second language: English

English Friendly: Y

Bilingual: N

Lecturer: ELENA MARIA BEAMUD GONZALEZ - Group(s): 56

Building/Office	Department	Phone number	Email	Office hours
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2. Pre-Requisites

To take this subject with the maximum use, it is recommended that the student has achieved skills related to the basic knowledge of materials engineering, production and manufacturing systems, graphic representation systems and metrology.

Competencias: CEO27

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

This subject seeks to deepen the knowledge of the different welding techniques and mechanical joints, as well as tests and defects for the quality control of these in the field of mechanical engineering.

4. Degree competences achieved in this course

Course competences

Code	Description
CB01	Prove that they have acquired and understood knowledge in a subject area that derives from general secondary education and is appropriate to a level based on advanced course books, and includes updated and cutting-edge aspects of their field of knowledge.
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
CEO27	Applied knowledge for designing and calculating joints, and the skills required for handling equipment used in the field of joints.
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.
CT02	Knowledge and application of information and communication technology.
CT03	Ability to communicate correctly in both spoken and written form.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Advanced knowledge of joint engineering.

6. Units / Contents

Unit 1: Introduction to the welding process

Unit 2: Teoric and practical fundamentals of the welding process and mechanic joint

Unit 3: Quality control of welding joint and mechanic joint

7. Activities, Units/Modules and Methodology

		Related Competences					
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Training Activity	Methodology	(only degrees before RD 822/2021)	ECTS	Hours	As	Com	Description
Class Attendance (theory) [ON-SITE]	Combination of methods	CB01 CB02 CB03 CB04 CB05 CEO27 CG04 CG05 CG06 CG07 CG08 CT02 CT03	0.6	15	N	-	
Class Attendance (practical) [ON-SITE]	Combination of methods	CB01 CB02 CB03 CB04 CB05 CEO27 CG04 CG05 CG06 CG07 CG08 CT02 CT03	0.6	15	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CEO27 CG04 CG05 CG06 CG07 CG08 CT02 CT03	2.7	67.5	N	-	
Formative Assessment [ON-SITE]	Assessment tests	CB01 CB02 CB03 CB04 CB05 CEO27 CG04 CG05 CG06 CG07 CG08 CT02 CT03	0.2	5	Y	Y	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03 CB04 CB05 CEO27 CG04 CG05 CG06 CG07 CG08 CT02 CT03	0.4	10	N	-	
Total:			4.5	112.5			
Total credits of in-class work: 1.8			Total class time hours: 45				
Total credits of out of class work: 2.7			Total hours of out of class work: 67.5				

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
Final test	33.33%	33.33%	It will consist of carrying out tests with aspects of theoretical-practical application. This test must be passed at least, with a 4 out of 10.
Practicum and practical activities reports assessment	33.33%	33.33%	In continuous evaluation will consist of the delivery of a report of practices. In the non-continuous evaluation the memory will be replaced by an additional practical test on the day of the ordinary call. Minimum grade 4.
Projects	33.34%	33.34%	Realization of a work that integrates all the applications studied in the subject. Minimum grade: 4.
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:

The regulations for the subject of engineering of unions will be as follows: 1 ° The practices will be obligatory and will be developed during the second semester.

2 ° At the end of this semester and before the final examination, the student will have delivered sequentially, through the Moodle platform, a detailed and personalized memory of the practices carried out, indicating even the day of realization.

This report shall contain at least the following data: a) Practice number and name of the practice.

B. Schematic drawing of the practice and material used.

C. Necessary and used equipment D) Form of realization, positioning, movements, etc.

e) Photograph of the piece obtained and analysis of possible defects.

F. All data that the student creates necessary.

3 ° The final note of the subject will consist of a summation of 7 points maximum corresponding to the theoretical part and problems and three points for the practical part and delivery of a work on the seminars carried out throughout the semester. Attendance at organized seminars is absolutely compulsory in order to achieve these points.

4 ° For those students who do not deliver these reports and/or do not find all the practices during the second semester or have not attended the seminars, even those who have made the delivery, but not original works, are similar/ Copied from other companions, for all of them, it will be obligatory to pass a practical/theoretical examination in order to approve the subject.

This examination shall be carried out on the same day as the theorist, with the date, time and place on the bulletin board in the engineering area of the manufacturing process being previously indicated.

Non-continuous evaluation:

The regulations for the subject of engineering of unions will be as follows: 1 ° The practices will be obligatory and will be developed during the second semester.

2 ° At the end of this semester and before the final examination, the student will have delivered sequentially, through the Moodle platform, a detailed and personalized memory of the practices carried out, indicating even the day of realization.

This report shall contain at least the following data: a) Practice number and name of the practice.

B. Schematic drawing of the practice and material used.

C. Necessary and used equipment D) Form of realization, positioning, movements, etc.

- e) Photograph of the piece obtained and analysis of possible defects.
F. All data that the student creates necessary.

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Specifications for the resit/retake exam:

5 ° in the examination corresponding to the call for extraordinary will not be taken into account the notes obtained in the first call, nor, will be taken into account, for later courses.

Specifications for the second resit / retake exam:

The same as the last part.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	15
Class Attendance (practical) [PRESENCIAL][Combination of methods]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	67.5
Formative Assessment [PRESENCIAL][Assessment tests]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Combination of methods]	15
Class Attendance (practical) [PRESENCIAL][Combination of methods]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	67.5
Formative Assessment [PRESENCIAL][Assessment tests]	5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	10
Total horas: 112.5	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
D. Rodriguez Salgado	Soldadura	Bellisco	Barcelona		2002	
Houldcroft, Peter Thomas	Welding Process Tecnology	University of Cambridge			1988	
J. E. Neely	Metalurgia y Materiales Industriales	Limusa	Mexico		2002	
J. Giachino and W. Weeks	Tecnica y practica de la soldadura	Reverte	Barcelona		1997	
D. Rodriguez Salgado	Formulario Tecnico de Soldadura	Bellisco	Madrid		2006	
M. P. Groover	Fundamentos de manufactura moderna	McGraw-Hill	Mexico		2007	