



Foundations of Informatics: a Bridging Course

Week 3: Formal Languages and Processes

08–12 March 2021

Introduction

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<https://moves.rwth-aachen.de/teaching/ws-20-21/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 8:

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

Tuesday, March 9:

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

Wednesday, March 10:

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

Thursday, March 11:

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

Friday, March 12:

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

Exam

- Most likely in **oral** form via Zoom meeting
- Possible dates announced in week 4 (March 15–19)

Resources

- 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]
- <http://www.jflap.org/>
(software for experimenting with formal languages and automata)