School: Efi Arazi School of Computer Science B.Sc

Automata And Formal Languages

Lecturer:
Prof. Yacov Hel-Or  toky@idc.ac.il

Teaching Assistant:
Mr. Ohad Goudsmid  ohad.goudsmid@post.idc.ac.il
Mr. Segev Tsur  segev.tsur@post.idc.ac.il
Ms. Iris Kalka  iris.kalka@post.idc.ac.il
Mr. Sharon Peled  sharon.peled01@post.idc.ac.il

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

Course Requirements:
Final Exam

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

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 Moddle
Appeals: No later than two weeks after return.
Reading List

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