UNIVERSIDAD DE CASTILLA - LA MANCHA
GUÍA DOCENTE

1. General information

Course: PROGRAMMING FUNDAMENTALS II   **Code:** 42306

Type: BASIC   **ECTS credits:** 6

Degree: 405 - DEGREE IN COMPUTER SCIENCE ENGINEERING (TA)   **Academic year:** 2022-23

Center: 15 - FACULTY OF SOCIAL SCIENCES AND INFORMATION TECHNOLOGIES   **Group(s):** 60

Year: 1   **Duration:** C2

Main language: Spanish   **Second language:** English

Use of additional languages: **English Friendly:** Y

Web site: Virtual space of the course at https://campusvirtual.uclm.es   **Bilingual:** N

Lecturer: BEATRIZ GARCÍA MARTÍNEZ - Group(s): **60**

Building/Office	Department	Phone number	Email	Office hours
2.2	TECNOLOGÍAS Y SISTEMAS DE INFORMACIÓN		Beatriz.GMartinez@uclm.es	

Lecturer: IVÁN GONZÁLEZ DÍAZ - Group(s): **60**

Building/Office	Department	Phone number	Email	Office hours
2.1	TECNOLOGÍAS Y SISTEMAS DE INFORMACIÓN	926051583	ivan.gdiaz@uclm.es	Available at https://www.uclm.es/toledo/fcsociales/grado-informatica/profesorado-y-tutorias

2. Pre-Requisites

It is desirable that the student has experience in basic programming techniques. The student should be familiar with the following concepts: variables, assignments, operators, expressions, functions (parameter pass and value return), control structures and data structures (vectors, registers), knowledge acquired in Programming Fundamentals I.

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

Programming Fundamentals II, as its name indicates, represents the basics, in this case of object-oriented programming (POO). Getting started in this methodology is basic to the training of students, both to acquire the necessary bases for future subjects, and in their professional careers. It also introduces the concepts of event driven programming, as well as its application to a set of specific problems. Students are taught to develop their own applications from the object-oriented paradigm.

4. Degree competences achieved in this course

Course competences

Code	Description
BA04	Basic knowledge about the uses and programming of computers, operating systems, data bases, and digital programmes with applications in engineering.
BA05	Knowledge about the structure, organization, functioning, and inter connexions of digital programmes, with their application in engineering problems.
INS01	Analysis, synthesis, and assessment skills.
INS04	Problem solving skills by the application of engineering techniques.
PER01	Team work abilities.
PER02	Ability to work in an international context.
PER04	Interpersonal relationship skills.
PER05	Acknowledgement of human diversity, equal rights, and cultural variety.
SIS01	Critical thinking.
SIS03	Autonomous learning.
UCLM02	Ability to use Information and Communication Technologies.

5. Objectives or Learning Outcomes

Course learning outcomes

Description

Development of programmes throughout the use of a programming paradigm led to objects and by events.

Application of basic principles of structured design, led to objects for problem solving.

6. Units / Contents

Unit 1: Object-oriented programming. Classes and objects

Unit 2: Inheritance and Polymorphism

Unit 3: Exceptions

Unit 4: Event-Oriented Programming

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	BA04 BA05	0.72	18	N	-	Teaching of the subject matter by lecturer (MAG)
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	BA04 BA05 INS04 PER01 PER02 PER04 PER05 SIS01 SIS03 UCLM02	0.6	15	Y	N	Worked example problems and cases resolution by the lecturer and the students (PRO)
Laboratory practice or sessions [ON-SITE]	Practical or hands-on activities	BA04 BA05 INS04 PER01 PER02 PER04 PER05	0.6	15	Y	Y	Realization of practicals in laboratory /computing room (LAB)
Individual tutoring sessions [ON-SITE]		BA04 BA05 UCLM02	0.18	4.5	N	-	Individual or small group tutoring in lecturer¿s office, classroom or laboratory (TUT)
Study and Exam Preparation [OFF-SITE]	Self-study	BA04 BA05 SIS01 SIS03	2.1	52.5	N	-	Self-study (EST)
Writing of reports or projects [OFF-SITE]	Self-study	BA04 BA05 INS01 INS04 PER02 PER04 PER05	0.9	22.5	Y	N	Preparation of essays on topics proposed by lecturer (RES)
Other off-site activity [OFF-SITE]	Practical or hands-on activities	BA04 BA05 INS01 INS04 PER01 PER02 PER04 PER05 SIS03	0.6	15	N	-	Lab practical preparation (PLAB)
Final test [ON-SITE]	Assessment tests	BA04 BA05 INS01 INS04	0.3	7.5	Y	Y	
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
Theoretical papers assessment	15.00%	15.00%	Non-compulsory activity that can be retaken. To be carried out before end of teaching period.
Laboratory sessions	25.00%	25.00%	Compulsory activity that can be retaken. To be carried out during lab sessions
Assessment of active participation	10.00%	10.00%	Non-compulsory activity that can be retaken. To be carried out during the theory/lab sessions by the continuous assesment students. Non-continuous evaluation students will be evaluated with an alternative system
Final test	50.00%	50.00%	Compulsory activity that can be retaken (rescheduling). To be carried out within the planned exam dates of the final exam call (convocatoria ordinaria).
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:

In compulsory activities, a minimum mark of 40% is required in order to pass that activity and have the possibility to therefore pass the entire subject. The evaluation of the activities will be global and therefore must be quantified by means of a single mark. If the activity consists of several sections, each section may be evaluated separately provided students are informed in writing of this evaluation criterion at the beginning of the academic year. In the case of the activities that may be retaken (i.e., rescheduling), an alternative activity or test will be offered in the resit/retake exam call (convocatoria extraordinaria).

