
Lecture notes

Online materials

- [On-line Guide to Prolog Programming](#)

Prof. Roman Barták

Prolog is a declarative programming language with successful applications in several areas like artificial intelligence and scheduling. The guide provides a tutorial to programming in Prolog starting from the beginners level. There are a lot of examples of Prolog source code.

- [On-line Guide to Constraint Programming](#)

Prof. Roman Barták

Constraint Programming is a framework for declarative problem solving using constraints; relations among problem variables. The guide provides a tutorial to constraint satisfaction techniques and solving overconstrained problems. Many constraint algorithms are presented here.

- [Automata and Grammars](#)

Prof. Roman Barták

Study materials for the lecture Automata and Grammars (NTIN071)

- [Constraint programming](#)

Prof. Roman Barták

Study materials for the lecture Constraint Programming (NOPT042)

Downloadable

- **Propositional and Predicate Logic**

Prof. Petr Štěpánek

Lecture notes for Propositional and Predicate Logic (NAIL062) [[PDF](#)]

Boundaries of the formal method - a material for Propositional and Predicate Logic. [[PDF](#)]

Presentation for the lecture Propositional and Predicate Logic (NAIL062).

- Propositional logic [[PDF](#)]

- Predicate logic [[PDF](#)]

- Temporal logic [[PDF](#)]

- **Lambda-calculus**

Prof. Petr Štěpánek

Presentations and materials for the course Lambda-calculus and Functional Programming (NAIL078 & NAIL079).

- Presentation 1 [[PDF](#)]

- Presentation 2 [[PDF](#)]

- Presentation 3 [[PDF](#)]

- Church-Rosser Theorem [[PDF](#)]

- Böhm's Theorem [[PDF](#)]

- Lambda-calculus as a programming language [[PDF](#)]

Exercises (Czech only)

- Lecture 1 [[PDF](#)]

- Lecture 2 [[PDF](#)]

- Lecture 3 [[PDF](#)]

- Lecture 4 [[PDF](#)]

- Lecture 5 [[PDF](#)]

- **Conceptual aggregation**

Doc. Zdeněk Renc

Textbook for a topic from Machine Learning (Czech) (NAIL029). [[PDF](#)]

- **Relevance**

Doc. Zdeněk Renc

Textbook for a topic from Machine Learning (Czech) (NAIL029). [[PDF](#)]

- **Algebraic Algorithms**
Prof. Václav Koubek
Primality testing (Czech). [[PDF](#)]
- **Automata and grammars**
Prof. Václav Koubek
Textbook for the lecture Automata and Grammars (Czech). [[PDF](#)]
- **Introduction to Logic Calculus**
Dr. Karel Čuda
Textbook for the Seminar on Logic (Czech). [[PDF](#)]
- **Introduction to Set Theory**
Dr. Karel Čuda
Textbook for the Seminar on Logic (Czech). [[PDF](#)]
- **Introduction to Mathematical Logic and Set Theory**
Doc. Petr Kůrka
Textbook for the Seminar on Logic. [[PDF](#)]
- **Introduction to Complexity and NP-completeness**
Dr. Vladan Majerech
Textbook for the lecture Introduction to Complexity and NP-completeness (Czech). [[PDF](#)]
- **Complexity and NP-completeness**
Dr. Vladan Majerech
Textbook for the lecture Complexity and NP-completeness (Czech). [[PDF](#)]
- **TeX Internals**
Dr. Vladan Majerech
Textbook on TeX internals (Czech). [[DVI](#)]
- **Computability**
Doc. Antonín Kučera (compiled by Mgr. Ladislav Strojil)
Lecture notes on Computability (Czech). [[PDF](#)]
- **Computability**
Doc. Antonín Kučera (compiled by Kyrylo Karlov)
Lecture notes on Computability (Czech). [[PDF](#)]
- **Knowledge in Multi-agent Systems**
Prof. Petr Štěpánek
Presentations for the lecture Knowledge in Multi-agent Systems (Czech) (NAIL059,NAIL081).
 - Reasoning about knowledge [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Properties of knowledge [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Completeness and complexity [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Runs and systems [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Knowledge in multi-agent systems [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Application: knowledge bases [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Application: games and message-passing systems [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Protocols and programs [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Agreeing to disagree [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Simultaneous byzantine agreement [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Common knowledge and agreement [[PDF \(1x1\)](#)] [[PDF \(2x2\)](#)]
 - Logical omniscience [[PDF](#)]
- **Data Structures I**
Prof. Václav Koubek, Dr. Alena Koubková
Textbooks for the lecture Data Structures I (Czech).
 - Hashing [[PDF](#)]
 - Trees [[PDF](#)]
 - Heaps [[PDF](#)]
 - Amendment [[PDF](#)]
- **Data Structures II**
Prof. Václav Koubek, Dr. Alena Koubková
Textbooks for the lecture Data Structures II (Czech).
 - Binary search trees [[PDF](#)]
 - Trie, dynamization, UNION-FIND problem, Two-choice hashing, etc. [[PDF](#)]
 - Ordered universum, priority queue [[PDF](#)]
 - Amendment [[PDF](#)]
- **Logic Programming**
Prof. Petr Štěpánek
Presentations for the lecture Logic Programming (NAIL076,NAIL077).

- [[Lecture 1](#)] [[Lecture 2](#)] [[Lecture 3](#)] [[Lecture 4](#)]
- [[Lecture 5](#)] [[Lecture 6](#)] [[Lecture 7](#)] [[Lecture 8](#)]
- [[Lecture 9](#)] [[Lecture 10](#)] [[Lecture 11](#)] [[Lecture 12](#)]
- [[Lecture 13](#)] [[Lecture 14](#)] [[Lecture 15](#)] [[Lecture 16](#)]
- [[Argumentation \(Dung. Kowalski\)](#)]