Course Title

Advanced control laboratory

Lecturer

Prof. Ben-Zion Bobrovsky

Semester

A

Course requirements

Introduction to control theory (05123543)

Final grade components

Matlab Simulink exercise 5%, Experiments 95%

Course schedule

Class no. / Date	Subject and Requirements (assignments, reading materials, tasks, etc.)
Week 1	Introductory session – Matlab Simulink exercise
Week 2	Experiment 1
Week 4	Experiment 2
Week 6	Experiment 3
Week 8	Experiment 4
Week 10	Experiment 5
Week 12	Experiment 6
Week 13	Supplement experiment

Required course reading

Optional course reading

Comments

The advanced control laboratory is established as an advanced course in the control specialization, and contains six experiments based on servo control systems, enabling to

demonstrate the theoretical and practical challenges in the implementation of estimation and control algorithms. The participants are requested to model the physical systems, design, implement and analyze control algorithms for 2nd-4th order control systems.
The proposed experiments:
1. Inverted pendulum
2. Ball balancer
3. Limit cycle and non-linear phenomena
4. Autonomous driving (tracking algorithms)
5. Aero (half quadcopter model)
6. Qbot autonomous robot
7. Advanced discrete motor control