Digital Logic Systems: 0512-3561 Fall 2021

Staff

- Lecturer: Prof. Guy Even
- Teaching Assistant: Aakash Jog

Communication

You may communicate with us in one of the following ways:

- Personal Issues: Please send email only to the following account

  tau.dls.fall.2021@gmail.com

- Public Issues: For questions that could interest everybody in the course (about course topics, homework, tools, etc.):

  https://discourse.aakashjog.com/

  This forum is intended to be a knowledge base in the spirit of Stack Exchange. Answering your peers' questions is not only allowed, but encouraged.

Course Requirements

1. Language: The course will be taught in English.
2. Format: The course will be taught in an "active learning" model. Lectures are prerecorded and available online on YouTube.
3. Course hours will be dedicated to discussions about the prerecorded lectures and related topics.

Grade

1. Final Exam: Passing the course requires a grade of at least 50 in the final exam.

2. Projects: We will have about $4-5$ design projects. The grade of each project will contribute 10% to the final grade if the project grade is above the exam grade (and the exam grade is above 50). NOTE: The first project will not be given a grade and is intended only to become acquainted with the software tool.

3. Exercises: We will provide a list of question with partial solutions. These exercises will be discussed during classes/recitations, will not be graded, and will not count towards the final exam.

Topics

The course covers the following topics (each topic is covered during a week or two):

1. http://hyde.eng.tau.ac.il/Even-Medina/Slides/sets-functions.pdf
   - Chapter 1: Sets and Functions.
   - Chapter 2: Induction and Recursion.
   - Chapter 3: Sequences and Series.
2. - Chapter 4: Directed Graphs.
   - Chapter 5: Binary Representation.
3. Chapter 6: Propositional Logic.
4. Chapter 7: Asymptotics.
5. - Chapter 9: Representation of Boolean Functions by Formulas.
   - Chapter 10: The Digital Abstraction.
6. - Chapter 11: Foundations of combinational circuits.
   - Chapter 12: Trees.
7. - Chapter 13: Decoders and Encoders.

- Chapter 14: Selectors.
- Chapter 14: Shifters.

8.
- Chapter 15: Addition.
- Chapter 16: Signed Addition.

9. Chapter 17-20 : Synchronous Circuits.
10. Chapter 21: The ISA of a Simplified DLX.
11. Chapter 22: A Simplified DLX: Implementation.

Textbook: Digital Logic Design: A Rigorous Approach by Guy Even and Moti Medina. The book and all the slides are available online in the site:

http://hyde.eng.tau.ac.il/Even-Medina/

Additional reading material:

- R. McEliece, R.Ash, and C. Ash, Introduction to Discrete Mathematics, Random House
- J.E. Savage, Models of Computations, Eddison Wesley
- S.A. Ward and R.H. Halstead, Computation Structures, MIT Press