Study programmes: Bachelor studies - Informatics

Course name: R269 - Computational inteligence

Lecturers: Vladimir Filipović, Miroslav Marić, Aleksandar Kartelj and other teachechers from Department for Computer Science and Informatics

Status: Optional

ECTS: 6

Attendance prerequisites: No prerequisetes

Course aims: Making student capabile to develop and to use different soft-computing techniques in order to solve problems from various domains and to be well-preppared in practical programming.

Course outcome: Upon finishing this course, student is capable for advanced work within computational inteligence domain.

Course content: - Artificial inteligence and Computational inteligence.
- Classification of methods for solving AI problems.
- Neural networks.
- Fuzzy logic.
- Support vector machine.
- Searching and optimization problems.
- Heuristic and exact methods for solving search and optimization problems.
Metaheuristics (Genetic algorithms, Simulated anneling, Electromagnetism-based metaheuristic, Tabu search, Variable neighbourd search).
- Rule-based systems.
- Agent-based systems.
- Machine learning techniques.

Literature:
1. Vojislav Kecman: Learning and Soft Computing, MIT Press, 2001.
2. Andries Engelbrecht: Computational Intelligence - An Introduction, John Willey and Sons, 2007.
3. Talibi El-Gazali: Metaheuristics - from design to implementation, John Willey and Sons, 2009.
4. Xin-She Yang: Nature-Inspired Optimization Algorithms, Elsevier, 2014.
(teacher can some select other adequate books)

Number of hours: 5	**Lectures: 2**	**Tutorials: 3**	**Laboratory: -**	**Research: -**

Teaching and learning methods: Frontal, group, individual and practical.

Assessment (maximal 100 points)

Course assignments	**points**	**Final exam**	**points**
Lectures	-	Written exam	-
Exercises / Tutorials	-	Oral exam	-
Colloquia	-	Written-oral exam	70
Essay / Project	30		