# Full Syllabus

## 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 |
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## 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