Study Program: Informatics

Type and level of studies: Bachelor studies

**Course name: Basics of Artificial Intelligence**

**Lecturer: Denić M. Nebojša**

Status**:** Elective

ECTS**: 10**

Attendance Prerequisites**: /**

**Course aims**

Introduction to the basic postulates of intelligent problem-solving techniques, artificial intelligence and neural networks, as well as advanced techniques for searching, machine learning and knowledge representation.

**Course outcome**

Gaining theoretical knowledge and the ability to implement the methods and algorithms of computer intelligent systems and artificial neural networks through software.

**Course content**

*Theoretical part*

Basics of artificial intelligence. Knowledge representation. Searching as a problem solving method. State space. Search strategies. Search management strategies. Heuristic search. Evolutionary and genetic programming. Methods for implementing search and knowledge representation. Production systems. Expert Systems. Inference Mechanisms. Probabilistic and fuzzy approach to inference. Machine learning. Artificial neural networks. Bioinformatic algorithms.

*Practical part* /Student research work

Project work

**Literature**


1. A.P. Engelbrecht, *Computational Intaligance: An Introduction*, John Wiley & Sons, 2007
2. Rajendra Akerka, Priti Sajja: *Knowledge-Based Systems*, Jones & Bartlett 2009
3. R. L. Haupt, S. E. Haupt: *Practical Genetic Algorithms*, Wiley-Interscience 2004
4. Timothy J. Ross: *Fuzzy Logic with Engineering Applications*, Wiley 2004
5. J. S. R. Jang, C. T. Sun, E.: Mizutani Neuro-Fuzzy and Soft Computing, Prentice-Hall 1997
6. R. R. Murphy: *An Introduction to AI Robotics*, MIT Press 2000
7. William R. Sherman, Alan B. Craig: *Understanding Virtual Reality: Interface, Application, and Design*, Morgan Kaufmann 2003


| **Number of active classes** | | | | Other classes |
|---|---|---|---|---|
| Lectures: 4 | Practical classes: 4 | Other forms of teaching: | Students' research work | |

**Teaching methods**

Lectures on topics listed in *course content*. Computer practice and independent students'research work.

**Assessment (maximum 100 points)**

| **Course assignments** | **ное points на** | Final exam | **Points** |
|---|---|---|---|
| activity during lectures | **10** | written exam | 20 |
| practical classes | **20** | oral exam | 20 |
| term test(s) | **15** | ..... | |
| seminar(s) | **15** | | |
| **Total** | **60** | | **40** |