

**1. General information****Course:** PROGRAMMING FUNDAMENTALS II**Type:** BASIC**Degree:** 406 - UNDERGRADUATE DEGREE IN COMPUTER SCIENCE AND ENGINEERING (AB)**Center:** 604 - SCHOOL OF COMPUTER SCIENCE AND ENGINEERING (AB)**Year:** 1**Main language:** Spanish**Use of additional languages:****Web site:****Code:** 42306**ECTS credits:** 6**Academic year:** 2023-24**Group(s):** 10 11 12 13 14**Duration:** C2**Second language:** English**English Friendly:** N**Bilingual:** Y**Lecturer:** MIGUEL ANGEL GALDON ROMERO - Group(s): 10 12

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2. Pre-Requisites

Students will be assumed to have sufficient knowledge and skills related to the imperative programming paradigm, which they should have acquired during the course Programming Fundamentals I -- Fundamentos de Programación I (first year, first semester).

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

Object Oriented programming is currently one of the most extended and important paradigms. In this course, we will introduce and cover the fundamentals through the use of Java programming language. The selection of Java as the language for coding is due to its popularity among developers for solving real-world problems. Besides, it will also be utilised in many other courses within the study plan as Redes de Computadores II (Computer Networks II) or Estructura de Datos (Data Structure), both in the second year.

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.
INS04	Problem solving skills by the application of engineering techniques.
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: Introduction: Fundamental concepts of Object-Oriented Programming (OOP)****Unit 2: Object-Oriented Programming****Unit 3: Exception handling****Unit 4: Introduction to event-driven 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 INS04 SIS01 SIS03 UCLM02	0.8	20	Y	N	
Problem solving and/or case studies [ON-SITE]	Problem solving and exercises	BA04 BA05 INS04 SIS01 SIS03 UCLM02	0.8	20	Y	N	
Computer room practice [ON-SITE]	Practical or hands-on activities	BA04 BA05 INS04 SIS01 SIS03 UCLM02	0.8	20	Y	N	
Final test [ON-SITE]	Assessment tests	BA04 BA05 INS04 SIS01 SIS03 UCLM02	0.24	6	Y	Y	
Study and Exam Preparation [OFF-SITE]	Self-study	BA04 BA05 INS04 SIS01 SIS03 UCLM02	3.36	84	Y	N	
Total:			6	150			
Total credits of in-class work: 2.64				Total class time hours: 66			
Total credits of out of class work: 3.36				Total hours of out of class work: 84			

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 active participation	10.00%	0.00%	C: Test(s) to be taken during the course to check the use of the concepts explained in class, both theoretical and practical. NC: This activity is not recoverable by non continuous evaluation or in the resit/retake exam.
Final test	0.00%	60.00%	C: Not applicable NC: Final test with content of all partial tests taken during the course.
Laboratory sessions	25.00%	25.00%	C: To be evaluated by practical exam. NC: To be evaluated by practical exam.
Mid-term tests	50.00%	0.00%	C: Test(s) related to problem resolution. NC: Not applicable
Projects	15.00%	15.00%	C: Project evaluable by means of an individual partial exam. In order to be able to take the partial exam, it is a prerequisite to have handed in the project. The partial exam will be based on the project handed in. NC: Project to be evaluated by means of an individual exam in the Final Exam. In order to be able to take the test, it is a prerequisite to have handed in the project before the established date. The individual exam will be based on the project handed in.
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:

During the course there will be three types of tests:

1. Laboratory practices (25%).
2. Evaluation of the participation in class (10%) (Not recoverable).
3. Partial tests (50%)

The remaining 15% will be obtained by means of a last partial test to be carried out during the official exam of the course that will consist of the resolution of theory questions and practical cases.

NOTE: Any grade obtained in previous courses will not be retained.

IMPORTANT: To pass the course the student must obtain a 50 out of 100 in the course, being necessary to obtain a minimum of 30 points out of 100 in each of these three blocks of tests: theory, practical and problem solving (including work); if this condition is met, the final grade of the course will be the weighted average of all grades obtained; otherwise the student will fail the course and will have a grade no higher than 40 points even if the overall grade obtained was another, 50 points or more included.

Non-continuous evaluation:

By default, the student will be evaluated by continuous evaluation. If you wish to change to non-continuous evaluation, you must indicate it through the following link <https://www.esiiaab.uclm.es/alumnos/evaluacion.php> before the end of the academic period of the four-month period provided that you have not participated during the period of classes in evaluable activities that together account for at least 50% of the total evaluation of the subject; in this case, the student will be evaluated on 90 points and no grade obtained in the continuous evaluation will be retained.

If a student has reached that 50% of evaluable activities or if, in any case, the class period has ended, he/she will be considered in continuous evaluation without the possibility of changing the evaluation mode.

There will be a test with theory, practical and problem solving (including project) questions and the student will be evaluated on 90 points. To pass the course the student must obtain 50 points out of 90 in the course, being necessary to obtain a minimum of 30 points out of 100 in each of these three blocks of tests: theory, practical and problem solving (including the project); if this condition is met, the final grade of the course will be the weighted average of all grades obtained; otherwise the student will fail the course and will have a grade no higher than 40 points even if the overall grade obtained was another, 50 points or more included.

NOTE: No grade obtained in previous courses will be retained.

Specifications for the resit/retake exam:

By default, the student will be evaluated by continuous evaluation. If you wish to change to non-continuous evaluation, you must indicate it through the following link <https://www.esiiaab.uclm.es/alumnos/evaluacion.php> before the end of the academic period of the four-month period provided that you have not participated during the period of classes in evaluable activities that together account for at least 50% of the total evaluation of the subject; in this case, the student will be evaluated on 90 points and no grade obtained in the continuous evaluation will be retained.

If a student has reached that 50% of evaluable activities or if, in any case, the class period has ended, he/she will be considered in continuous evaluation without the possibility of changing the evaluation mode.

In the resit/retake evaluation modality, there will be a test with theory, practical and problem solving questions (including project) and the student will be evaluated on 90 points. To pass the course the student must obtain 50 points out of 90 in the course, being necessary to obtain a minimum of 30 points out of 100 in each of these three blocks of tests: theory, practical and problem solving (including the project); if this condition is met, the final grade of the course will be the weighted average of all grades obtained; otherwise the student will fail the course and will have a grade no higher than 40 points even if the overall grade obtained was another, 50 points or more included.

NOTE: No grade obtained in previous courses will be retained.

Specifications for the second resit / retake exam:

The student will be evaluated by means of test(s) with questions of theory, practice (lab sessions) and problems resolution, being this part compulsory for those students who did not previously pass the course. This/these test(s) will be graded to get up to 100% of the final grade.

NOTE: Grades obtained in previous years will NOT kept at any case.

9. Assignments, course calendar and important dates	
Not related to the syllabus/contents	
Hours	hours
General comments about the planning: This course schedule is APPROXIMATE. It could vary throughout the academic course due to teaching needs, bank holidays, etc. A weekly schedule will be properly detailed and updated on the online platform (Virtual Campus). Note that all the lectures, practice sessions, exams and related activities performed in the bilingual groups will be entirely taught and assessed in English. Evaluation activities or catch-up classes may exceptionally be scheduled in the afternoon (morning).	
Unit 1 (de 4): Introduction: Fundamental concepts of Object-Oriented Programming (OOP)	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	3
Study and Exam Preparation [AUTÓNOMA][Self-study]	6
Unit 2 (de 4): Object-Oriented Programming	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	12
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	12
Computer room practice [PRESENCIAL][Practical or hands-on activities]	12
Final test [PRESENCIAL][Assessment tests]	4
Study and Exam Preparation [AUTÓNOMA][Self-study]	50
Unit 3 (de 4): Exception handling	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	2
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	2
Computer room practice [PRESENCIAL][Practical or hands-on activities]	2
Final test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	12
Unit 4 (de 4): Introduction to event-driven programming	
Activities	Hours
Class Attendance (theory) [PRESENCIAL][Lectures]	3
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	3
Computer room practice [PRESENCIAL][Practical or hands-on activities]	3
Final test [PRESENCIAL][Assessment tests]	1
Study and Exam Preparation [AUTÓNOMA][Self-study]	16
Global activity	
Activities	hours
Final test [PRESENCIAL][Assessment tests]	6
Class Attendance (theory) [PRESENCIAL][Lectures]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	84
Computer room practice [PRESENCIAL][Practical or hands-on activities]	20
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	20
Total horas: 150	

10. Bibliography and Sources						
Author(s)	Title/Link	Publishing house	Citv	ISBN	Year	Description
Cay Horstmann	Core Java Volume I-- Fundamentals (Core Series) -- 11th edition	Pearson		978-0135166307	2020	
Hervé BOISGONTIER	Java Pack de 2 libros: Algoritmia y programación: las bases indispensables JAVA 11 Los fundamentos del	Ediciones ENI			2021	

Thierry Groussard	lenguaje Java (con ejercicios prácticos corregidos)	Ediciones ENI	2020
Herbert Schildt	Java: The complete reference. 11th Edition	McGraw-Hill Education	978-1260440232 2019