

Academic Year: ( 2024 / 2025 )

Review date: 26-04-2023

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: ZARRAONANDIA AYO, TELMO AGUSTIN

Type: Compulsory ECTS Credits : 3.0

Year : 1 Semester : 1

## OBJECTIVES

### KNOWLEDGE

K1A: Understanding and development of methodologies, techniques, specific-use programs, standards and norms of computer graphics.

K1B: Knowledge of user-centered design principles, techniques, and tools.

K1C: Knowledge for the integration of technologies, applications, services, and systems specific to computer engineering into design contexts and activities.

K1D: Knowledge of conventional and digital techniques and tools for drawing and artistic expression.

K1E: Knowledge of the essential elements of visual language, color theory in product design, and texture in product design.

### SKILLS

S1A: Ability to communicate a design and design industrial products with artistic expression techniques.

S1B: Application of usability evaluation techniques in digital environments and products.

S1C: Application of drawing and visual language techniques in the representation and design of industrial products.

S1D: Ability to design virtual environments and to create, manage and distribute digital content.

### COMPETENCIES

C1A: Ability to design an industrial product or process from the point of view of analyzing shapes, colors, and textures.

C1B: Ability to communicate design ideas through conventional or computer-aided drawing, sketches or illustrations.

C1C: Application of technologies and protocols of new-generation networks, component models, middleware, and services.

C1D: Ability to analyze information needs in an environment and carry out the entire product design process in all its stages.

## DESCRIPTION OF CONTENTS: PROGRAMME

1. Evolution of human-computer interaction
  - a. Artificial intelligence for interaction
  - b. Interaction in augmented, virtual, and mixed environments
  - c. Interaction in collaborative environments
2. Interaction in interactive and immersive environments
  - a. Augmented, virtual, and mixed reality
  - b. Interaction styles and ecologies
3. Interaction design and user experience
  - a. Interaction design principles
  - b. User experience and gamification
  - c. Interaction design techniques and tools

d. Inclusive design

## LEARNING ACTIVITIES AND METHODOLOGY

### ACTIVITIES

- AF1 - Theoretical class. - [11.67 hours with 100% attendance, 0.39 ECTS]
- AF2 - Practical classes - [1.67 hours with 100% attendance, 0.06 ECTS]
- AF3 - Theoretical practical classes - [10 hours with 100% attendance, 0.33 ECTS]
- AF5 - Tutorials - [3 hours with 25% attendance, 0.10 ECTS]
- AF6 - Group work - [13 hours with 0% attendance, 0.43 ECTS]
- AF7 - Individual student work - [50.66 hours with 0% attendance, 1.69 ECTS]

### TEACHING METHODOLOGY

- MD1 - Lectures in the teacher's class with the support of computer and audiovisual media, in which the main concepts of the subject are developed and the bibliography is provided to complement the students' learning.
- MD2 - Critical reading of texts recommended by the professor of the subject: Press articles, reports, manuals and / or academic articles, either for later discussion in class, or to expand and consolidate the knowledge of the subject.
- MD3 - Resolution of practical cases, problems, etc ... raised by the teacher individually or in groups
- MD4 - Presentation and discussion in class, under the moderation of the teacher of topics related to the content of the subject, as well as practical cases
- MD5 - Preparation of works and reports individually or in groups

## ASSESSMENT SYSTEM

<b>% end-of-term-examination:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100
SE1[10%] Participation in class	
SE2 [90%] Individual or group work carried out during the course	

## BASIC BIBLIOGRAPHY

- Jason Jerald The VR Book: Human-Centered Design for Virtual Reality, Morgan & Claypool, 2015

## BASIC ELECTRONIC RESOURCES

- . Learn Unity: <https://learn.unity.com/>