

Academic Year/course: 2022/23

30258 - "User-Centred Design; Design for Multimedia"

Syllabus Information

Academic Year: 2022/23

Subject: 30258 - "User-Centred Design; Design for Multimedia"

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
326 - Escuela Universitaria Politécnica de Teruel

Degree: 439 - Bachelor's Degree in Informatics Engineering
443 - Bachelor's Degree in Informatics Engineering

ECTS: 6.0

Year: 4

Semester: Second semester

Subject Type:

Module:

1. General information

1.1. Aims of the course

After having taken a first basic subject in Human-Computer Interaction (30217) in which the basis for the design and development of interfaces for small applications are taught, in this subject the student will learn the technologies related to user-centered design (UCD) and user experience (UX), including those that require accessible interfaces. The student will also be able to integrate different types of information and multimedia elements in the interfaces he/she designs.

The subject has an applied character. The student will learn the necessary concepts already mentioned and, above all, will learn to apply them in the design of problems in different areas and platforms.

These approaches and objectives are aligned with some of the Sustainable Development Goals, SDG, of the 2030 Agenda (<https://www.un.org/sustainabledevelopment/>) and certain specific goals, in such a way that the acquisition of the learning results of this subject provides training and competence to the student to contribute to a certain extent to its achievement:

- Goal 5: Gender Equality.
 - Target 5.b: Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.
- Goal 10: Reduced Inequalities.
 - Target 10.2: By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status.

1.2. Context and importance of this course in the degree

In the School of Engineering and Architecture (EINA), the subject is compulsory semester within the Specific Technology: "Information Technologies". It is offered as an elective for students of the rest of Specific Technologies of the Computer Engineering Degree: Computing, Information Systems, Computer Engineering and Software Engineering.

In the E.U. Polytechnic of Teruel, the subject is one of those of the Specific Technology "Information Technologies", and will also be taken as an elective by the students of the Specific Technology of Information Systems.

1.3. Recommendations to take this course

The students of this course will take advantage of their basic knowledge in programming at the level of Programming I and II and Programming Theory, and of the knowledge acquired in Software Engineering and Person-Computer Interaction.

2. Learning goals

2.1. Competences

Upon passing the course, the student will be more competent to:

- CGC13. Knowledge and application of the necessary tools for storage, processing and access to information

systems, including web-based ones. Specific Training Competencies of the Specific Technology of Information Technology.

- CGC17. Design and evaluate human-computer interfaces to ensure accessibility and usability of computer systems, services and applications.
- CGC18. Know the rules and regulations of computer science at national, European and international levels (within the scope of the subject).
- CETI3. Ability to employ methodologies focused on the user and the organization for the development, evaluation and management of applications and systems based on information technologies that ensure accessibility, ergonomics and usability of the systems.
- CETI6. Ability to conceive systems, applications and services based on network technologies, including Internet, web, e-commerce, multimedia, interactive services and mobile computing.

2.2. Learning goals

The student, in order to pass this subject, must demonstrate the following results:

- Knows the different user-centered methodologies for the development, evaluation and management of multimedia and web applications and systems that ensure the accessibility and usability of the systems.
- Knows how to decide the most appropriate set of UCD methods for a specific problem and solve it.
- Knows the different emerging interaction paradigms to be able to select the most appropriate interface for a specific problem and domain.
- Must be able to implement different solutions based on different interaction paradigms, for a given problem.
- Must be able to conceive, design and build multimedia applications and to decide which multimedia tool is most suitable for a given job.
- Must be able to advise on multimedia web applications and services based on specific requirements.

2.3. Importance of learning goals

Interactive systems allow direct communication between the system and its users. A system whose interface is unintelligible, too complex or inadequate for the user's interests is of little use.

The course aims that the student is able to design interfaces of interactive systems, integrating users in the design process (UCD) and studying their experience (UX) so that they ensure the effectiveness, efficiency and user satisfaction regardless of the skills or abilities of the user, integrating information of different types and media (text, audio, image, video).

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

Students must demonstrate that they have achieved the expected learning outcomes through the following continuous assessment activities:

- Theoretical type work (development of topics, exercises, tests, etc.): 30%.
- Practical work: individual (use of tools, small programs, etc.) and group (design and development of a project in which the knowledge acquired in the course is applied): 70%.

For students who do not opt for continuous evaluation or who wish to increase their grade with respect to that acquired through the previous tests, a global evaluation test will be developed. In this test the student must demonstrate the necessary knowledge that should have been acquired through all the previously mentioned tests, including the delivery of the material. This test will take place in the official exams according to the center's calendar.

In order to pass the subject, a minimum weighted grade of 5/10 must be obtained and a grade higher than 5/10 in each of the tests. In case of not obtaining the minimum grade required in any of the tests, the grade in the subject will be the lesser of the lowest value between the weighted average of the tests and 4/10.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented such as:

- Continuous study and work, starting from the first day.
- The learning of concepts and methodologies for the analysis and design of user interfaces during the lectures, in which the students' participation will be fostered.
- In the practical classes, the student will review use cases and will learn the technologies needed to develop user

interfaces in different platforms.

- Group work will be carried out by developing a project proposed by the teachers.

4.2. Learning tasks

The course includes the following learning tasks:

- In lectures, the program of the subject will be developed.
- The practical sessions will be carried out in a computer laboratory. In each session, the student will have to put into practice the activities previously programmed.
- Students will complete assignments, problems and exercises related to concepts seen in practical sessions and lectures.

4.3. Syllabus

The program of the course is as follows:

- User-centered design model. Definition and fundamentals of User-Centered Design.
- Methodologies and techniques of user-centered design.
- Design principles for the creation of web and multimedia systems.
- Player-based design.
- Inclusive design and accessibility.
- Multimedia elements. Static content: text, images and graphics. Compression, formats and editing tools.
- Multimedia elements. Dynamic content: audio, video and animations. Compression, formats and editing tools.
- Web usability and multimedia. User experience.
- Advanced interfaces: ubiquitous, tangible, natural, sensorial and multimodal interfaces.
- Applications. Case studies.

4.4. Course planning and calendar

The planning of classroom teaching and the presentation of works will be adjusted to the general schedule established by the University of Zaragoza and the corresponding centers.

4.5. Bibliography and recommended resources

- Zaragoza:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30258&Identificador=14722>

- Teruel:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30258&Identificador=13630>