1. OVERVIEW

Subject area	User Interfaces
Degree	Bachelor's Degree in Computer Engineering
School/Faculty	Architecture, Engineering and Design
Year	Third
ECTS	6
Type	Compulsory
Language(s)	Spanish
Delivery mode	On campus / Online
Semester	Second
Year	2022-2023
Coordinating professor	Ana del Valle Corrales Paredes

2. INTRODUCTION

Nowadays, almost all Software systems have some kind of User Interface. Knowing how to design, develop and assess these types of interfaces so they are usable is an essential element for those students who will work on application development tasks in the future. The interaction process between the user and the system must be designed in an integrated way with the rest of the system, taking into account its own characteristics and, above all, the needs of the end user. For this reason, "usability" engineering is essential to show us how to carry out the correct design of the interfaces. In this subject area, the student will learn the design, prototyping and assessment techniques to obtain user interfaces that comply with the different usability heuristics. This subject area is designed in this way, from a practical perspective, to give students a valuable advantage, encouraging them to evaluate their interfaces with potential users, and allowing them to apply the knowledge and skills acquired.

3. SKILLS AND LEARNING OUTCOMES

Basic skills (CB, by the acronym in Spanish):

- CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences. CB5: Students have developed the learning skills necessary to undertake further study in a much more independent manner.

Transversal skills (CT, by the acronym in Spanish):

- CT14: Innovation/Creativity: Ability to propose and invent new, original solutions that contribute towards improving problem situations, including ideas from other contexts.

- CT16: Decision-making: Ability to choose between different options or methods to effectively solve varied situations or problems.

- CT18: Use of information and communication technology (ICT): Ability to effectively use information and communication technology, such as tools for searching, processing and storing information, and for developing communication skills.

Specific skills (CE, by the acronym in Spanish):

- CE23 Ability to design and assess personal computer interfaces that guarantee the accessibility and usability of systems, services and computer applications.
- CE30 Ability to develop and evaluate interactive and complex information presentation systems and their application to solve human-computer interaction design problems.

Learning outcomes (RA, by the acronym in Spanish):

- RA1: Carry out a critical study of a user interface.
- RA2: Apply design, prototyping and assessment techniques to obtain user interfaces that comply with the different usability heuristics.

The following table shows how the skills developed in the subject area match up with the intended learning outcomes:

Skills	Learning outcomes
CB4, CB5, CG3, CT14, CT16, CT18, CE23, CE30	RA1, RA2

4. CONTENTS

- The subject area will focus on the following learning areas: Empirical Usability Evaluations.
- Rapid Prototyping in the software development life cycle.
- Tools to create Graphical User Interface (GUI)

The content of each unit will be specified in detail below.

The module is organised into 6 Learning Units:

Unit 1. Introduction to user interfaces
1.1. Introduction.
1.2. Iterative design
1.3. Usability.
1.4. Design Thinking Methodology

Unit 2. Heuristic evaluation of user interfaces
2.1. Basic heuristic evaluation
2.2. Heuristics
2.4. Report on usability aspects

Unit 3. Empirical Evaluations
3.1. Introduction
3.2. Eye tracking
3.3. Thinking out loud

Unit 4. User interface design for desktop applications
4.1. Prototype development (Sketch, Wireframe and Prototypes)
4.2. Languages for Desktop User Interface development
4.3. Controls, events and interactions

Unit 5. Web Interface Design
5.1. Web interface design patterns
5.2. Mobile interface design patterns
5.3. Prototype development (Sketch, Wireframe and Prototypes)
5.4. Web Applications
5.5. Mobile Applications

Unit 6. End of Subject Area group work
6.1. Project draft and approach

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Survey on aims and interests.
- Lectures, subjects of study and seminars
- The "lectures" in the on-campus delivery mode may be called subjects of study and seminars in the online delivery mode. Participation in forums. Laboratory work.
- Group research and/or problem-solving.
- Simulation.
- Practical case studies.
- Fieldwork, conferences, visits to companies and institutions. •

