Visualization techniques for Big Data

Academic Year: (2021 / 2022)   **Review date: 04-06-2021**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: ONORATI , TERESA

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

OBJECTIVES

LEARNING OUTCOMES
R1 Knowledge and understanding: To have basic knowledge and understanding of the scientific and technological foundations of Computer Engineering and specific knowledge of Computer Science, Computer Engineering, and Information Systems.
R4 Research and Innovation: To be able to use appropriate methods to conduct research and make innovative contributions in computer engineering.
R5 Engineering Applications: Graduates will be able to apply their knowledge and understanding to solve problems, conduct research, and design devices or processes in the field of Computer Engineering according to criteria of cost, quality, safety, efficiency, environmental friendliness, and ethical implications. These skills include knowledge, use, and limitations of computer systems, process engineering, computer architectures, computational models, equipment, practical work, technical literature, and information sources.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Sense making and situational awareness in the Big Data era
2. Visual analytics: history, definition and development process
3. HCI principles: perception and interpretation, cognitive issues, semiotics and creativity 4. Interaction with visual and multi-modal interfaces
5. Processing temporal and geographic data
6. Applying Deep Learning to visualization
7. Applications of visual analytics

LEARNING ACTIVITIES AND METHODOLOGY

* Lectures: 1 ECTS. They aim to achieve the specific cognitive competencies of the subject and the transversal competencies of analysis and abstraction.
* Practical classes: 1 ECTS. They aim to develop the specific instrumental competencies and the transversal competencies problem solving and application of knowledge.
* Case study: 0,5 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%
Design and implementation of visualization techniques applied to actual case studies.
* Final exam: 20%

% end-of-term-examination: 20

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