uc3m | Universidad **Carlos III** de Madrid

| Data integration and visualization |

Academic Year: (2023 / 2024)   **Review date: 28-04-2023**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: DIAZ PEREZ, MARIA PALOMA

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programming, Algorithms and data structures, Files and databases

SKILLS AND LEARNING OUTCOMES

Complement the basic, transversal and compulsory knowledge of the Degree according to the student's preferences.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Data integration models: data store based models and virtual models
2. Data acquisition: Crawlers. Web data integration
3. NoSQL databases in data integration
4. Situation awareness and interpretation in the Big Data era
5. Visual analytics: history, definition and development process.
6. Principles of Human-Machine Interaction: Perception, cognitive aspects, semiotics and creativity
7. Interaction with visual interfaces
8. Temporal and geo-spatial data processing
10. Applications of visual analytics

LEARNING ACTIVITIES AND METHODOLOGY

* Lectures: 2 ECTS. They aim to achieve the specific cognitive competencies of the subject and the transversal competencies of analysis and abstraction.
* Practical classes: 1,5 ECTS. They aim to develop the specific instrumental competencies and the transversal competencies problem solving and application of knowledge.
* Case study: 2 ECTS. Started during the practical classes and completed outside of them, it aims to complete and integrate the development of all specific and transversal competencies with the design and implementation of a case study through group work.
* Tutorials: TUTORIALS. Individual or group tutoring sessions organized by the teacher for the students.
* Final exam: 0,5 ECTS. It aims to influence and complement the development of specific cognitive and procedural skills. It reflects especially the use of the lectures.

ASSESSMENT SYSTEM

* Case study: 80%
Block 1: Design and implementation of data integration techniques applied to actual case studies.
Block 2: Design and implementation of data visualization techniques applied to actual case studies.
* Final exam: 20%
- Part 1 about the first block of the case study
- Part 2 about the second block of the case study

% end-of-term-examination: 20

% of continuous assessment (assigments, laboratory, practicals…):   80