UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Artificial Intelligence

Academic Year 2023/2024

1. Organic Unit

Faculty of Business and Economic Sciences

2. Course

Computer Engineering

3. Cycle

1st

4. Course Unit

Artificial Intelligence (L9027)

5. Scientific Area

6. Curricular Year

3rd

7. Type of Curricular Unit / Semester

1st Semester

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8. Class type and workload (work time)

Theoretical classes:	
Practical classes:	
Theoretical-Practical Classes	30,00
Tutorial Guidance:	20,00

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor BEREND WILLEM MARTIJN KUIPERS

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

To obtain the knowledge on basic AI techniques, the problems they apply to, as well as their limitations

15. Specific Objectives

The course analyzes the most known algorithms and their applications to problem solving. The main focus is on rationalization with knowledge through representations of propositional and 1st order logic, use of structured methods and Monte-Carlo techniques for automated decision-making, with probabilistic models and resulting inferences.

16. Skills to be acquired

Identification of the various types of intelligent agents
Knowledge of the main algorithms used in research
Most popular knowledge representation methods
Decision making in situations of uncertainty
Learning from experience

17. Teaching Methodology

Teaching will be based on the oral transmission of information related to the topics under study, followed by the resolution of appropriate exercises for the problems under study.

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18. Course Unit Program

1. INTRODUCTION
2. AGENTS
   2.1 The nature of the environments
   2.2 The structure of agents
3. RESEARCH
   3.1 Performance measures
   3.2 Uninformed research strategies
   3.3 Informed research and exploration
4. KNOWLEDGE AND REASONING
   4.1 Propositional logic
   4.2 First order logic
   4.3 Inference
5. UNCERTAINTY
   5.1 Decision-making in an environment of uncertainty
   5.2 Probability Theory
   5.3 Bayes Rule and its use
   5.4 Inference in a situation of uncertainty
6. LEARNING
   6.1 Ways of learning
   6.2 Inductive learning
   6.3 Decision trees
   6.4 Introduction to statistical learning models

19. Assessment Methods

The Continuous Assessment is based on intermediate written tests and/or small assignments on the topics.

20. Didactic Resources

Data-projector
Slides

21. Sustainability Objectives

4. Quality Education
5. Gender Equality
9. Industry, Innovation and Infrastructure

22. Keywords

Smart Agents
Search
Uncertainty
Learning Techniques

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23. Main Bibliography

Author(s): Stuart Russell & Peter Norvig
Title: Artificial Intelligence - A modern approach
Edition: 3 Year: 2016
Local:
Publisher: Pearson Education

Author(s):
Title:
Edition: Year:
Local:
Publisher:

Author(s):
Title:
Edition: Year:
Local:
Publisher:

24. Complementary Bibliography

Author(s):
Title:
Edition: Year:
Local:
Publisher:

Author(s):
Title:
Edition: Year:
Local:
Publisher:

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'INTELIGÊNCIA ARTIFICIAL': Academic Year 2023/2024
Autor / Author	Prof. Doutor BEREND WILLEM MARTIJN KUIPERS
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s)	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
Estatuto de utilização / Usage	Acesso público / Public Access
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