

ARTIFICIAL INTELLIGENCE

Degree in Computer Systems

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Code: 10105

Main Scientific Area: Information Systems and Artificial Intelligence

Lecturer: Joaquim José de Almeida Soares Gonçalves

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 42h Total Workload: 118h

ECTS: 6,0

Objectives

Artificial intelligence is an area of study that involves other areas, namely mathematics, computing and information systems. The development of intelligent systems is a challenge that requires not only an understanding of those areas, but above all the ability to combine them to formulate solutions.

This course aims to provide a contextualization of the main concepts that support artificial intelligence and add theoretical and practical skills to those that students already have for the creation of intelligent systems. The development of abstract thinking and solving complex theoretical problems is the main objective that is intended to be achieved.

Learning Outcomes

Students who successfully complete this course should be able to:

Understand and program artificially intelligent agents that operate in different environments

Ability to represent and implement different types of knowledge, as well as use search concepts in:

spaces of informed, uninformed and local search

constraint satisfaction

problems problems with opponent

Bayesian Networks

Genetic algorithms

computer learning techniques

Unsupervised

Supervised

By reinforcement

Course Contents

Introduction to Artificial Intelligence

Smart Agents

Decision making

Uninformed search

Informed search

Constraint Satisfaction Issues

Bayes Networks

Genetic Algorithms

Machine learning

Metrics

Techniques

Overfitting

Recommended Bibliography

Russell and P. Norvig, Artificial Intelligence: A Modern Approach, Third Edition, Prentice Hall 2009, ISBN: 0-13-604259-7.

Learning and Teaching Methods

The main topics (intelligent agents, decision-making and learning) are intended to equip students with the knowledge essential for the development of intelligent agents capable of operating and adapting to an environment with some degree of complexity.

Assessment Methods

Three written tests and two practical assignments

The written tests have a weight of 60% and the works 40%