Interactive and Inmersive Systems

Academic Year: (2022 / 2023) **Review date: 12-05-2022**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: BELLUCCI , ANDREA

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

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 interacion
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
AF1 - Theoretical class [13,33 hours with 100% attendance, 0,44 ECTS]
AF2 - Practical classes [25 hours with 100% attendance, 0,83 ECTS]
AF3 - Theoretical practical classes [10 hours with 100% attendance, 0,33 ECTS]
AF5 - Tutorials [6 hours with 100% attendance, 0,2 ECTS]
AF6 - Group work [75 hours with 0% attendance, 2,5 ECTS]
AF7 - Individual student work [50 hours with 0% face-to-face, 1,7 ECTS]

METHODOLOGY
MD1 - Lectures 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. individually or in groups

MD4 - Presentation and in-class discussion, under the moderation of the professor, on topics related to the content of the subject, as well as practical cases

ASSESSMENT SYSTEM

SE1 Participation in class - 10%
SE2 Individual or group assignments carried out during the course - 90%
+ Individual assignments - 40%
- Implementation of an AR system with WebXR and Web technology - 30%
- Analysis and discussion of immersive applications or systems - 10%

+ Group project - 50%
- Design and implementation of a VR system with Unity - 40%

% end-of-term-examination:	0
% of continuous assessment (assigments, laboratory, practicals…):	100

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

BASIC ELECTRONIC RESOURCES

- Unity . Plataforma de aprendizaje oficial de Unity: https://learn.unity.com/
- W3C Immersive Web Working Group . Immersive Web: https://immersiveweb.dev/