**Nazwa przedmiotu:**

Artificial Intelligence Fundamentals

**Koordynator przedmiotu:**

dr hab. inz Jaroslaw Arabas

**Status przedmiotu:**

Obowiązkowy

**Poziom kształcenia:**

Studia I stopnia

**Program:**

Informatyka

**Grupa przedmiotów:**

Wspólne

**Kod przedmiotu:**

brak

**Semestr nominalny:**

6 / rok ak. 2009/2010

**Liczba punktów ECTS:**

4

**Liczba godzin pracy studenta związanych z osiągnięciem efektów uczenia się:**

**Liczba punktów ECTS na zajęciach wymagających bezpośredniego udziału nauczycieli akademickich:**

**Język prowadzenia zajęć:**

polski

**Liczba punktów ECTS, którą student uzyskuje w ramach zajęć o charakterze praktycznym:**

**Formy zajęć i ich wymiar w semestrze:**

|  |  |
| --- | --- |
| Wykład: | 30h |
| Ćwiczenia: | 0h |
| Laboratorium: | 0h |
| Projekt: | 15h |
| Lekcje komputerowe: | 0h |

**Wymagania wstępne:**

Basic knowledge of logic and graph theory. Structured and object-oriented programming

**Limit liczby studentów:**

**Cel przedmiotu:**

To formulate real-life problems as tasks of Artificial Intelligence To apply methods that are appropriate for the problem To capture relationships between Artificial Intelligence and Databases, Desision Support Systems, Computer Aided Design To apply and test algorithms that process symbols To gain basic competences in PROLOG

**Treści kształcenia:**

Lecture syllabus 1..Artificial Intelligence: attempt to definition, scope, main streams. Turing test. 2. Problem solving by searching, example versions of various table sorting algorithms. 3. Prepositional logic. Quantifiers. Predicate logic: definition of a variable. Inference in predicate logic. 4. Inference as a problem of space searching. Backward- and forward-chaining. 5. PROLOG as a declarative programming language. Writing programs in PROLOG. Example inference in PROLOG. Unification. Inference as a search through the domain of hypotheses. 6. Best-search heuristic searching. Example heuristic functions for graph problems. Properties of the heuristic function. 7. Branch- and-bound search. Strategies for two-player games. MINMAX and its versions, alpha-beta pruning. 8. Decision trees and decision rules. Knowledge acquisition from data ? general issues. Training and test set. 9. Induction of decision trees ? ID3 method 10. Induction of decision rules ? rough set method 11. Fuzzy sets ? basic informations, Fuzzy Logic Controller. Scope of the project Students apply and test one of the methods introduced during the lecture.

**Metody oceny:**

Grading is based on the total sum of points, where maximum is 100 Up to 50 points can be achieved for the project, and up to 50 points - for the final test Final test is in a written form, takes 105 minutes, students are expected to solve several tasks of various grade of difficulty. Notes and books are allowed. Points are the base for the final grading according to the following rule: [range which contains number of points] ->grade 0-50->2, 51-60->3, 61-70->3.5, 71-80->4, 81-90->4.5, 91-100->5

**Egzamin:**

**Literatura:**

http://roughsets.org G. Luger, Artificial intelligence Z. Michalewicz, D. Fogel: How to solve it: modern heuristics

**Witryna www przedmiotu:**

**Uwagi:**

## Efekty przedmiotowe