School of Technology and Management
Course Unit Syllabus

Level of qualification:
Second Cycle (EQF level 7) - Master
Study cycle:
Internet of Things

Course Unit: - **Designing User Interfaces**

Year 1 **Semester 1** **ISCED Code: 0613** **ECTS: 6**

Type of Course Unit: Compulsory **Delivery Mode:** Face-to-face / Distance Learning **Language of Instruction:** Portuguese

COURSE COORDINATOR: Luís Filipe Garcia

HOURS OF WORK

TOTAL HOURS	Contact Hours								Hours in autonomous work
	Theory	Theory and practice	Practical and laboratory work	Field work	Seminar	Internship	Tutorial guidance	Other	
150		**29**							**121**

Prerequisites (if applicable): n.a.

LEARNING OUTCOMES (knowledge, skills and competence)

On successful completion of this course unit, the student should be able to:

1. Identify the decisive factors for the users interaction in the context of the Internet of Things (IoT) in the areas following areas: users, data and security.
2. Analyze the tasks, users and contexts in operations of the IoT devices networks.
3. Apply the human-computer interaction patterns in interface design for IoT.
4. Design usable functional prototypes of interactive systems.
5. Develop high-fidelity prototypes for IoT interfaces using mobile and web platforms.
6. Create usability evaluation plans of prototypes oriented to interaction with objects and data of IoT.
7. Execute usability evaluation tests of prototypes.
8. Analyze the data from usability evaluation tests.

CONTENTS

1. Introduction to usability and user experience in IoT.
2. Principles and usability rules.
3. Techniques to analyse and design interactive systems.
4. Interaction design.
5. User Interfaces in IoT.
6. Usability, Security, Privacy, and Trust in IoT.
7. Development of IoT interfaces using mobile and web platforms.
8. Interactive systems evaluation for IoT.
9. Collection, analysis and discussion of data from interactive systems evaluation.

DEMONSTRATION OF THE CONTENTS COHERENCE WITH THE COURSE UNIT'S LEARNING OUTCOMES

1. Identify the decisive factors for the users interaction in the context of the Internet of Things (IoT) in the areas following areas: users, data and security (1, 2, 5, and 6).

2. Analyze the tasks, users and contexts in operations of the IoT devices networks (1, 2, and 3).

3. Apply the human-computer interaction patterns in interface design for IoT (2, 3, 4, 5, and 6).

4. Design usable prototypes of interactive systems (2, 3, 4, e 5).

5. Develop high-fidelity prototypes for IoT interfaces using mobile and web platforms (7).

6. Create usability evaluation plans of prototypes oriented to interaction with objects and data of IoT (8).

7. Execute usability evaluation tests of prototypes (8).

8. Analyze the data from usability evaluation tests (9).

TEACHING METHODOLOGIES

Each topic is explored in the first part of the class through the presentation and discussion of the respective contents. In the second part of the class will be applied practical work related to the evaluation project of the course. Gradually, students will acquire competencies related with the development of functional prototypes using mobile and web platforms.

DEMONSTRATION OF THE COHERENCE BETWEEN THE TEACHING METHODOLOGIES AND THE LEARNING OUTCOMES

The presentation of the theoretical and pratical contents are exemplified by case studies that help students to develop solutions to the problems presented by the final assessment project. The practical part of the class should support iteratively the different working phases to complete the final project. Students will learn how to develop mobile and web applications in order to create a functional prototype for the interface designed.

EVALUATION METHODS

The assessment has two components:

Analysis and presentation of a scientific paper.

Final project with report and respective defense.

Both tasks must be completed by groups of 2 students maximum.

MAIN BIBLIOGRAPHY

Claire Rowland, Elizabeth Goodman, Martin Charlier, Ann Light, & Alfred Lui. 2015. Designing Connected Products: UX for the Consumer Internet of Things. O'Reilly Media.

Jenny Preece, & Helen Sharp, Interaction Design: Beyond Human-Computer Interaction, John Wiley & Sons, 2007.

Alan Dix, Janet Finlay, Gregory Abowd, & Russell Beale. 2003. Human-Computer Interaction. Prentice Hall.

Year of implementation: 2021/2022 | Date of approval by the Technical-Scientific Board: 2021-06-23