The final exam will be common for all the theory/laboratory groups of the subject and will be evaluated by the lecturers of the subject in a serial way, i.e., each part of the final exam will be evaluated by the same lecturer for all the students.

A student is considered to pass the subject if she/he obtains a minimum of 50 points out of 100, taking into account the points obtained in all the evaluable activities, and also has passed all the compulsory activities.

For students who do not pass the subject in the final exam call (convocatoria ordinaria), the marks of activities already passed will be conserved for the resit/retake exam call (convocatoria extraordinaria). The oral presentations assessment (non-recoverable activity) will be conserved for the resit/retake exam call even if it has not been passed. In the case of the passedrecoverable activities, the student will have the opportunity to receive an alternative evaluation of those activities in the resit/retake exam call and, in that case, the final grade of the activity will correspond to the latter grade obtained.

The mark of the passed activities in any call, except for the final exam, will be conserved for the subsequent academic year at the request of the student, provided that mark is equal or greater than 50% and that the activities and evaluation criteria of the subject remain unchanged prior to the beginning of that academic year.

The failure of a student to attend the final exam will automatically result in her/him receiving a "Failure to attend" (no presentado). If the student has not passed any compulsory evaluation activity, the maximum final grade will be 40%.

Non-continuous evaluation:

Students who are unable to attend training activities on a regular basis may apply at the beginning of the semester for the non-continuous assessment mode. Similarly, if a student who is undergoing continuous assessment incurs any circumstance that prevents her/him from regularly attending the

classroom-based training activities, she/he may renounce the accumulated mark in continuous assessment and apply for the non-continuous assessment mode. In this case, a notification by the student must be given before the date scheduled for the tests in the ordinary call, in accordance with a deadline that will be informed at the beginning of the semester.

Students who take the non-continuous assessment mode will be globally graded, in 2 annual calls per subject , an ordinary and an extraordinary one (evaluating 100% of the competencies), through the assessment systems indicated in the column "Non-continuous assessment".

In the "non-continuous assessment" mode, it is not compulsory to keep the mark obtained by the student in the activities or tests (progress test or partial test) taken in the continuous assessment mode.

Specifications for the resit/retake exam:
Evaluation tests will be conducted for all recoverable activities.

Specifications for the second resit / retake exam:
Same characteristics as the resit/retake exam call.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	**hours**
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Individual tutoring sessions [PRESENCIAL][]	4.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	52.5
Writing of reports or projects [AUTÓNOMA][Self-study]	22.5
Other off-site activity [AUTÓNOMA][Practical or hands-on activities]	15
Final test [PRESENCIAL][Assessment tests]	7.5
General comments about the planning: The subject is taught in 3 x 1,5 hour sessions per week. The planning could be modified in the event of unforeseen causes.	
Unit 1 (de 4): Object-oriented programming. Classes and objects	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	7.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	6
Unit 2 (de 4): Inheritance and Polymorphism	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	6
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	6
Unit 3 (de 4): Exceptions	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1.5
Unit 4 (de 4): Event-Oriented Programming	
Activities	**Hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	1.5
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	1.5
Global activity	
Activities	**hours**
Class Attendance (theory) [PRESENCIAL][Lectures]	18
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	15
Laboratory practice or sessions [PRESENCIAL][Practical or hands-on activities]	15
Individual tutoring sessions [PRESENCIAL][]	4.5
Study and Exam Preparation [AUTÓNOMA][Self-study]	52.5
Writing of reports or projects [AUTÓNOMA][Self-study]	22.5
Other off-site activity [AUTÓNOMA][Practical or hands-on activities]	15
Final test [PRESENCIAL][Assessment tests]	7.5
	Total horas: 150

10. Bibliography and Sources						
Author(s)	**Title/Link**	**Publishing house**	**City**	**ISBN**	**Year**	**Description**
Muñoz Caro, C., Niño Ramos A., Vizcaíno Barceló, A.	Introduccion a la programacion con orientacion a objetos	Prentice Hall		978-84-205-3440-4	2007	
Nair, Premchand S.	Java programming fundamentals: problem solving through object oriented analysis and design	CRC Taylor & Francis		978-1-4200-6547-3	2009	
R. Sedgewick, K. Wayne	Introduction to Programming in Java: An Interdisciplinary Approach. 2nd Edition	Addison-Wesley		978-0672337840	2017	
	https://learning.oreilly.com/library/view/introduction-to-programming/9780134512389/					
H. Schildt	Java: A Beginner's Guide. 8th Edition.	McGraw-Hill		978-0672337840	2018	
	https://learning.oreilly.com/library/view/java-a-beginners/9781260440225/					
Jesús Serrano Guerrero, Camelia Muñoz Caro, Alfonso Niño Ramos, Aurora Vizcaíno Barceló	Ejercicios Resueltos de Programación Orientada a Objetos en Java	Bubok S.L.		978-84-686-5819-3	2014	
	http://www.bubok.es/libros/236167/Ejercicios-Resueltos-de-Programacion-Orientada-a-Objetos-en-Java					