Design of interactive systems

Academic Year: (2019 / 2020) **Review date: 25/05/2020 11:46:52**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: MARQUEZ SEGURA, ELENA

Type: Compulsory ECTS Credits : 6.0

Year : 5 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

- Principles of Informatics Engineering
- User Interfaces

OBJECTIVES

1. Theoretical knowledge on the development of interactive systems (PO a) (CECC1, CECC6)
2. Capacity to define usability and utility requirements, designing interactive system for everyone according to a set of specifications (PO a, e) (CECC6)
3. Capacity to design, implement and evaluate interactive systems, applying both usability and accessibility guidelines as well as respecting standards and laws (PO a, c, e) (CECC1, CECC6)
4. Teamwork, taking different roles and proving its leadership (PO d) (CECC6)
5. Capacity to integrate both Information and Communications technologies as well as business processes based on interactive systems in order to satisfy user needs (PO a, e) (CECC1, CECC6)
6. Capacity to communicate knowledge, skills, and capabilities (PO g) (CECC6)

* ABET Program Outcomes
a. An ability to apply knowledge of mathematics, science and engineering.
c. An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
d. An ability to function on multidisciplinary teams.
e. An ability to identify, formulate, and solve engineering problems.
g. An ability to communicate effectively.

* ACREDITA+ Competences
CECC1. Ability to acquire knowledge on computational models and principles as well as to apply such knowledge to understand, evaluate, model, and develop new theories, applications and devices related to information systems.
CECC6. Ability to design and evaluate interactive systems and their usage to solve human-computer interaction design problems

DESCRIPTION OF CONTENTS: PROGRAMME

Usability engineering; principles of the design of interactive systems; evaluation of interactive systems; understanding, envisionment and design techniques

PROGRAMME

1. Introduction to interactive systems
Contents:
- User experience
- Definition of interactive systems
- Design principles
- Design paradigms

2. Analysis
Contents:
- Definition, goals, and process
- Analysis perspectives
  - Requirements analysis
  - Task analysis
- Analysis artifacts
  - Techniques
    Observation, elicitation, and specification techniques
  - Products
    Persona, scenario, use case, essential use case, table of user needs, requirements specification document

3. Synthesis
Contents:
- Definition, goals, and process
- Design artifacts
  - Prescription
    Heuristics, design patterns, and guidelines
  - Modeling
    Diagrams and narratives
  - Prototyping

4. Evaluation
Contents:
- Definition, goals, and process
- Evaluation methods
  - Inspect methods
  - Testing methods
  - Inquiry methods

LEARNING ACTIVITIES AND METHODOLOGY

- Theoretical lectures: 1.5 ECTS (PO a) (CECC1, CECC6)
Lectures in which theoretical concepts will be presented and activities related to the design of interactive systems will be carried out.
- Practical lectures: 1.0 ECTS (PO a, c) (CECC6)
Labs in which technical issues related to the development of interactive systems are exposed.
- Follow-up meetings: 0.5 ECTS (PO a, g) (CECC1, CECC6)
Review of the practical case.
- Individual study: 0,5 ECTS (PO a) (CECC1)
Study of theoretical concepts on the design of interactive systems.
- Project development: 2.5 ECTS (PO a, c, d, e, g) (CECC6)
Project-based learning. Analyzing, designing, and evaluating a practical case within a work group. As a result, student must submit a set of design products.

ASSESSMENT SYSTEM

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

- Theoretical exam: 40% (PO a) (CECC1)
- Labs: 60% (PO a, c, d, e, g) (CECC1, CECC6)

Labs:
L1 ideation and design
L2 solution prototyping
L3 prototype evaluation

Final mark of the lab part of the course will be worked out as follows:
L1 (2p) + L2 (3p) + L3 (1p) = 6p
In order to pass the continuous assessment, it is mandatory to obtain a MINIMUM MARK OF 3 over 6 for in the lab activities and 3 over 10 in the exam

BASIC BIBLIOGRAPHY

- Cooper, A. Face 3: The Essentials of Interaction Design, Willey.

- Kevin Werbach, Dan Hunter For the Win: How Game Thinking Can Revolutionize Your Business, PEARSON.

- Lidwell, W Universal Principles of Design, Rockport Publishers.

- Nielsen, J Designing Web Usability, New Riders.

- Preece, J. Interaction Design. Beyond human computer interaction, John Wiley &Sons.

- Tidwell, J Designing Interfaces: Patterns for Effective Interaction Design, O¿Really Media.

ADDITIONAL BIBLIOGRAPHY

- Hoc Phan Ionic 2 Cookbook, Packt Publishing.