Interaction with Intelligent Systems

Academic Year: (2023 / 2024)   **Review date: 06-05-2022**

Department assigned to the subject: Computer Science and Engineering Department

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

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.

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

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