Advanced computing systems

Academic Year: (2020 / 2021) **Review date: 04-09-2019**

Department assigned to the subject: Department of Computer Science and Engineering

Coordinating teacher: CARRETERO PEREZ, JESUS

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 1

COMPETENCES AND SKILLS THAT WILL BE ACQUIRED AND LEARNING RESULTS.

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 reingeneering
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	Tutoríal	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 (assigments, laboratory, practicals…):	100