Artificial Intelligence Advanced Applications

Academic Year: (2023 / 2024)   **Review date: 27-04-2023**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: LEDEZMA ESPINO, AGAPITO ISMAEL

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Artificial Intelligence

DESCRIPTION OF CONTENTS: PROGRAMME

1.- AI in the automotive industry
1.1.- Overview
1.2. - Advanced Driving Aid Systems.
1.3. - Autonomous car.

2.- AI in the field of health
2.1. Panorama.
2.2. - State-of-the-art technologies in health care
2.3. - Motorized health

3. AI in business
3.1. Overview
3.2. - Business Intelligence
3.3. Marketing and AI

4. AI in Engineering
4.1. Overview
4.2. IoT and AI
4.3. Social analysis for the industry

5. AI and sustainable development.
5.1. Overview.
5.2 Social, economic and technological challenges.
5.3. Applications.

6.- Ethics and AI
6.1. Risks associated with AI
6.2. Questionable cases of application
6.3. Initiatives for an ethical AI

7. - Other areas of application of AI
7.1. Overview
7.2. Applications.

LEARNING ACTIVITIES AND METHODOLOGY

TRAINING ACTIVITIES

AF1 - Theoretical class [26,56 hours with 100% attendance, 0,88 ECTS].
AF3 - Theoretical and practical classes [3.32 hours with 100% attendance, 0.11 ECTS].

AF4 - Laboratory practices [13.28 hours with 100% attendance, 0.44 ECTS].
AF5 - Tutorials [4 hours with 25% of attendance, 0.13 ECTS] AF6 - Group work [23.28 hours with 25% attendance, 0.44 ECTS].
AF6 - Group work [23 hours with 0% attendance, 0,77 ECTS] AF7 - Individual student work [23 hours with 0% attendance, 0,77 ECTS].
AF7 - Individual student work [100 hours with 0% attendance, 3.33 ECTS].
AF8 - Partial and final exams [6 hours with 100% attendance, 0,33 ECTS].

TEACHING METHODOLOGIES

MD1 - Class lectures by the professor with the support of computer and audiovisual media, in which the main concepts of the subject are developed, and the bibliography is provided. The subject and the bibliography are given 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. .... posed by the teacher individually or in groups.

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

MD5 - Preparation of papers and reports individually or in groups.

ASSESSMENT SYSTEM

% end-of-term-examination:	20
% of continuous assessment (assigments, laboratory, practicals…):	80

SE1 [10%]: Class participation:
 * Directed activities (10%): class participation, exercises, interactive tests, etc.

SE2 [70%]: Individual or group work done during the course:
 * Partial Tests (20%): Students will take a mid-term exam.
 * Practical (40%): Students will present four practical in-group. The knowledge acquired will be evaluated in the mid-term and final exams.
 * Seminars (10%): Students will present seminars in groups.

SE3 [20%]: Final exam:
 * Final exam (20%): Minimum grade: 4 (out of 10).

BASIC BIBLIOGRAPHY

 - Ben Eubanks Artificial intelligence for HR : use AI to support and develop a successful workforce, London : Kogan Page, 2019

 - Eric J. Topo Deep medicine : how artificial intelligence can make healthcare human again, New York : Basic Books, 2019

 - Ramesh Sharda, Dursun Delen and Efraim Turban Analytics, Data Science, & Artificial Intelligence: Systems for Decision Support, Global Edition, 2020