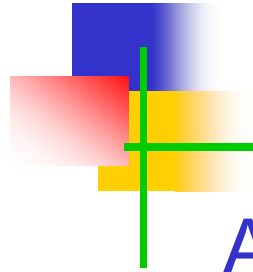


Theory of Computation



Assoc. Prof. Veli Hakkoymaz

Teaching Staff

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 - Office hours: Wednesdays 10-12
- Teaching Assistant:
 -

Course Schedule

- **Web Site:** <https://avesis.yildiz.edu.tr/vhkoymaz/dokumanlar>
- **Lectures:**
 - Time: Fridays 14:00-16:50 (D-107)
 - In two blocks,
 - **block1:** 14:00-15:15, **block2:**15:30-16:45

Course Assessment

- Lab:
- Project / Homework assignments
- Written examination:
 - Mid1: 30
 - Mid2: 30
 - Final: 40

Devam?

- **Yoklama**
 - Her ders bloğu için
- **%70 devam**
 - Alınan yoklamalarda %70 devam etmiş olmak
 - Rapor, izin, mazeret, devamsızlık vs. hepsi en fazla %30

Books and References

■ Text Books:

- Hopcroft, Motwani, Ullman; Intro to Automata Theory, Languages, and Computation, 3rd Ed.
- Cohen; Intro to Computer Theory, 2nd Ed., John Wiley & Sons, Inc.

Why study the Theory of Computation?

- study of general properties of computation
- theoretical computer science and mathematics
- how efficiently problems can be solved

- divided into three areas:
 - Complexity Theory,
 - Computability Theory, and
 - Automata Theory

Course Coverage (in General)

- Computing Devices: mechanism for computing functions
- Definitions
- Loop Programs
- Primitive Recursive Functions
- Acceptable Programming Systems
- Recursively Enumerable Sets
- Recursion Theorem
- NP-Completeness
- Formal Languages and Grammars
- Context-Free Languages
- Pumping Lemma for CFLs

Key words

- Computation
- Programs
- Algorithms
- Functions
- Sets
- Strings
- Symbols
- Alphabet
- (formal) Languages
- Set Membership
- Models of computation
- Automata
 - FSA, PDA, TM(Turing Machine)