

Advanced computing systems

Academic Year: (2019 / 2020)

Review date: 04-09-2019

Department assigned to the subject:

Coordinating teacher: CARRETERO PEREZ, JESUS

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 1

OBJECTIVES

Students who pass the subject will be able to :

- Get close critically to research and new results of advanced computer systems .
- Understand the different computing platforms shown in the subject.
- Apply various advanced programming techniques to exploit platforms described
- Write a panoramic research report and present it in public.
- Apply different techniques and energy performance evaluation in advanced computing systems .
- Understand and apply techniques for advanced operating systems.

Basic skills: CB6, CB7, CB10

General skills: CG1, CG2, CG3, CG5, CG6

Specific skills: CE1, CE2, CE4

DESCRIPTION OF CONTENTS: PROGRAMME

Introduction and Overview
 New trends in computer systems
 Parallel programming paradigms
 Parallel programming with OpenMP
 Parallel programming in distributed memory systems (MPI)
 High-performance computing systems
 Big data
 Advanced parallelization techniques
 Parallel patterns & software reengineering
 Heterogeneous Computing
 Heterogeneous Computing programming techniques

9. Power aware systems

10. Embedded systems and real-time

11. Programming models for heterogeneous architectures

LEARNING ACTIVITIES AND METHODOLOGY

Activity code	Activity	Hours	% Presential	
AF1	Classes theory and practice	21	23 %	
AF3	Tutorial	7	8 %	
AF5	Student individual work	62	0 %	

Methodologies:

MD1, MD2, MD3, MD4, MD5, MD7

ASSESSMENT SYSTEM

Evaluation method	% of score	
SE 2 Individual or group works along the course	70	
SE3 Public presentation of works made along the course	30	

All assignments will be mandatory to pass.

Extraordinary call:

- Delivering extra jobs requested to students

% end-of-term-examination:	0
% of continuous assessment (assignments, laboratory, practicals...):	100