Artificial Intelligence Advanced Applications

Academic Year: (2020 / 2021)   **Review date: 25-02-2021**

Department assigned to the subject: Computer Science and Engineering Department

Coordinating teacher: IGLESIAS MARTINEZ, JOSE ANTONIO

Type: Compulsory ECTS Credits : 6.0

Year : 1 Semester : 2

OBJECTIVES

BASIC COMPETENCES:
-Possess and understand the knowledge that provides a basis or opportunity to be original in the development and/or application of ideas, often in a research context
-That students know how to apply the knowledge acquired and their problem-solving skills in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their area of study
-That students are able to integrate knowledge and deal with the complexity of making judgements based on information which, being incomplete or limited, includes reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
-That students know how to communicate their findings and the ultimate knowledge and reasons behind them to specialist and non-specialist audiences in a clear and unambiguous manner
-That students possess the learning skills that will enable them to continue studying in a largely self-directed or autonomous manner.

GENERAL SKILLS:
-Capacity to project, calculate and design products, processes and installations in all areas of computer engineering.
-Capacity to direct, plan and supervise multidisciplinary teams.
-Capacity for mathematical modelling, calculation and simulation in technological and engineering centres of the company, particularly in research, development and innovation tasks in all areas related to Computer Engineering and related multidisciplinary fields.
-Ability to apply acquired knowledge and solve problems in new or unfamiliar environments within broader and more multidisciplinary contexts, with the ability to integrate knowledge.

SPECIFIC COMPETENCES:
-Capacity for the integration of technologies, applications, services and systems typical of Computer Engineering, with a generalist character, and in wider and more multidisciplinary contexts.
-Capacity to understand and be able to apply advanced knowledge of high-performance computing and numerical or computational methods to engineering problems
-Ability to apply mathematical, statistical and artificial intelligence methods to model, design and develop applications, services, intelligent systems and knowledge-based systems.
-Capacity for the integration of technologies and systems characteristic of Computer Engineering, with a generalist character, and in wider and multidisciplinary contexts such as transport and logistics, product sales (in shops and on-line), social robotics, health services, tourism, education, environment, banking or business development.

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.- Ethics and AI
5.1. Risks associated with AI
5.2. Questionable cases of application
5.3. Initiatives for an ethical AI

6. - Other areas of application of AI
6.1. Panoramic.
6.2. Applications.

LEARNING ACTIVITIES AND METHODOLOGY
EDUCATIONAL ACTIVITIES:
-Theoretical class
-Practical classes
-Theoretical and practical classes
-Laboratory practices
-Tutorials
-Group work
-Student's individual work
-Middle and final exams

ASSESSMENT SYSTEM
SE2: Practical Projects: 45%
SE2: Partial exams: 25%
SE2: Student´s seminars: 10%
SE3: Final exam: 20%

% end-of-term-examination: 100

% of continuous assessment (assigments, laboratory, practicals…):   0