

2011-2012

203.3510 **Computational Models** Semester B'

Time: Mon 12-14 room 7037, Thur 14-16 room 609

Instructor: Dr. Yuri Rabinovich

Office Hours: Thur 16-18 room 514 Jacobs, tel: 824 9902

Teaching Assistants & Office Hours:

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Course Type : Lecture

Course Level : B.Sc.

Pre-Requisites: Design and Analysis of Algorithms 203.2410

Course Overview:

Finite Automata and Regular Languages;

Context-Free Grammars and Languages, Stack Automata;

Decidable and Recursively Enumerable Languages, Turing Machines;

Introduction to Complexity: NP and NP-Completeness

Topics:

1. Languages: Closure properties, Operators (on)
2. Methods for programming in restricted models / Proving the impossibility of such
3. Decidability / Undecidability
4. Decidability / Recursive Enumeration
5. Deterministic models vs. Nondeterministic models
6. Reductions
7. P, NP, Standard examples of NP-Complete problems

Requirements

Grading: Final exam 80%, bi-weekly HW 20% (* Provided HW – EX < 30 *)

Website: http://cs.haifa.ac.il/courses/comp_models

Reading List:

1. M. Sipser, *Introduction to the Theory of Computation*, in English.