**Nazwa przedmiotu:**

Artificial intelligence

**Koordynator przedmiotu:**

Włodzimierz Kasprzak, Ph.D., D.Sc. Professor

**Status przedmiotu:**

Obowiązkowy

**Poziom kształcenia:**

Studia II stopnia

**Program:**

Robotics

**Grupa przedmiotów:**

Przedmioty obowiązkowe

**Kod przedmiotu:**

EM11

**Semestr nominalny:**

2 / rok ak. 2020/2021

**Liczba punktów ECTS:**

4

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

1) Number of hours that require the presence of a teacher - 50, including
a) presence of the lectures- 30;
b) presence in the exercises -15
c) presence on consultation - 5
2) The number of hours of independent work of student: 40

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

3 ECTS credits –
number of hours that require the presence of a teacher - 50, w including
a) presence of the lectures - 30,
b) presence in the exercises - 15,
c) presence on consultation - 5.

**Język prowadzenia zajęć:**

angielski

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

2 ECTS credits –
which are obtained during classes of a practical nature;
number of hours during classes of a practical nature - 50, including
b) presence in the exercises - 15
c) presence on consultation – 5
d) independent work of student on solving practical exercise tasks – 30

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

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

**Wymagania wstępne:**

x

**Limit liczby studentów:**

100

**Cel przedmiotu:**

-

**Treści kształcenia:**

-

**Metody oceny:**

-

**Egzamin:**

tak

**Literatura:**

-

**Witryna www przedmiotu:**

http://studia.elka.pw.edu.pl/pub/14L/EAI.A/

**Uwagi:**

-

## Charakterystyki przedmiotowe

### Profil ogólnoakademicki - wiedza

**Charakterystyka EM11\_W1:**

Students should be familiar with logical inference systems designed for perfect and imperfect knowledge representations.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_W07, AiR2\_W04

**Powiązane charakterystyki obszarowe:** I.P7S\_WG, P7U\_W, III.P7S\_WG.o

**Charakterystyka EM11\_W2:**

Students should know state space search and agent action planning algorithms used in artificial intelligence.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_W04, AiR2\_W07

**Powiązane charakterystyki obszarowe:** I.P7S\_WG, III.P7S\_WG.o, P7U\_W

**Charakterystyka EM11\_W3:**

Students should be familiar with knowledge representation systems and reasoning techniques.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_W04, AiR2\_W07

**Powiązane charakterystyki obszarowe:** I.P7S\_WG, III.P7S\_WG.o, P7U\_W

**Charakterystyka EM11\_W4:**

Students should know machine learning techniques.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_W04, AiR2\_W07

**Powiązane charakterystyki obszarowe:** I.P7S\_WG, III.P7S\_WG.o, P7U\_W

### Profil ogólnoakademicki - umiejętności

**Charakterystyka EM11\_U1:**

Student should be able to design elements of autonomous agents.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_U01, AiR2\_U06, AiR2\_U16

**Powiązane charakterystyki obszarowe:** P7U\_U, I.P7S\_UW.o, III.P7S\_UW.o, I.P7S\_UW, III.P7S\_UW.2.o, III.P7S\_UW.4.o, III.P7S\_UW.1.o, III.P7S\_UW.3.o

**Charakterystyka EM11\_U2:**

Student should be able to design knowledge-based systems, especially when implementing logical inference systems.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_U01, AiR2\_U06

**Powiązane charakterystyki obszarowe:** III.P7S\_UW.o, I.P7S\_UW, III.P7S\_UW.2.o, III.P7S\_UW.4.o, P7U\_U, I.P7S\_UW.o

**Charakterystyka EM11\_U3:**

Student should be able to deal with imperfect information, especially by designing fuzzy reasoning and probabilistic reasoning systems.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_U01, AiR2\_U06

**Powiązane charakterystyki obszarowe:** P7U\_U, I.P7S\_UW.o, III.P7S\_UW.o, I.P7S\_UW, III.P7S\_UW.2.o, III.P7S\_UW.4.o

**Charakterystyka EM11\_U4:**

Student should be able to solve agent’s activity control problems by advanced search and action planning algorithms.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_U01, AiR2\_U06, AiR2\_U16, AiR2\_U17

**Powiązane charakterystyki obszarowe:** P7U\_U, I.P7S\_UW.o, III.P7S\_UW.o, I.P7S\_UW, III.P7S\_UW.2.o, III.P7S\_UW.4.o, III.P7S\_UW.1.o, III.P7S\_UW.3.o

**Charakterystyka EM11\_U5:**

Student should be able to design machine learning algorithms (knowledge acquisition) by using: active observation, reinforcement learning and statistical learning.

Weryfikacja:

Continuous assessment at tutorials regarding the acquired knowledge needed to solve computational and algorithmic exercise tasks, related to the content of this course.
Written assessment of the course outcomes by a written mid-time test.
Written assessment of the course outcomes by a final exam.

**Powiązane charakterystyki kierunkowe:** AiR2\_U16, AiR2\_U17, AiR2\_U01, AiR2\_U06

**Powiązane charakterystyki obszarowe:** III.P7S\_UW.1.o, III.P7S\_UW.3.o, I.P7S\_UW, P7U\_U, I.P7S\_UW.o, III.P7S\_UW.o, III.P7S\_UW.2.o, III.P7S\_UW.4.o