

Study Programme: Information Technologies		
Course Unit Title: Artificial Intelligence 1		
Course Unit Code: IT6084		
Name of Lecturer(s): Miloš Racković		
Type and Level of Studies: Bachelor Academic Degree		
Course Status (compulsory/elective): Elective		
Semester (winter/summer): Winter		
Language of instruction: Serbian (primary), English (secondary)		
Mode of course unit delivery (face-to-face/distance learning): Face-to-face		
Number of ECTS Allocated: 7		
Prerequisites: None		
Course Aims: Introducing students to the basic principles of artificial intelligence (AI) and training for the implementation of the software applications with elements of knowledge representation, search and reasoning.		
Learning Outcomes: <i>Minimum:</i> At the end of the course, it is expected that a successful student is able: to understand the basic AI concepts, to implement the software application for solving different problems with the search through the state space, to implement the intelligent game player as well as to implement the knowledge based agent. <i>Desirable:</i> At the end of the course, it is expected that a successful student is able to implement the knowledge based system with fully understanding of the logic reasoning and the more complex AI principles.		
Syllabus: <i>Theory</i> AI history. Intelligent agents. Search based problem solving: uninformed (blind) and informed (heuristic) search strategies. State space search in game playing: MinMax algorithm. Illustrative example of implementation of MinMax algorithm in game with two players. Knowledge representation and reasoning in first order logic. Ontological engineering and semantic networks. Uncertain knowledge and reasoning. Making decisions in AI systems. Basics of machine learning. Basics of natural language processing. <i>Practice</i> Implementation of standard algorithms for state space search in object-oriented programming language. Implementation of MinMax algorithm in the illustrative game with two players. Implementation of knowledge representation and reasoning in declarative programming language.		
Required Reading: <ol style="list-style-type: none">1. Russell, S.J, Norvig, P., "Artificial Intelligence: A Modern Approach (third edition)", Pearson Education, Inc., publishing as Prentice Hall, United States of America, 2010.		
Weekly Contact Hours: 5	Lectures: 3	Practical work: 2
Teaching Methods: Classical methodology is applied during lectures. Teacher explains basics of the intelligent systems and modern AI principles. In the exercises the active students' participation is encouraged, with the goal of better understanding of AI		

concepts. The knowledge of students is tested during the exercises through two practical tests, which cover the materials that were presented. At the oral part of examination students demonstrates their understanding of principles on which intelligent systems is based.

Knowledge Assessment (maximum of 100 points): 100

Pre-exam obligations	points	Final exam	points
Active class participation	10	oral exam	40
Practical test 1	25		
Practical test 2	25		