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On campus:

Learning activity (AF, by the acronym in Spanish)	Number of hours
Lectures, reading on main topics and complementary materials, implementation of activities carried out independently and collectively	50
Group work	25
Independent working	50
Tutorials, academic monitoring and assessment	25
TOTAL	**150**

Online:

Learning activity (AF, by the acronym in Spanish)	Number of hours
Independent working	50
Independent reading on complementary topics and materials and implementation of activities carried out independently. Asynchronous group discussion on the Campus Virtual forum, and online seminars	50
Group work	25

Tutorials, academic monitoring and assessment	25
TOTAL	**150**

7.EVALUACIÓN

The assessment systems, plus their weighting in the final grade for the subject area, are as follows:

On campus:

Assessment system	Weighting
On-campus knowledge tests	30%
Reports and papers, design brief	15 - 30 %
Portfolio, peer assessment and/or alternative assessment methods	15 - 30 %
Field experience (discussion forum)	0 - 10 %
Exercises, case studies, designs, simulations and research	15%

Online:

Assessment system	Weighting
On-campus knowledge tests	60%
Reports and papers	10 - 20 %
Alternative assessment methods	10 - 20 %
Field experience (discussion forum)	0 - 5 %
Exercises, case studies, designs, simulations and research	10 - 20 %

On the Campus Virtual, when you open the subject area, you will find all the details of your assessable tasks and the deadlines and assessment procedures for each task.

7.1. Ordinary exam period

In order to pass the subject area in the ordinary exam period, you will need a grade of at least 5.0 in each of the assessments (individual/group activities, project and theoretical test). The class attendance must be higher than 50% (for the on-campus delivery mode). For the online delivery mode, students must participate in at least 50% of the virtual seminars.

7.2. Extraordinary exam period (resits)

In order to pass the subject area in the extraordinary exam period, you will need a grade of at least 5.0 in the activities/assessments that were failed. Activities not passed in the ordinary exam period, or those not submitted, must be submitted after receiving the relevant corrections and feedback from the lecturer.

8.CRONOGRAMA

The timeline with submission dates for the assessable tasks in this subject area will be indicated in this section:

Assessable tasks	Date
Activity 1: Study of the usability of the objects	Weeks 2–3
Activity 2: Study of design methodologies	Weeks 4–5
Activity 3: Heuristic evaluation of user interfaces	Weeks 6–7
Activity 4: Empirical evaluation of user interfaces	Weeks 9–10
Activity 5: Prototyping and development of a desktop interface design	Weeks 12–13
Activity 6: Prototyping and development of a web/mobile interface design	Weeks 14–15
Activity 7: Project / Case Study	Weeks 16–17
Activity 8: Theoretical test	Weeks 18–19

The timeline may be subject to change for logistical reasons related to the activities. Students will be informed of any changes in due time and course.

9. BIBLIOGRAPHY

The recommended bibliography is indicated below:

Unit 1: Introduction to user interfaces

Unit 2: Heuristic evaluation of user interfaces Web resources:

Unit 3: Empirical evaluations

Unit 4: User interface design for desktop applications Web resources:

Unit 5: Web interface design Web resources:

Unit 6: End of subject area group work. Resources from previous units.

10. DIVERSITY AWARENESS UNIT

Students with special educational needs:

To ensure equal opportunities, curricular adaptations or adjustments for students with special educational needs will be outlined by the Diversity Awareness Unit (UAD, Spanish acronym).

As an essential requirement, students with special educational needs must obtain a report about the curricular adaptations/adjustments from the Diversity Awareness Unit by contacting unidad.diversidad@universidadeuropea.es at the beginning of each semester.

11. STUDENT SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degrees and the learning process.

These surveys will be available in the survey area of your campus virtual or by email.

Your opinion is essential to improve the quality of the degree.
Many thanks for taking part.