Course guide
220608 - 220608 - Artificial Intelligence Techniques and Automation Applications

Unit in charge: Terrassa School of Industrial, Aerospace and Audiovisual Engineering
Teaching unit: 707 - ESAII - Department of Automatic Control.
Degree: MASTER'S DEGREE IN AUTOMATIC SYSTEMS AND INDUSTRIAL ELECTRONICS (Syllabus 2012). (Optional subject).
Academic year: 2023   ECTS Credits: 5.0   Languages: Catalan

LECTURER

Coordinating lecturer: Bernardo Morcego - BERNARDO MORCEGO SEIX
Others: Jordi Damunt - JORDI DAMUNT MASIP

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Research, analysis and characterization of the use of artificial programming techniques in the control and automation of manufacturing processes.

Transversal:
3. TEAMWORK. Being able to work as a team player, either as a member or as a leader. Contributing to projects pragmatically and responsibly, by reaching commitments in accordance to the resources that are available.
5. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

Basic:
2. Improve technical communication of results.
4. Improve self-learning capacity

TEACHING METHODOLOGY

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LEARNING OBJECTIVES OF THE SUBJECT

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STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>14,0</td>
<td>11.20</td>
</tr>
<tr>
<td>Hours large group</td>
<td>31,0</td>
<td>24.80</td>
</tr>
<tr>
<td>Self study</td>
<td>80,0</td>
<td>64.00</td>
</tr>
</tbody>
</table>

Total learning time: 125 h
## CONTENTS

### (ENG) -
**Full-or-part-time**: 8h  
Theory classes: 4h  
Self study: 4h

### (ENG) Mòdul 2: Representació del coneixement
**Description:**  
(ENG) Representació borrosa del coneixement  
Fonaments de les xarxes neuronals  
Perceptró i perceptró multicapa  

**Related activities:**  
(ENG) Activitat 1  
Activitat 4  
Activitat 5  

**Full-or-part-time**: 35h  
Theory classes: 9h  
Laboratory classes: 4h  
Self study: 22h

### (ENG) Mòdul 3: Aprenentatge
**Full-or-part-time**: 45h  
Theory classes: 10h  
Laboratory classes: 6h  
Self study: 29h

### (ENG) Mòdul 4: Resolució de problemes
**Full-or-part-time**: 37h  
Theory classes: 8h  
Laboratory classes: 4h  
Self study: 25h

## ACTIVITIES

### (ENG) ACTIVITAT 1: CLASSES DE TEORIA
**Full-or-part-time**: 31h  
Theory classes: 21h  
Self study: 10h
(ENG) ACTIVITAT 2: TREBALL EN GRUP

Full-or-part-time: 36h
Theory classes: 8h
Self study: 28h

(ENG) ACTIVITAT 3: TREBALL EN GRUP (MEMÒRIA)

Full-or-part-time: 12h
Self study: 12h

(ENG) ACTIVITAT 3: PRÀCTIQUES

Full-or-part-time: 28h
Laboratory classes: 14h
Self study: 14h

(ENG) ACTIVITAT 4: EXAMEN FINAL

Full-or-part-time: 18h
Theory classes: 2h
Self study: 16h

GRADING SYSTEM

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EXAMINATION RULES.

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BIBLIOGRAPHY

Basic:

Complementary: