User Interfaces

Academic Year: (2022 / 2023) **Review date: 30-05-2022**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: ONORATI , TERESA

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Programming (Course: 1 / Semester: 1)
Automata and Formal Language Theory (Course: 2 / Semester: 1)

SKILLS AND LEARNING OUTCOMES

¿ Know the main interaction paradigms, guidelines, heuristics and design patterns.
¿ Design and prototype interfaces oriented towards usability and design for all (accessibility, gender perspective...), both in local and web applications.
¿ Apply descriptive and predictive models to design and evaluate user interfaces.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to HCI
   1.1. What is HCI, why is it needed, what is its relationship to interface design, and how does it relate to HCI?
   1.2. History of HCI
   1.3. Some examples from everyday life
2. User Interfaces
   2.1. What is a user interface and what is it for?
   2.2. User Centred Design: Usability; Principles, Guidelines, Heuristics and Patterns; Design Methodology; Prototyping
   2.3. Design for All (Universal Design)
3. Web User Interfaces
   3.1. What is the Web? History and Evolution of the WWW
   3.2. Structure and Navigation of a Web Site
   3.3. Web design principles, Heuristics and Patterns
4. Interaction with User Interfaces
   4.1. User Experience (UX) design
   4.2. Web page interaction design (agile, flat, responsive,...) 4.3.
   4.3. Predictive models: Fitt's Law; Sterring's Law
   4.4. Descriptive models: KLM; GOMS
   4.5. Inspection methods
   4.6. Interaction Paradigms: Large Scale Computing; Personal Computing; Mobile Computing; Ubiquitous Computing; Network Computing; Reality Computing (Augmented Reality and Virtual Reality)

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 ECTS. They aim to develop the specific instrumental competencies and the transversal competencies problem solving and application of knowledge.
* Programming exercises: 0.75 ECTS. Initiated during the practical classes and completed outside of them, they aim to develop the specific instrumental competencies, start developing the specific attitudinal competencies, and transversal competencies problem solving and application of knowledge.
* Case study: 1,75 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

The evaluation system includes the assessment of guided academic activities and practical cases, with the following weights:

* Programming exercises: 20%
Students must submit two different exercises, each one of them represents ten percent (10%) of the final grade.
* Case study: 40%
Students must submit two different exercises. The first one about prototyping represents ten percent (10%) of the final grade. The second one about implementation and documentation represents thirty percent (30%) of the final grade.
* Final exam: 40%

The final exam is mandatory and the final mark must be higher than 5 of 10.

% end-of-term-examination:	40
% of continuous assessment (assigments, laboratory, practicals…):	60

BASIC BIBLIOGRAPHY

- Dix, A., Finlay, J., Abowd, G., Beale, R. Human-Computer Interaction, Prentice Hall, 3rd Edition, 2004.
- Nielsen, J. Designing Web Usability, New Riders, 2000.
- Preece, J. Interaction Design. Beyond human computer interaction., John Wiley &Sons, 2002.
- Shneiderman, B. Designing the User Interface., Addison-Wesley, 1999, 3rd Edition.

ADDITIONAL BIBLIOGRAPHY

- Ballard, B. Designing the mobile user experience., Willey, 2007.
- Basham, B., Sierra, K. & Bates, B. Head First Servlets and JSP: Passing the Sun Certified Web Component Developer Exam., O¿Really Media, 2008.
- Castro, E. HTML, XHTML and CSS., Peachpit Press, 2006.
- Cole, A. Learning Flex 3: Getting up to Speed with Rich Internet Applications., Adobe Dev Library, 2008.
- Cooper, A.m Reinmann, R., Cronid, D. About Face 3: The Essentials of Interaction Design., Wiley, 2007.
- Flanagan, D. JavaScript: The Definitive Guide., O¿Really Media, 2006.
- Gassner, D. Flex 3 Bible., Wiley, 2008.