Automated Planning

Academic Year: (2013 / 2014) **Review date: 13-05-2013**

Department assigned to the subject:

Coordinating teacher: BORRAJO MILLAN, DANIEL

Type: Electives ECTS Credits : 3.0

Year : 1 Semester : 1

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

None

OBJECTIVES

- To analyze state-of-the-art automated planning techniques
- To characterize every technique as well as the domains they suit better
- To use tools that implement most techniques discussed in class
- To identify different open issues for the research in the area and to promote the realization and completion of new PhDs

DESCRIPTION OF CONTENTS: PROGRAMME

Introduction
  Introduction to planning
  Knowledge representation
  Heuristic Search
Classic planning
  Situation calculus and means-ends analysis. GPS
  State space. STRIPS and Prodigy
  Partial plans. UCPOP
Neoclassic planning
  Plan graphs. GRAPHPLAN
  SAT planning. SATPLAN
Heuristics
  Heuristic planning. HSP y FF
  Control knowledge
  Hierarchical Task Networks (HTN). SHOP2
  Machine learning
Other planning paradigms
  Time and resources (scheduling)
  Uncertainty

LEARNING ACTIVITIES AND METHODOLOGY

Theory classes
One homework per week
Final work project
Oral presentation of project

ASSESSMENT SYSTEM

50% oral presentation of final work project
50% sum of homeworks

% end-of-term-examination:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

BASIC BIBLIOGRAPHY

- James F. Allen, James Hendler y Austin Tate (eds.) Readings in planning, Morgan Kaufmann, 1990..

- Malik Ghallab, Dana Nau, Paolo Traverso Automated Task Planning. Theory & Practice, Morgan

Kaufmann, 2004.
- Stuart Russell y Peter Norvig Artificial Intelligence: A modern approach, Prentice Hall, 2010