Study programme(s): Computer Science	

Level: Bachelor Studies.
Course title: Basics of Agent Technologies
Lecturer: Mirjana Ivanović
Status: elective
ECTS: 4
Requirements: Object-oriented programming I

Learning objectives

The objective of the course is to introduce students to basic but essential notions and concepts of software agents, multiagent systems, programming agents and agent technologies.

Learning outcomes

Minimum: Successful students should be capable to understand essential concepts of agent technology and be able to implement simple software agents.

Desirable: At the end of the course it is expected that successful students deeply understand essential concepts of software agents, life-cycle of agents and communication in simple multiagent systems. Also they should be able to implement simple multiagent systems.

Syllabus

Theoretical instruction During theoretical clasesto to students will be presented all important concepts of agents technology but on very basic level : 1) basic concepts and principles of computational agency and key issues of both individual agents and agent organizations; 2) communication among agents and agent communication languages, two forms of agent-agent interaction – negotiation and bargaining; argumentation; 3) coordination among agents from different perspectives, including social choice, mechanism design and auctions, coalition formation and trust and reputation; 4) distributed cognition in multiagent systems (MAS): learning, planning and decision making; 5) development and engineering of multiagent systems, programming multiagent systems and specification and verification of MAS.

Practical instruction

Students will concentrate on using appropriate agent platform for implementation agents and MAS. They will implement simple agents and simple MAS.

Literature

Recommended

1. MULTIAGENT SYSTEMS, edited by Gerhard Weiss, MIT Press, 2013, 2nd edition, ISBN 978-0-262-01889-0

Weekly teaching load

Lectures: 1	Exercises: 2	Practical Exercises: 0	Student research: 0	Other: **0**

Teaching methodology

Theoretical classes are based on the classical teaching model involving a projector and .ppt presentations. At theoretical exercises particular agent platform will be presented and simple design, solutions and implementations of software agents and MAS will be presented. To approach the oral exam students have to pass pre-exam obligations consisting of practical implementation of simple MAS, working in small teams. Three theoretical tests will be conducted during course. At the oral exam students are expected to demonstrate the understanding of the topics covered by the course.

Grading method (maximal number of points 100)

Pre-exam oblications	points	Final exam	points
Practical teamwork project	45	oral examination	40
Theoretical tests	15		