Course guides
270726 - LAI - Logics for Artificial Intelligence

Unit in charge: Barcelona School of Informatics
Teaching unit: 1042 - URV - Universitat Rovira i Virgili.
Degree: MASTER'S DEGREE IN ARTIFICIAL INTELLIGENCE (Syllabus 2017). (Optional subject).
Academic year: 2021  ECTS Credits: 6.0  Languages: English

LECTURER

Coordinating lecturer: ANTONIO MORENO RIBAS
Others: Segon quadrimestre: ANTONIO MORENO RIBAS - 10

PRIOR SKILLS

It is not necessary to have taken an introductory course on Logic.

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CEA13. Capability to understand advanced techniques of Modeling, Reasoning and Problem Solving, and to know how to design, implement and apply these techniques in the development of intelligent applications, services or systems.
CEP3. Capacity for applying Artificial Intelligence techniques in technological and industrial environments to improve quality and productivity.
CEP5. Capability to design new tools and new techniques of Artificial Intelligence in professional practice.

General:
CG1. Capability to plan, design and implement products, processes, services and facilities in all areas of Artificial Intelligence.
CG3. Capacity for modeling, calculation, simulation, development and implementation in technology and company engineering centers, particularly in research, development and innovation in all areas related to Artificial Intelligence.

Transversal:
CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

CT6. REASONING: Capability to evaluate and analyze on a reasoned and critical way about situations, projects, proposals, reports and scientific-technical surveys. Capability to argue the reasons that explain or justify such situations, proposals, etc..

TEACHING METHODOLOGY

Teaching methodologies:
* Lectures.
* Sessions with student participation.
* Autonomous work.
* Tutoring sessions.
* Preparation of evaluation tests.
LEARNING OBJECTIVES OF THE SUBJECT

1. Understand the basic tools of Mathematical Logic and their use as a knowledge representation and reasoning mechanism within an intelligent system.
2. Know how to apply the tools of Mathematical Logic to solve specific problems.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory classes</td>
<td>10,0</td>
<td>6.67</td>
</tr>
<tr>
<td>Guided activities</td>
<td>4,0</td>
<td>2.67</td>
</tr>
<tr>
<td>Self study</td>
<td>96,0</td>
<td>64.00</td>
</tr>
<tr>
<td>Theory classes</td>
<td>20,0</td>
<td>13.33</td>
</tr>
<tr>
<td>Practical classes</td>
<td>20,0</td>
<td>13.33</td>
</tr>
</tbody>
</table>

Total learning time: 150 h

CONTENTS

First-Order Logic

Description:

Logic Programming

Description:

Description logics.

Description:

Inheritance networks.

Description:

Default reasoning.

Description:
## ACTIVITIES

### Lectures

**Description:**
Lectures that cover the theoretical content of the course.

**Specific objectives:**
1

**Full-or-part-time:** 30h
- Theory classes: 30h

### Problem sessions

**Description:**
Discussion of exercises on the topics covered in the course

**Specific objectives:**
2

**Full-or-part-time:** 15h
- Practical classes: 15h

### Exercises

**Description:**
Exercises solved in class during the semester

**Specific objectives:**
2

**Full-or-part-time:** 40h
- Self study: 40h

### Final exam

**Description:**
Theoretical exam

**Specific objectives:**
1

**Full-or-part-time:** 65h
- Self study: 65h

## GRADING SYSTEM

Final exam: 50%.
Individual exercises: 50%.
**BIBLIOGRAPHY**

**Basic:**

**Complementary:**

**RESOURCES**

**Hyperlink:**
- http://moodle.urv.cat