SUBJECT TEACHING GUIDE

G271 - Methods of Programming

First Degree in Computer Systems Engineering
Degree in Mathematics

Academic year 2026 - 2027

1. IDENTIFYING DATA					
Degree	First Degree in Computer Systems Engineering Degree in Mathematics			Type and Year	Compulsory. Year 1 Optional. Year 3
Faculty	Faculty of Sciences				
Discipline	Subject Area: Computer Programming Mention in Computer Science Compulsory Module				
Course unit title and code	G271 - Methods of Programming				
Number of ECTS credits allocated	6	Term		Semester based (2)	
Knowledge Field	Computer and systems engineering Mathematics and statistics				
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
Name of lecturer	MARIO ALDEA RIVAS
E-mail	mario.aldea@unican.es
Office	Facultad de Ciencias. Planta: + 3. DESPACHO - COMPUTADORES TIEMPO REAL (3054)
Other lecturers	JOSE CARLOS PALENCIA GUTIERREZ JUAN RAMON SANTANA MARTINEZ JUAN ROMON PEÑA

4. OBJECTIVES
The student must know how to apply the object oriented programming methodology to the development of medium complexity software applications using the Java programming language.
Students should learn the following concepts: software development basics; relation among class, reference and object; Class and primitive type; Class as the base structural element; Inheritance and polymorphism; Error handling using exceptions; modularity and abstraction; binary and text files; unitary testing.
Java is used as the programming language to practice the concepts taught in the subject.

6. SUBJECT PROGRAM	
CONTENTS	
1	Object-Oriented Software Development
2	Software development process
3	Modular design
4	Modular design
5	Inheritance and polymorphism
6	I/O with files

7. ASSESSMENT METHODS AND CRITERIA				
Description	Type	Final Eval.	Reassessment	%
Evaluation of the exercises performed by the students in the laboratory sessions.	Laboratory evaluation	No	Yes	15,00
Laboratory evaluation. Two or more exams performed during the teaching period.	Laboratory evaluation	No	Yes	85,00
TOTAL				100,00
Observations				
In order to pass the subject it is compulsory to obtain the minimum grade in the "Laboratory and Written evaluations" (4.5).				
Observations for part-time students				
Part-time students do not need to attend to the Laboratory evaluations performed during the course. They can pass the subject by attending to the evaluations in the ordinary and/or extraordinary periods.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS
BASIC
Ken Arnold, James Gosling, David Holmes, "El lenguaje de programación Java", 3ª edición. Addison-Wesley, 2000.
Francisco Gutiérrez, Francisco Durán, Ernesto Pimentel. "Programación Orientada a Objetos con Java". Paraninfo, 2007.