

Academic Year: ( 2023 / 2024 )

Review date: 17-01-2024

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: ZARRAONANDIA AYO, TELMO AGUSTIN

Type: Compulsory ECTS Credits : 6.0

Year : 3 Semester : 2

## OBJECTIVES

The Interactive Ecosystems course centers on understanding and working, in a theoretical and practical way, with complex ecosystems featuring technology, as well as multiple socio-espatial and cultural components.

As part of the course, students analyze, reflect, and discuss complex interactive ecosystems. Further, students learn and practice the design of technology to support (solve, mitigate, etc.) relevant social problems.

Successfully finishing the course means developing capacities to:

- Understand, analyze and work with complex situations involving existing and future technology.
- Innovate with technology, proposing technical solutions to socially relevant problems.
- Be able to lead and implement classical and innovative analysis and design processes with rigor and validity, which conclude in innovative socio-technical systems that may create new business opportunities

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Human centered informatics
2. Paradigms, styles and principles of interaction
  - 2.1. Ubiquitous computing and IoT; Social computing; embodied interaction; Virtual, augmented, and mixed reality; CSCW (computer supported collaborative work)
3. Design approaches
  - 3.1. User-centered design (UCD) and participatory design (PD)
  - 3.2. Usability and User Experience (UX)
  - 3.3. Design thinking
4. Designing and prototyping of interactive ecosystems
  - 4.1. Classical and innovative design and prototyping techniques
  - 4.2. Problem framing, divergent, and convergent design
5. Evaluation
  - 5.1. Evaluation kinds: internal and external, with and without users, formative and summative.

## LEARNING ACTIVITIES AND METHODOLOGY

Theoretical/practical classes. 2 ECTS. Classroom presentations by the teacher with IT and audiovisual support in which the subject's main concepts are developed, while providing material and bibliography to complement student learning. Resolution of practical cases and problem, posed by the teacher, and carried out individually or in a group

Individual or group work. 3 ECTS. Necessary work to learn the course content and apply this knowledge to the understanding, analysis, critical reflexion, and design of interactive systems and their impact in the physical and sociotechnical ecology where it will be used.

Final Exam. 1 ECTS. Necessary work to prepare for the final exam

Tutoring sessions. Individual or group follow up sessions to clarify theoretical or practical questions.

## ASSESSMENT SYSTEM

FINAL EXAM. 30%. Assessing knowledge, skills, and capacities learned and practiced during the course.

CONTINUOUS EVALUATION 70%. Assessing deliverables, presentations, engagement in debates and class presentations, exercises, practical exercises and work in workshops during the course.

In particular, students will submit 3 individual analytical and critical thinking exercises (10% of the score), and a group project (60% of the score).

To pass the course, it is mandatory to obtain a minimum score of 3 out of 10 in the final exam; and 3 out of 10 in the continuous evaluation. It is mandatory to present at least an individual exercise.

The students who do not pass the course in the ordinary call, will have an extraordinary call to pass the course, involving an extra ordinary call exam:

1. If the student followed the continuous evaluation: the course grade is established by the course programme for the ordinary call (exam, 30%; continuous evaluation, 70%; minimum grade of 3 out of 10 to pass each of these parts). Nevertheless, the student will be graded only with the grade in the final exam if this grade was more favourable.

2. If the student did not follow the continuous evaluation, the course grade will reflect the grade in the final extraordinary call exam. Nevertheless, the coordinator may authorise the deliverable of the continuous evaluation exercises in the extraordinary call, in which case the final grade would be assessed the same way than in the ordinary call.

|                                                                             |           |
|-----------------------------------------------------------------------------|-----------|
| <b>% end-of-term-examination:</b>                                           | <b>30</b> |
| <b>% of continuous assessment (assignments, laboratory, practicals...):</b> | <b>70</b> |

## BASIC BIBLIOGRAPHY

- Helen Sharp, Jennifer Preece, & Yvonne Rogers Interaction Design: Beyond Human-Computer Interaction, John Wiley & Sons. , 2019.
- Kim Goodwin and Alan Cooper Designing for the digital Age, Wiley, 2009

## ADDITIONAL BIBLIOGRAPHY

- Amy J. Ko Design methods, Creative Commons License (<https://faculty.washington.edu/ajko/books/design-methods/>), 2018
- Bill Buxton Sketching User Experiences: Getting the Design Right and the Right Design, Morgan Kaufmann, 2007
- Bill Moggridge Designing Interactions, MIT Press, 2007
- Don Norman The Design of Everyday Things, Basic Books, 2013
- Eric von Hippel Democratizing Innovation, MIT Press, 2005
- Lars-Erik Janlert and Erik Stolterman Things that keep us busy, MIT Press, 2017