



Course Information

Course Code	5670546
Course Section	1
Course Title	SWITCHING AND AUTOMATA THEORY II
Course Credit	3
Course ECTS	8.0
Course Catalog Description	Information lossless machines. Codes. Unique decodability. Introduction to formal languages. Context-free and context-sensitive languages. Turing machines. Computability; decidability; unsolvability.
Prerequisites	No prerequisites
Schedule	Thursday , 08:40 - 11:30, EA206

Instructor Information

Name/Title	Prof.Dr. KLAUS VERNER SCHMIDT
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Office Hours	based on request

Tentative Weekly Outline

Week	Topic	Relevant Reading	Assignments
1	Introduction and Deterministic Finite Automata		
2	Formal Languages and Proof Techniques		Assignment for Week 1 and 2
3	Regular Languages and Nondeterministic Finite Automata		
4	Regular Expressions and Applications of DFAs and NFAs		Assignment for Week 3 and Week 4
5	Applications of Regular Expressions, Decision Problems and Closure Properties		
6	Context-free Grammars and Parse Trees		Assignment for Week 5 and 6
7	Applications of Context-free Grammars and Ambiguous Context-free Grammars		
8	Pushdown Automata and Languages		Assignment for Week 7 and 8
9	Pumping Lemma and Properties of Context-free Grammars		
10	Turing Machines Part 1		Assignment for Week 9 and 10
11	Turing Machines Part 2		
12	Properties of Turing Machines		Assignment for Week 11 and 12



Week	Topic	Relevant Reading	Assignments
13	Decidability		
14	Undecidable Problems		

Course Textbook(s)

- Hopcroft, J.E., Motwani R. and Ullman, J.D. Introduction to Automata Theory, Languages and Computation, Third edition. Pearson, 2007. (Main Textbook)
- Martin, J. Introduction to Languages and the Theory of Computation, Third edition. McGraw-Hill, 2003.
- Lewis, H.R. and Papadimitriou, C.H. Elements of the Theory of Computation, Second edition. Prentice-Hall, 1998.

Course Grading

Deliverable	Grade Points
Homework assignments	20
Term project or teaching assignment	20
Midterm exam	25
Final exam	35
Total	100