



Course program and reading list

Semester 2 Year 2022

School: Efi Arazi School of Computer Science B.Sc

Automata And Formal Languages

Lecturer:

Prof. Yacov Hel-Or toky@runi.ac.il

Teaching Assistant:

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Course No.:	Course Type :	Weekly Hours :	Credit:
643	Lecture	3	4

Course Requirements :	Group Code :	Language:
Final Exam	222064301	Hebrew

Prerequisites

Prerequisite:

56 - Discrete Mathematics

69 - Logic And Set Theory



Course Description

Automata and Formal Languages: Syllabus

- **Unit 1:** Math background, set theory, words and their operations, languages and their operations
 - **Unit 2:** Finite Automaton (FA), regular languages
 - **Unit 3:** Regular Operations and their closure, DFA and NFA, regular operations
 - **Unit 4:** Regular expressions
 - **Unit 5:** Equivalent DFA, minimization of DFA
 - **Unit 6:** Non-regular languages, the pumping lemma
 - **Unit 7:** context-free languages (CF), CF grammar, regular grammar, closure of CFL, Chomsky Normal form, Chomsky hierarchy .
 - **Unit 8:** Pushdown Automaton (PDA).
 - **Unit 9:** PDA=CFG, conversion PDA to and from CFG, the pumping lemma
 - **Unit 10:** The Turing Machine, decidability, wrap up
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Course Goals

Understanding models of computations.



Grading

Exam 70%, HW 30%

One must pass the exam (60) in order to have the HW component.



Teaching Assistant

Iris Kalka

Gilad Ben-Uziyahu

Shlomit Harush

Ohad Goudsmid



Additional Notes

Homework: Will be given every week.

Submission: Through Moodle

Appeals: No later than two weeks after return.

 Reading List

Theory of Computation / M. Sipser
Optional: Open University.