



Foundations of Informatics: a Bridging Course

Week 3: Formal Languages and Processes

March 6–10, 2023

Kick-Off Meeting

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<https://moves.rwth-aachen.de/teaching/ws-22-23/foi/>

Overview

- Part A: Regular Languages
 - Introduction to Formal Languages
 - Deterministic and Nondeterministic Finite Automata
 - Regular Expressions and Languages
 - Closure and Decidability Properties
- Part C: Context-Free Languages
 - Context-Free Grammars and Languages
 - Relation to Regular Languages
 - Pushdown Automata
 - Closure and Decidability Properties

Schedule

Monday, March 6:

- 09:00–09:30 Kick-off meeting
- Rest of day: Self-paced learning (Regular Languages)

Tuesday, March 7:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Regular Languages)

Wednesday, March 8:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Thursday, March 9:

- 09:00–10:30 Questions & exercises
- Rest of day: Self-paced learning (Context-Free Languages)

Friday, March 10:

- 09:00–11:00 Questions, exercises & closing

Exam

- In **oral** form via Zoom meeting
- In **week 18/19** (May 2–11), Tue/Thu morning

Resources

- Videos and slides on <https://moves.rwth-aachen.de/teaching/ws-22-23/foi/>
- Moodle course with quizzes
- Textbooks:
 - J.E. Hopcroft, R. Motwani, J.D. Ullmann: *Introduction to Automata Theory, Languages, and Computation*, 2nd ed., Addison-Wesley, 2001
 - A. Asteroth, C. Baier: *Theoretische Informatik*, Pearson Studium, 2002 [in German]
- JFLAP (software for experimenting with formal languages and automata)
- Theory of Computation online course