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@idc.ac.il

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

Course Requirements :
Group Code : 222064301
Language: 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.

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Grading

Exam 70%, HW 30%

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

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Teaching Assistant

Iris Kalka
Gilad Ben-Uziyahu
Shlomit Harush
Ohad Goudsmid

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Additional Notes

Homework: Will be given every week.
Submission: Through Moddle
Appeals: No later than two weeks after return.
Reading List

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