UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: ADVANCED PROGRAMMING
Type: ELECTIVE
Degree: 417 - UNDERGRAD. IN INDUSTRIAL ELECTRONICS AND AUTOMAT. ENGINEERING
Center: 602 - E.T.S. INDUSTRIAL ENGINEERING OF C. REAL
Year: 4
Main language: Spanish
Use of additional languages:
Web site:

Code: 56522
ECTS credits: 6
Academic year: 2022-23
Group(s): 20
Duration: C2
Second language: English
English Friendly: Y
Bilingual: N

Lecturer: **OSCAR DENIZ SUAREZ** - Group(s): **20**				
Building/Office	**Department**	**Phone number**	**Email**	**Office hours**
Edificio Politécnico 2-B03	INGENIERÍA ELÉCTRICA, ELECTRÓNICA, AUTOMÁTICA Y COMUNICACIONES	Via Teams	oscar.deniz@uclm.es	

Lecturer: **ANDRES SALOMON VAZQUEZ FERNANDEZ PACHECO** - Group(s): **20**				
Building/Office	**Department**	**Phone number**	**Email**	**Office hours**
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2. Pre-Requisites

Basic knowledge on the use and programming of computers

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
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
CEO20	Knowledge of hardware and software required to develop specialised computer systems for automation and robotics applications.
CG03	Knowledge of basic and technological subjects to facilitate learning of new methods and theories, and provide versatility to adapt to new situations.
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.
CT01	Knowledge of a second language.
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
Ability to develop specialized computer systems with object-oriented programming.
Ability to design and use advanced data structures.
Ability to program computer systems that take data from relational databases.

Additional outcomes

6. Units / Contents

Unit 1: Introduction
Unit 2: Advanced programming languages
Unit 3: Data structures and advanced algorithms

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	CB01 CB02 CB03 CB04 CB05 CEO20 CG03 CG04 CT01 CT02 CT03	1	25	N	-	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	CB01 CB02 CB03 CB04 CB05 CEO20 CG03 CG04 CT01 CT02 CT03	0.6	15	Y	Y	
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	CB01 CB02 CB03 CB04 CB05 CEO20 CG03 CG04 CT01 CT02 CT03	0.6	15	Y	Y	
Final test [ON-SITE]	Assessment tests	CB01 CB02 CB03 CB04 CB05 CEO20 CG03 CG04 CT01 CT02 CT03	0.2	5	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	CB01 CB02 CB03 CB04 CB05 CEO20 CG03 CG04 CT01 CT02 CT03	3.6	90	N	-	
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
Assessment of activities done in the computer labs	30.00%	30.00%	
Laboratory sessions	25.00%	25.00%	
Final test	45.00%	45.00%	
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
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Final test [PRESENCIAL][Assessment tests]	5
Study and Exam Preparation [AUTÓNOMA][Self-study]	90

Global activity

Activities	hours
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Class Attendance (theory) [PRESENCIAL][Lectures]	25
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Study and Exam Preparation [AUTÓNOMA][Self-study]	90
Final test [PRESENCIAL][Assessment tests]	5
Total horas:	**150**

10. Bibliography and Sources

Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Charte Ojeda, Francisco	SQL	Anaya Multimedia		84-415-1915-3	2005	
Fatos Xhafa et al	Programación en C++ para ingenieros	Thomson		84-9732-485-4	2006	
José M. Azorín Poveda et al.	Programación en C/C++ : ejercicios resueltos	Universidad Miguel Hernández		84-95893-21-5	2002	
Schildt, Herbert	C++ : manual de referencia	McGraw-Hill, Interamericana de España		84-481-0321-1	1995	