Cognitive Processes
Credits: 4 Semester 3 (UJI)   Compulsory: No

Format	Lectures 20 h	Examples 15 h	Private study 80 h

Lectures: Ll. Museros (UJI)

Objectives:
The development of robotics has been directed toward the development of skills in robots, similar to those of human beings, regardless of the cognitive processes underlying human intelligent behavior. Probably the poor implementation of natural cognitive processes to robotics and artificial intelligence is because neuroscience, the discipline that should nurture knowledge on natural cognitive processes, has not been able so far to provide a generic explanation of behavior of our brain, which could be used for artificial intelligence and robotics. This course will approach the study of the latest discoveries in neuroscience of human brain function, and then move to the implementation of artificial cognitive processes.

Contents:
- Use of cognitive processes modeling world
- Cognitive computer vision, and sensory integration
- Construction of cognitive maps
- Cognitive processes of action
- Case study: autonomous navigation of robots
- Cognitive processes of interaction
- Modeling of artificial emotional intelligence
- Cognitive learning

Abilities: After completing this course the students will be able to:
- Know the natural cognitive processes that neuroscience has discovered. Define natural cognitive processes can be implemented in artificial cognitive processes and how.
- Know a few artificial cognitive processes for automated world modeling. Know the limits of science at this point. Be able to formulate and solve new ways to build models of the world.
- Know how to approach and solve new cognitive navigation algorithms that incorporate new cognitive skills in robots.
- Know how to approach and solve new cognitive processes of action.

Assessment: 20% continuous assessment, 80% from end of semester examination.
Practical Work:
Exercises will be set, which will involve preparing and presenting a paper in scientific format.

Recommended texts:
- Thagard, Paul (2nd, 2005). Mind : Introduction to Cognitive Science. Cambridge, MA: The MIT Press.
  Further readings:
  will be provided by the lecturer