Course title: Artificial Intelligence

Course code: 63510

ECTS: 6

Professor: Ivan Bratko

Master's program

Prerequisite knowledge :

- Basics of statistics and probability
- Basics of programming

Short course decription:

- Problem solving and search: review of problem solving techniques;
- advanced heuristic search techniques, space efficient techniques, real-time search
- Means-ends planning: robot planning, task planning and scheduling, meansends planning, partial order planning, planning graphs and GRAPHPLAN.
- Machine learning: review of basic methods (Bayes and naive Bayes classifier, learning of trees and rules, handling noise, pruning of trees and rules); MDL principle;
- Support Vector Machines; evaluating success of learning and comparing learning algorithms; learnability and theoretical limits for learning.
- Other paradigms of machine learning: inductive logic programming, reinforcement learning, constructive learning and discovering new concepts with functional decomposition.
- Reasoning with uncertainty: reasoning and learning in Bayesian networks, construction of networks and causality.
- Qualitative reasoning and modelling: qualitative and quantitative modelling, modelling without numbers, qualitative simulation of dynamic systems. Genetic algorithms, genetic programming and other problem-solving paradigms.