Scalable and Distributed Computing

Academic Year: (2021 / 2022) **Review date: 13-05-2021**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: CARRETERO PEREZ, JESUS

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programming in R
Advanced Programming

OBJECTIVES

Knowledge acquisition of: 10) Parallel computing; 11) parallel compiling yn Python and R; 3) Cloud computing platforms; 4) Big Data distributed architectures.

DESCRIPTION OF CONTENTS: PROGRAMME

1) Parallel computing. Fundamentals and paradigms.
2) Parallelising Big Data Applications.
3). Cloud computing.
4). Big Data platforms.
5). HADOOP y SPARK.
6) MapReduce paradigms.
7) NoSQL storage systems
8) CUDA and OpenCL for Google TensorFlow.
9) Applications.

LEARNING ACTIVITIES AND METHODOLOGY

TRAINING ACTIVITIES OF THE STUDY PLAN REFERRED TO MATTERS
AF1 Theoretical class
AF2 Practical classes
AF4 Laboratory practices
AF5 Tutorials
AF6 Group work
AF7 Individual student work
AF8 Face-to-face evaluation tests

Code
Activity No. Total hours No. Presential hours% Presence Student
AF1 55 55 100
AF2 25 25 100
AF4 25 25 100
AF5 20 20 100
AF6 50 0 0
AF7 192.5 0 0
AF8 7.5 7.5 100
TOTAL MATTER 375 125 33

TEACHING TRAINING METHODOLOGIES OF THE PLAN REFERRED TO MATTERS

MD1 Presentations in the teacher's class with support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the students' learning.
MD3 Resolution of practical cases, problems, etc. ¿posed by the teacher individually or in groups
MD5 Preparation of papers and reports individually or in groups

ASSESSMENT SYSTEM

ASSESSMENT SYSTEMS OF THE STUDY PLAN REFERRED TO SUBJECTS
SE1 Participation in class
SE2 Individual or group work carried out during the course
SE3 Final exam

System of Evaluation	Minimum weight (%)	Maximum weight (%)
SE1	0	20
SE2	20	70
SE3	0	40

% end-of-term-examination:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

BASIC BIBLIOGRAPHY

- Jeffrey Aven Data Analytics with Spark Using Python , Addison-Wesley Data & Analytics Series, 2018