Tárgyleírás

Szak megnevezése: Programtervező informatikus mesterszak

Oktatás nyelve: magyar, angol

Tárgy neve: Logic Programming Pr.

Tárgyfelelős neve: dr. Ásványi Tibor

Tárgyfelelős tudományos fokozata: PhD

Tárgyfelelős MAB szerinti akkreditációs státusza: AT

Az oktatás célja angolul / Aim of the subject:

Knowledge:

- Possession of required knowledge in mathematics and informatics, especially in the following areas: logic programming, programming methodology, verification of the correctness of logic programs.
- Detailed and expert-level knowledge of the technical terms and expressions of computer science in English.

Abilities:

- Ability to formalize complex technical problems, to analyse theoretical and practical background, and to provide adequate solutions.
- Skills for cooperation and team work, and ability to take leading role.
- Ability for written and oral communication in English, using the technical terms and expressions of computer science. Ability to argue, to prepare reports, to read, understand and exploit scientific and technical material (e.g. books and papers).
- Expertise in utilizing sources of technical information, their critical interpretation and evaluation, and the extraction of information relevant to the solution of a specific problem.
- Ability to perform supervised scientific research, and skills required for post-graduate studies.

Attitude:

- Attends professional, technological development related to their qualification.
- Commitment to critical feedback and self-assessment.
- Commitment to lifelong learning and receptivity to new IT competencies.
- Adopts and coordinates the ethical principles of work, organizational culture and research.
- Shares professional knowledge, mediates professional results.
- Commitment to quality standards and its IT tools.

- Open to initiate collaboration with IT and other specialists.

Autonomy, responsibility:

- Takes responsibility for his professional decisions taken during his professional activities.
- Takes responsibility for observing and enforcing deadlines.
- Takes responsibility for own and fellow workers' work.

Az oktatás tartalma angolul / Major topics:

- Logic program, its elements, the logical variable; declarative and procedural reading, writing programs by refining relations; data structures, data abstraction, composing recursive programs, partial and proper data, accumulator pairs; search trees, control strategies, logic program with finite search tree.
- Prolog: a logic programming language, its execution model, goal order, rule order, redundant solutions, meta-logical predicates; structured (green and red) cuts, if-then-else, negation, indexing, efficiency, last call optimization; extra-logical predicates, input-output.
- Program access and manipulation; generate-and-test programming, logic puzzles, forward checking; partial data structures, d-lists, queues, dictionaries; higher-order programming, all-solutions predicates; programming in large, exception handling, modules, hooking; searching state-space graphs and game trees, game playing programs; machine learning in LP; interpreters, logic grammars, compiler writing and language processing in Prolog.
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A számonkérés és értékelés rendszere angolul / Requirements and evaluation:

Midterm and end term tests for practice grade (3 credits).

Irodalom / Literature:

Text book, compulsory:

- Ásványi Tibor: *Logic programming and Prolog*, **in** Advanced Programming Languages, (**Ed. by** Nyékyné Gaizler Judit) Budapest: Eötvös Loránd Tudományegyetem, 2014. pp. 932-1011. (ISBN:978-963-284-450-3)
- SICStus Prolog User's Manual (https://sicstus.sics.se/sicstus/docs/latest4/pdf/sicstus.pdf, 2022)

Proposed further reading:

- Sterling, Shapiro: The Art of Prolog (The MIT Press, 1994).
- Clocksin, Mellish: Programming in Prolog: Using the ISO Standard (Springer, 2005).
- Markus Triska: The Power of Prolog (https://www.metalevel.at/prolog, 2005-2018)