

Linear Systems M 034032 – Winter 2024

Instructor: Assoc. Prof. Yizhar Or, izi@technion.ac.il, Room 407, Dan Kahn building.

Teaching Assistant: Dr. Lior Salem, liorsal@campus.technion.ac.il

Lectures: Tuesday 10:30-13:30, LD 430. Tutorials: Thursday 13:30-15:30, LD 433.

Office hours: will be announced at the course webpage.

Topics

1. Mathematical models of dynamical systems and their properties.
2. State space representation- state variables, realizations, linearization.
3. State space solution – functions of matrices, general solution, convolution.
4. Discrete-time systems.
5. Stability of linear and nonlinear systems.
6. Laplace and Z transforms.
7. Transfer functions.
8. Impulse, Step, and Frequency responses of linear systems

Textbook: Kailath Thomas, Linear Systems, Prentice-Hall, Inc., 1980

Course Website: In <http://moodle.technion.ac.il>

Final grade

Homework: 10% of the final grade (mandatory)

3 mini-projects with Matlab computation: 30% of the final grade (mandatory)

**Random short defense meetings on submitted assignments may apply, will be reflected in grades.

Final exam: 60% of the final grade. Session A: 6/5/2024, Session B: 30/5/2024.

All the final grade rules apply only if the final exam's grade is at least 50. Otherwise, the final grade will be the final exam's grade.