



Planning and Approximate Reasoning

Studies: MESIIA, MIA

1st term

Hours: Theory:2

Lab: 1

+ Independent work at home

Department:

Computer Science and Mathematics, URV

Teaching staff

Lecturers:

Dr. Aida Valls, aida.valls@urv.cat

Office 143 (E4 Building)

Dr. Hatem Abdellatif hatem.abdellatif@urv.cat

Office-lab 143 (E1 Building)

Timetable

Theory lectures (classroom A215)

Wednesday: 11h-14h

Lab sessions

Wednesday: 18-19h or 19h-20h (MIA) – L208

Thursday: 15-16h (MESIIA) – not all weeks – L205

Lectures will be from 02/10/19 to 18/12/19



Required previous knowledge

- **Data Structures**
- **Programming skills**
- **Basics of Artificial Intelligence**



Main objective

- **Present the basic concepts and techniques in some specific fields of AI**
 - **AI Planning.**
 - **Approximate reasoning. Fuzzy logic. Fuzzy systems.**

Content

1. Planning

- Problem formalization for planning
- Classical planning: STIPS, PRODIGY
- Planning in graphs and with heuristics
- Planning under uncertainty: MDP, POMDP
- Planning with learning
- Applications

Content

2. Approximate reasoning

- Intro. to approximate reasoning
- Probability theory
- Certainty Factors
- Fuzzy logic
- Fuzzy systems
- Dempster-Shafer evidential model
- Bayesian networks

Bibliography

▪ Russell, Norvig, **Artificial Intelligence, a modern approach**, Prentice-Hall, 2010

M. Ghallab, D. Nau, P. Traverso, **Automated planning: theory and practice**, Elsevier/Morgan Hauffman, 2004

G. J. Klir, B. Yuan, **Fuzzy sets and fuzzy logic: theory and applications**, Prentice-Hall, 1995

Materials will be weakly uploaded in the URV Moodle space

Practical work

Practical exercises:

- **Planner**

- **MIA students:** 3 practical exercises
- **MESIIA students:** 1 practical exercise

- **Fuzzy system**

ALL students: construction of a fuzzy expert system



Evaluation

See the document *Evaluation Guide* corresponding to your master.

Available in Moodle.