Interaction with Intelligent Systems

Academic Year: (2022 / 2023) **Review date: 06/05/2022 09:43:51**

Department assigned to the subject:

Coordinating teacher: BELLUCCI , ANDREA

Type: Electives ECTS Credits : 3.0

Year : 4 Semester :

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

User Interfaces (Course: 3 / Semester: 1)

OBJECTIVES

Upon successful completion of the course, the student acquires:

- Know the fundamental concepts and principles of applying Artificial Intelligence methods to enable Human-Computer Interaction.
- Develop prototypes of intelligent interactive systems.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Introduction to human interaction with intelligent systems o Evolution of human-computer interaction
 - Artificial Intelligence for interaction
 - Context awareness
 - Embodied interaction
2. Design of interfaces for Intelligent Systems
 - Context-awareness in mobile systems
 - Interaction with the physical world
 - Internet of Things: smart city, smart home
 - Programming-by-demonstration
3. Design principles for intelligent systems
 - Human in control
 - Augment human capabilities
 - The world as interface
 - Expressive representation
4. Practical intelligent systems programming
 - Machine Learning with sensor data
 - Speech recognition
 - Gesture recognition

LEARNING ACTIVITIES AND METHODOLOGY

* Theoretical classes: 0.5 ECTS
- Purpose: to achieve the specific cognitive skills of the course
- Execution: master classes in which theoretical concepts on intelligent interactive systems are presented

* Practical classes: 1 ECTS
- Purpose: to achieve instrumental competences and develop attitudinal competences
- Execution: practical laboratory classes in which technical topics will be exposed and practical examples related to the development of applications for intelligent interactive systems will be shown.

* Case study: 1 ECTS
- Purpose: develop instrumental and attitudinal skills

- Execution: Design and implementation of a practical case

* Final exam: 0.5 ECTS
- Purpose: complete the development of cognitive and procedural skills

* Tutorials: Individualized assistance (individual tutorials) or in group (collective tutorials) to students by the teacher.

ASSESSMENT SYSTEM

% end-of-term-examination/test:	30
% of continuous assessment (assigments, laboratory, practicals…):	70

The evaluation will be distributed throughout the term and the final grade will consist of the following parts:
- Practical case (mandatory, group of 3): 40%
- Submissions of programming problems (mandatory, individual): 30%

End of term examination:
- Exam: 30%

Minimum mark in the final exam to pass the subject: 4/10.
Minimum mark in the practical case to pass the subject: 4/10.
Programming assignments do not have a minimum grade.

BASIC BIBLIOGRAPHY

- Ming Hou, Simon Banbury, Catherine Burns Intelligent Adaptive Systems An Interaction-Centered Design Perspective, CRC Press, 2015

BASIC ELECTRONIC RESOURCES

- ACM . Intelligent User Interfaces: https://dl.acm.org/conference/iui