# Course guide
# 270711 - CIR - Cognitive Interaction with Robots

**Last modified:** 22/07/2025

**Unit in charge:** Barcelona School of Informatics
**Teaching unit:** 707 - ESAII - Department of Automatic Control.
732 - OE - Department of Management.

**Degree:** MASTER'S DEGREE IN INFORMATICS ENGINEERING (Syllabus 2012). (Optional subject).
MASTER'S DEGREE IN ARTIFICIAL INTELLIGENCE (Syllabus 2017). (Optional subject).

**Academic year:** 2025 **ECTS Credits:** 4.5 **Languages:** English

## LECTURER

**Coordinating lecturer:** ANAÍS GARRELL ZULUETA

**Others:**

## PRIOR SKILLS

None

## DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

**Specific:**
CEA10. Capability to understand advanced techniques of Human-Computer Interaction, 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.
CEP4. Capability to design, write and report about computer science projects in the specific area of ??Artificial Intelligence.
CEP6. Capability to assimilate and integrate the changing economic, social and technological environment to the objectives and procedures of informatic work in intelligent systems.

**Generical:**
CG1. Capability to plan, design and implement products, processes, services and facilities in all areas of Artificial Intelligence.
CG4. Capacity for general management, technical management and research projects management, development and innovation in companies and technology centers in the area of Artificial Intelligence.

**Transversal:**
CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

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.

CT7. ANALISIS Y SINTESIS: Capability to analyze and solve complex technical problems.

## TEACHING METHODOLOGY

MD1: Master class
MD2 Exhibition class
MD3: Lab supervision
MD4: Cooperative work supervision and guidance
MD5: Personal work managing
MD6: Tutoring
MD7: Queries

## LEARNING OBJECTIVES OF THE SUBJECT

1.The objective of this course is to prepare students to design, implement and evaluate systems that include human-machine interaction at large (either directly, through interfaces, or indirectly, through the computational treatment of textual information for human use). It integrates concepts and methods of artificial intelligence, computer and graphic design to provide a comprehensive understanding of the tasks and applications that involve a relationship between man and machine, especially the user-centric environments.

## STUDY LOAD

| Type | Hours | Percentage |
|---|---|---|
| Self study | 72,0 | 64.00 |
| Hours large group | 40,5 | 36.00 |

**Total learning time:** 112.5 h

## CONTENTS

**Cognitive Robotics**

**Description:**
Cognitive Robotics Project

## ACTIVITIES

### Cognitive Robotics

**Description:**
Cognitive Robotics Project

**Specific objectives:**
1

**Related competencies :**
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**Full-or-part-time:** 76h 18m
Self study: 36h
Guided activities: 2h 48m
Theory classes: 7h 30m
Practical classes: 15h
Laboratory classes: 15h

**Project's presentation**

**Specific objectives:**
1

**Related competencies :**
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CEP3. Capacity for applying Artificial Intelligence techniques in technological and industrial environments to improve quality and productivity.
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**Full-or-part-time:** 2h 30m
Self study: 1h 30m
Guided activities: 1h

## GRADING SYSTEM

Course Project.

Evaluation Criteria are:
1) Course's contents relationship
2) Experimentation setup
3) Workload
4) Presentation

## BIBLIOGRAPHY

**Basic:**
- Calinon, S. Robot programming by demonstration: a probabilistic approach. EPFL Press ; CRC Press, 2009. ISBN 9781439808672.
- Thrun, S.; Burgard, W.; Fox, D. Probabilistic robotics. The MIT Press, 2005. ISBN 0262201623.
- Breazeal, C.L. Designing sociable robots. MIT Press, 2002. ISBN 0262025108.