

**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:** 2022-23**Group(s):** 10 11 12 13**Duration:** C2**Second language:** English**English Friendly:** N**Bilingual:** Y**Lecturer:** MIGUEL ANGEL GALDON ROMERO - Group(s): 10 11

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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	
Self-study [OFF-SITE]	Combination of methods	BA04 BA05 INS04 SIS01 SIS03 UCLM02	0.84	21	Y	N	
Study and Exam Preparation [OFF-SITE]	Self-study	BA04 BA05 INS04 SIS01 SIS03 UCLM02	2.52	63	Y	N	
<b>Total:</b>			<b>6</b>	<b>150</b>			
<b>Total credits of in-class work: 2.64</b>			<b>Total class time hours: 66</b>				
<b>Total credits of out of class work: 3.36</b>			<b>Total hours of out of class work: 84</b>				

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: This part will assess learning of the concepts explained during the classes and merit-based on-site participation. NC: Not applicable.
Final test	0.00%	75.00%	C: Not applicable NC: Final test with content of all 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%	0.00%	C: Group work to be assessed individually by a mid-term test. NC: Not applicable
<b>Total:</b>	<b>100.00%</b>	<b>100.00%</b>	

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 kinds of tests:

1. Lab Assignments and Sessions (25%)
2. Assessment of active participation and on-site learning process (10%)
3. Mid-term tests resolution (45%)

The remaining 20% of the grade could be gotten through the regular session exam which will consist of the resolution of questions and cases.

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

IMPORTANT: To pass this course, the student needs to get 50 up to 100 points in this course, being a requirement to get at minimum 30% of the points in the final test/exam of the course. If this condition holds the final grade will be the (accordingly weighted) average of all the partial grades gotten; 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:

Any student could move from continuous evaluation to the non-continuous modality, as long as they have not participated during the course in assessable activities which jointly imply 50% of the total assessment or more. If this is the case (the student did not participate in 50% or more of assessable activities), then they will be assessed using 100% of the final grade, without keeping any grade previously obtained during continuous evaluation.

If a student has reached this 50% of assessable activities and if, in any case, the classes period has already finished, this will be considered as continuous evaluation without the possibility of changing the modality to this one.

In the non-continuous evaluation modality, there will be a test including theory questions, practical questions and case resolution. In order to pass the course, a minimum of 30% of the corresponding points must be obtained in each part of the above mentioned test. The final grade of the course, if the above condition is met, will be the weighted average of all grades obtained and the course will be passed if 50 points or more are 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: Grades obtained in previous years will NOT be kept in any case.

#### Specifications for the resit/retake exam:

In the resit/retake evaluation modality, there will be a test including theory questions, practical questions and case resolution. In order to pass the course, a minimum of 30% of the corresponding points must be obtained in each of the above mentioned tests. The final grade of the course, if the above condition is met, will be the weighted average of all grades obtained and the course will be passed if 50 of the points or more are 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: Grades obtained in previous years will NOT be kept in any case

**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
<b>General comments about the planning:</b> 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. Classes will be scheduled in 3 sessions of one hour and a half per week. 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
Self-study [AUTÓNOMA][Combination of methods]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	4
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
Self-study [AUTÓNOMA][Combination of methods]	10
Study and Exam Preparation [AUTÓNOMA][Self-study]	44
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
Self-study [AUTÓNOMA][Combination of methods]	7
Study and Exam Preparation [AUTÓNOMA][Self-study]	5
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
Self-study [AUTÓNOMA][Combination of methods]	2
Study and Exam Preparation [AUTÓNOMA][Self-study]	10
Global activity	
Activities	hours
Class Attendance (theory) [PRESENCIAL][Lectures]	20
Study and Exam Preparation [AUTÓNOMA][Self-study]	63
Computer room practice [PRESENCIAL][Practical or hands-on activities]	20
Problem solving and/or case studies [PRESENCIAL][Problem solving and exercises]	20
Self-study [AUTÓNOMA][Combination of methods]	21
Final test [PRESENCIAL][Assessment tests]	6
<b>Total horas: 150</b>	

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	Ediciones ENI			2021	
Thierry Groussard	JAVA 11 Los fundamentos del lenguaje Java (con ejercicios prácticos corregidos)	Ediciones ENI			2020	
Herbert Schildt	Java. The complete reference. 11th Edition	McGraw-Hill Education		978-1260440232	2019	