

UČNI NAČRT PREDMETA / COURSE SYLLABUS

Predmet:	Metode umetne inteligence
Course title:	Artificial Intelligence Methods

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Biomedicinska tehnologija/Biomedical Technology 3. stopnja/3rd Degree		2	3 ali 4

Vrsta predmeta / Course type

Izbirni/Elective

Univerzitetna koda predmeta / University course code:

Predavanja Lectures	Seminar Seminar	Vaje Tutorial	Klinične vaje work	Druge oblike študija	Samost. Delo Individ. Work	ECTS
15	30				105	5

Nosilec predmeta / Lecturer:

Izr. prof. dr. Damjan STRNAD

Jeziki /

Predavanja / Lectures:

Slovenščina/Slovene; Angleščina/English

Languages:

Vaje / Tutorial:

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Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Prerequisites:

Kandidat mora doseči 300 ECTS na predhodnem študiju.

Graduate degree 300 ECTS

Vsebina:

Content (Syllabus outline):

Predikatna logika
Avtomatsko sklepanje z resolucijsko ovržbo
Statistično in verjetnostno sklepanje
Sistemi, temelječi na znanju (ekspertni sistemi)
Umetne nevronske mreže
Multiagentni sistemi

Computer technology used for construction of Predicate calculus
Automatic reasoning
Statistical and probabilistic reasoning
Knowledge-based systems (expert systems)
Artificial neural networks
Multi-agent systems

Temeljni literatura in viri / Readings:

- Russell, S. J., Norvig, P. Artificial Intelligence: a Modern Approach. 2nd Edition, Addison Wesley, 2002.
- Nilsson, N. J. Artificial Intelligence: a New Synthesis. Morgan Kaufmann, San Francisco, 1998.
- Haykin, S. Neural Networks. A Comprehensive Foundation. Macmillan College Publishing Company, New York, 1994.
- Wooldridge, M. Introduction to MultiAgent Systems, John Wiley & Sons, 2002.

Cilji in kompetence:

Objectives and competences:

Predikaten račun in delovanje avtomatskih sistemov sklepanja, temelječih na resolucijski ovržbi. Delovanje ekspertnih sistemov, njihove prednosti in slabosti. Lastnosti umetnih nevronske mreže in njihova uporaba v medicini. Multiagentni sistemi.

Predicate calculus and working of automatic reasoning systems based on refutation. Acquainted with working of expert systems, their benefits and deficiencies. Artificial neural network properties and their use in medicine. Multi-agent systems.

Predvideni študijski rezultati:

Intended learning outcomes:

Znanje in razumevanje:

Knowledge and understanding:

predikatnega računa, avtomatskih sistemov sklepanja, temelječih na resolucijski ovržbi, ekspertnih sistemov, umetnih nevronske mreže in multiagentnih sistemov.

predicate calculus, automatic reasoning systems based on refutation, expert systems, artificial neural networks, multi-agent systems.

Prenesljive/ključne spretnosti in drugi atributi:

Študent pridobi specialna znanja o umetni nevronske mreži, o multiagentnih sistemih, itd.

Metode poučevanja in učenja:

Predavanja
Uporaba apletov
Izdelava seminarskega dela
Konsultacije

Transferable/Key Skills and other attributes:

The student acquires special knowledge about the artificial neural network, multi-agent systems, etc.

Learning and teaching methods:

Teaching
Use of applets
Seminar work
Consultations

Delež (v %) /
Načini ocenjevanja:
Weight (in %)
Assessment:

Ustno izpraševanje
Seminarsko delo

50

50

Oral examination
Seminar work

Reference nosilca / Lecturer's references:

- STRNAD, Damjan, KOHEK, Štefan, KOLMANIČ, Simon. Fuzzy modelling of growth potential in forest development simulation. Ecological informatics, ISSN 1574-9541, Nov. 2018, vol. 48, str. 80-88.
- STRNAD, Damjan, NERAT, Andrej, KOHEK, Štefan. Neural network models for group behavior prediction : a case of soccer match attendance. Neural computing & applications, ISSN 0941-0643, Feb. 2017, vol. 28, iss. 2, str. 287-300.
- STRNAD, Damjan, KOHEK, Štefan. Novel discrete differential evolution methods for virtual tree pruning optimization. Soft computing, ISSN 1432-7643. [Print ed.], Feb. 2017, vol. 21, iss. 4, str. 981-993.