

Academic Year: ( 2020 / 2021 )

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Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: BELLUCCI , ANDREA

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

## OBJECTIVES

### BASIC SKILLS

Develop knowledge that provides a basis or opportunity to be original in the development and / or application of ideas, often in a research context

Know how to apply the acquired knowledge and their ability to solve problems in new or unknown environments within broader (or multidisciplinary) contexts related to their area of study

### GENERAL COMPETENCES

Ability to project, calculate and design products, processes and facilities in all areas of Computer Engineering.

### SPECIFIC COMPETENCES

Ability to use and develop methodologies, methods, techniques, specific use programs, norms and standards of graphical computing.

Ability to conceptualize, design, develop and evaluate human-computer interaction of computer products, systems, applications and services.

Ability to create and exploit virtual environments, and to create, manage and distribute multimedia content.

## DESCRIPTION OF CONTENTS: PROGRAMME

### 1.-Current trends in human computer interaction

- 1.1.- Pervasive computing
- 1.2.- Tangible and embodied interaction
- 1.3.- Artificial intelligence for interaction
- 1.4.- VR, AR and MR
- 1.5.- Collaborative systems

### 2.- Interaction in immersive systems

- 2.1.- Augmented, virtual and mixed reality
- 2.2.- IoT and IoP
- 2.4.- Context-aware systems
- 2.5.- Interaction styles and ecologies

### 3.- Interaction Design and User Experience

- 3.1.- Design principles
- 3.2.- UX and gamification
- 3.3.- Interaction design tools and techniques
- 3.4.- Design for all
- 3.5.- Experience prototyping

## LEARNING ACTIVITIES AND METHODOLOGY

### LEARNING ACTIVITIES

Lectures

Labs  
Tutoring  
Group work  
Individual assignments  
Tests

#### METHODOLOGY

Lectures and online videos to acquire main concepts  
Use of additional bibliography to deepen on specific concepts  
Critical thinking activities related to the analysis of papers, videos and other material related with the course  
Solving practical exercises (individually or in groups)  
Discussion and presentation of assignments

#### ASSESSMENT SYSTEM

<b>% end-of-term-examination/test:</b>	0
<b>% of continuous assessment (assignments, laboratory, practicals...):</b>	100

SE1 Participation in class - 10%  
SE2 Individual or group assignments carried out during the course - 90%  
+ Individual assignments - 50%  
+ Group project - 40%

#### BASIC BIBLIOGRAPHY

- Erin Pangilinan editor. Steve Lukas editor. Vasanth Mohan editor. Creating augmented and virtual realities : theory and practice for next-generation spatial computing, O'Reilly Media, 2019
- William R. Sherman Alan B Craig Understanding virtual reality interface, application, and design, Morgan Kaufmann, 2019