

## SUBJECT TEACHING GUIDE

M1502 - Advanced Programming

Master's Degree in Mathematics and Computing

Academic year 2022-2023

1. IDENTIFYING DATA					
Degree	Master's Degree in Mathematics and Computing			Type and Year	Compulsory. Year 1
Faculty	Faculty of Sciences				
Discipline					
Course unit title and code	M1502 - Advanced Programming				
Number of ECTS credits allocated	3	Term	Semester based (1)		
Web	<a href="https://personales.unican.es/crespoj/programacion/index.html">https://personales.unican.es/crespoj/programacion/index.html</a>				
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. MATEMATICA APLICADA Y CIENCIAS DE LA COMPUTACION				
Name of lecturer	JOSE LUIS CRESPO FIDALGO				
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Other lecturers					

3.1 LEARNING OUTCOMES
- Assemble software tests
- Apply object oriented programming
- Apply functional programming
- Application of classical algorithms to real problems
- Practical application of main abstract data types
- Vectorization usage
- Concepts of parallel programming

#### 4. OBJECTIVES

Advanced programming
Abstract data types in object oriented programs
Practical application of algorithms and abstract data types
Finding the right package/library for a specific purpose

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	Python introduction. Test oriented programming.
2	Vector operations
3	Object oriented programming
4	Functional programming
5	Classical algorithms
6	Abstract data types
7	Parallel programming

#### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Exercises and programs	Others	No	Yes	30,00
Course assignment	Work	No	Yes	70,00
TOTAL				100,00
Observations				
Should any prevailing requirements forbid face-to-face evaluation, number, weights, conditions and exercise types would vary. Top grades (equivalent of honor, first-class, or A+) will be available to students by presentation order. Since probably only one such grade will be possible in this course, following students may be unable to get it, independently of their numeric grade.				
Observations for part-time students				
Students that are unable to attend classes or to prepare presentations, can compensate by expanding the application case as instructed by the teacher. They should apply for this beforehand.				

#### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

##### BASIC

Se proporcionarán materiales a lo largo del curso. El apoyo principal es la documentación oficial: <https://docs.python.org/es/3/> (visitado el 6-4-22)