

4IZ530 LOGICKÉ PROGRAMOVÁNÍ

Course code	4IZ530
Course title in language of instruction	Logické programování
Course title in Czech	Logické programování
Course title in English	Logic Programming
Mode of completion and number of credits	Credit (2 credits), Exam ECTS (3 credits), Exam (2 credits) One ECTS credit corresponds to 26 hours of workload for an average student.
Type of course	Daily attendance: 0/2 (hours of lectures per week / hours of seminars per week)
Language of instruction	Czech
Level of course and year of study	master: 4; master continuing: 1
Semester	Sklad FIS – FIS
Name of lecturer	doc. Ing. Vojtěch Svátek, Dr. (supervisor)
Prerequisites	none

Aims of the course

Students will get acquainted with Prolog as the most widespread programming language based on FOL reasoning, and enable them to develop prototypes of software applications in the area of symbolic computing. They will also get familiarized with selected parts of the theory of logic programming and with the basics of inductive logic programming.

Learning outcomes and competences

Upon successful completion of this course, students will be able to use the Prolog language for developing prototypes of software applications in the area of symbolic computing, and approximately understand the principles of Prolog programs processing.

Course contents

Excercises:

1. The Prolog language: history and main features
2. Structure of a logic program
3. Communication with the Prolog computing environment, posing queries
4. Query processing in Prolog
5. Syntactical structures of Prolog
6. Calling built-in predicates of Prolog
7. Recursive programs
8. Comparison of programming techniques in Prolog and in imperative languages
9. Simple applications of prolog: databases, graphs, problem solving in state spaces, constraint satisfaction, natural language processing
10. Logic programming in the context of predicate logic – terms, formulae and clauses, clausal form of formulae, types of clauses, Horn clauses
11. Selected parts of logic programming theory – application and composition of substitutions, unification algorithm, resolution principle, refutation principle
12. Inductive logic programming – learning predicate definitions from examples

13. Constraint logic programming, parallel logic programming

Teaching methods and student workload

Type of teaching method	Hours of workload
	daily attendance
Attendance at seminars/workshops/tutorials	26
Preparation for seminars/workshops/tutorials	13
Preparation of term paper	26
Preparation for mid-term test(s)	13
Total	78

Assessment methods

Requirement type	Weight
	daily attendance
Term paper	60 %
Mid-term test(s)	40 %
Total	100 %
Special requirements and details: Test 1: 5 pts out of 15. Test 2: 10 pts out of 25. Program 1: 5 pts out of 10. Program 2: 20 pts out of 50.	

Recommended reading

Type*	Author	Title	Published in	Publisher	Year	ISBN
R	SVÁTEK, V.	Logické programování. I, Základy programování v jazyce Prolog	Praha	Oeconomica	2003	80-245-0627-0
A	JIRKŮ, P.	Logické programování. I, Programovací jazyk Prolog	Praha	Vysoká škola ekonomická	1995	80-7079-606-5
A	LLOYD, J.	Foundations of logic programming	Berlin	Springer-Verlag	1987	990003591X

* R – required reading, A – additional reading