SUBJECT TEACHING GUIDE

325 - Heterogeneous Systems

Master's Degree in computing engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in computing engineering			Type and Year	Optional. Year 2
Faculty	Faculty of Sciences				
Discipline	Optional Subjects				
Course unit title and code	325 - Heterogeneous Systems				
Number of ECTS credits allocated	3	Term		Semester based (1)	
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERÍA INFORMÁTICA Y ELECTRÓNICA
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Other lecturers	

3.1 LEARNING OUTCOMES
- To know and understand the architecture of hardware accelerators , which differentiate them from conventional systems .   To be able to analyze, design and implement efficient parallel algorithms and applications in heterogeneous environments , using co-design techniques that optimize the performance of these platforms.

4. OBJECTIVES

The objectives of this course are focused on training students in the knowledge of both architecture and programming of heterogeneous systems.

It begins by studying the architecture of a heterogeneous system, as well as the most common hardware accelerators.

Next, the study of the hybrid programming model that is necessary to use for these systems is addressed.

6. COURSE ORGANIZATION

	CONTENTS
1	Lesson 1: Introduction to Heterogeneous Systems
2	Lesson 2: Programming Heterogeneous Systems
3	Lesson 3: GPU Architecture
4	Laboratory Exercises.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
To develop some exercises of heterogeneous programming.	Laboratory evaluation	Yes	Yes	100,00
TOTAL				100,00

Observations

Both parts will be recoverable. There is only one annual call. If the subject is not passed in the ordinary evaluation activities carried out in the first four-month period, the recovery evaluation can be accessed in the extraordinary. If the quota of honor rolls for the subject is completed in the regular assessment, students who present themselves for make-up will not be eligible for the honor roll grade.

Observations for part-time students

In order to pass the course, it is essential to hand in all the practices carried out during the course, either in the ordinary or extraordinary exams.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Heterogeneous Computing with OpenCL. B. Gaster, L. Howes, D. Kaeli, P. Mistry, D. Schaa. Second Edition. Morgan Kaufmann, 2013