Universidad Zaragoza

Academic Year/course: 2023/24

29523 - Bigdata Application Development

Syllabus Information

Academic year: 2023/24
Subject: 29523 - Bigdata Application Development
Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia
Degree: 625 - Bachelor's Degree in Industrial Processes' Data Engineering
ECTS: 6.0
Year: 3
Semester: First semester
Subject type: Compulsory
Module:

1. General information

The objective of this subject is that the student knows the basics of big-data, and is able to differentiate the structured and unstructured data, as well as its collection and storage process in massive databases. The main alternatives to the relational model, such as aggregation and graph models, as well as their advantages and disadvantages, will be shown.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (https://www.un.org/sustainabledevelopment/es/), such that the acquisition of the subject learning results provides training and competence to contribute to some extent to their achievement: Goal 7: Affordable and non-polluting energy. Target 7.3 By 2030, double the global rate of improvement in energy efficiency.

2. Learning results

- Know the basics of big-data.
- To know the principles of application development in big-data environments.
- Knowledge of noSQL databases, their data models, characteristics and transactional systems.
- Use noSQL database managers.

3. Syllabus

Contents include:

- New paradigm and new needs of massive data.
- Concepts and technologies for big-data.
- Reliable, scalable and maintainable applications.
- ACID and BASE consistency models, CAP theorem.
- Document, key-value and network NoSQL managers.
- Use cases.

For this purpose, the contents are structured in the following modules:

- Unit 1. Introduction to big-data.
- Unit 2. Development of big-data applications.
- Unit 3. Non Relational Databases.
- Unit 4. Non-relational database managers.

4. Academic activities

- Lectures: Sessions with the teacher in which the syllabus will be explained: 28 hours.
- Practices and workshops: Sessions to solve practical cases presented by the teacher: 26 hours.
- Assessment tests. 6 hours.
- Study and preparation of the subject by the student: 90 hours.

5. Assessment system

Mixed system composed of continuous assessment tests and a global assessment test.

I. Continuous assessment tests:

- Written evaluation exams: With a percentage with respect to the overall grade of 70% in total.
- Practical work: They will consist of solving proposed problems. The percentage of the overall grade of for all these works will be 30%.

- In order for the papers and exams to contribute to the final grade, they must have a minimum grade of four out of ten.

II. Global assessment test

- Written evaluation exam: It will consist of two parts. A first one containing questions on the topics explained at throughout the course, with a weight of 70%; and a second one with questions on the practical work proposed in class, with a weight of 30%.
- In order for both parts to contribute to the final grade, they must have a minimum grade of four out of ten.

In order to pass the subject, students must have a final grade of 5 out of 10, complying with the minimum grades for each of the parts. If this requirement is not met, the maximum grade will be 4.9.