

Academic Year: ( 2019 / 2020 )

Review date: 11-05-2018

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MORENO LOPEZ, LOURDES

Type: Electives ECTS Credits : 6.0

Year : 4 Semester :

**OBJECTIVES**

## 1. Generic/Transversal Competences:

- Capacity to analyze and synthesize (PO e)
- Capacity to organize and plan the work (PO d)
- Capacity to manage resources in an efficient way. (PO c e)
- Capacity to put in practice theoretical concepts in different use cases. (PO c e k)
- Oral and written skills (PO g)
- Working as a team (PO d)

## 2. Specific Competences.

## a. Cognitive (to know). (PO a, h, j, k)

- Knowledge in Design for all, accessibility and users affected by the digital divide in Information and Communication systems.
- Knowledge of legislation and national and international standards in relation to accessibility and design for all in information systems.
- Knowledge of methods and tools to support software process activities in information systems with a User Centered Design that allow to integrate accessibility requirements as well as Design for all.
- Knowledge about how to include Design for all and accessibility policies in organizations
- Knowledge about accessibility quality

## b. Procedural/instrumental (to be able to do). (PO b c e g k)

- To be able to identify requirements about user needs concerning functional diversity and accessibility barriers in information systems.
- To be able to identify requirements about user needs in assistive technologies for design for all in information technologies compatible with information systems.
- Ability to integrate solutions in a case study in an organization devoted to software development with interest in accessibility and Design for all.
- Ability to apply mandatory laws in accessibility and Design for all issues in software development process.
- Ability of modeling considering accessibility requirements in software development process.
- Ability to use methodological frameworks following a Design for all approach in developing accessible information systems.
- Ability to use evaluation frameworks for accessibility
- Ability to use assistive technologies and developing and evaluations tools concerning accessibility.
- Ability of designing and evaluating accessible information systems in web environments following standards.
- Ability to include mechanisms in organizational strategy with the objective of seize opportunities to market demand as well as to enhance corporate social responsibility policy.

## c. Attitude (Being)

- Ability of working as a multidisciplinary team together with final users. (PO d)
- Analyse, evaluate and conclude with the different accessible solutions for a given use case. (PO e h j k)
- Personal development in Design for all and accessibility matters. (PO f h)
- Capability of autonomous learning for the professional future in the area of design for all and accessibility. (PO i h k)
- To keep in mind always accessibility and a diversity of users and final devices in information systems. ((PO h i)
- To have interest in government e-inclusion policies as well as of different international organizations. (PO f i)

## DESCRIPTION OF CONTENTS: PROGRAMME

- 1: Introduction. Accessibility and Design for all in Information and telecommunication Technologies.
- 2: User Centered Design and inclusive Design.
- 3: Design principles in web environments. Web site accessibility. Standards. Design and evaluation.
- 4: Accessibility Requirements in the software development process life cycle.
- 5: Methodological Framework for the development of accessible Systems in web environments following a user centered design.
- 6: Quality of accessibility. Management of quality in the software process.
- 7: Accessibility in organizations: policies and strategies.
- 8: Proof of concept, case studies.

## LEARNING ACTIVITIES AND METHODOLOGY

Theoretical and practical methodology with a very active student participation in the teaching model, with the activities of various kinds to improve the learning inside and outside the classroom as well as with/without teacher supervision:

- Theory Lectures (2 ECTS) with the objective of acquire the cognitive specific competences. (PO a h j)
- Practical lectures (2 ECTS): Academic activities supervised by the teacher. They develop instrumental/procedural and attitudinal specific competences as well as most of the transversal ones. They are supervised lectures guided and monitored through individual tutoring or in small groups. Students will support the resolution of use cases in different scenarios of information systems by applying methodological approaches with the acquired knowledge. (PO b c e k)
- Final theoretical-practical work with teacher support (1.5 ECTS), namely the realization of a practical work, in groups of students, consisting on designing and evaluating of an information system for web environment using methods and tools acquired during the course. (PO a c d g i k)
- Exam (0,5 ECTS) with the aim of influence the development of specific cognitive and procedural competences. (PO a e k)

## ASSESSMENT SYSTEM

Homework and exams in addition to serving as a training activity to encourage and improve learning serve the dual purpose of being measured for the assessment system. The assessment system includes the evaluation of academic activities in accordance with the following weighting:

- Exam: 40% (PO a e k)
- Supervised academic activities. Practical classes: 35% (PO b, c, e)
- Not supervised academic Activities. Final work: 25% (PO a c d g i k)

<b>% end-of-term-examination:</b>	40
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	60

## BASIC BIBLIOGRAPHY

- Henry, Shawn Lawton Just Ask: Integrating Accessibility Throughout Design (disponible en <http://www.uiaccess.com/justask/>), Lulu.com/ on-line: Copyright © 2003-2011 Shawn Lawton Henry, 2007
- Pressman, R. Software Engineering: A Practitioner's Approach, McGraw-Hill, 2014
- W3C Web Accessibility Initiative (WAI) (Disponible en <http://www.w3.org/WAI/>), Copyright © 1994-2011 W3C®, 2010

## ADDITIONAL BIBLIOGRAPHY

- Cook A. M., Polgar J. M. Cook and Hussey's Assistive Technologies: Principles and Practice, Mosby. ISBN: 0323039073, 2007
- ISO ISO 9241-20:2008: Accessibility guidelines for information/communication technology (ICT) equipment and services, ISO ([www.iso.org](http://www.iso.org)), 2008
- ISO ISO 9241-151:2008: Guidance on World Wide Web user interfaces, ISO ([www.iso.org](http://www.iso.org)), 2008
- ISO ISO 9241-171:2008: Guidance on software accessibility, ISO ([www.iso.org](http://www.iso.org)), 2008
- ISO ISO 9241-210:2010: Human-centred design for interactive systems equipment and services, ISO ([www.iso.org](http://www.iso.org)), 2010
- ISO ISO/IEC 40500:2012 Information technology -- W3C Web Content Accessibility Guidelines (WCAG) 2.0, ISO, 2012
- Jeff Kline Strategic IT Accessibility: Enabling the Organization, Live Oak Book Company, 2011
- Newell, A.F.; Gregor, P. User Sensitive Inclusive Design: in search of a new paradigm, CUU 2000 First ACM Conference on Universal Usability, 2000
- Pressman, R. S. Applying Web Engineering Applying Web Engineering. In: Software Engineering: A Practitioner's Approach, 6th Edition, McGraw-Hill, 2005
- Stephanidis, C. User interfaces for all. Concepts, Methods, and Tools. , Lawrence Erlbaum Associates. , 2001

