

EE-611 Linear system theory

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Cursus	Sem.	Type
Electrical Engineering		Opt.
Robotics, Control and Intelligent Systems		Opt.

Language of teaching	English
Credits	4
Session Exam	Multiple
Workload Hours	120h 56
Lecture Exercises	28 28
Number of positions	

Frequency

Every 2 years

Remark

Next time: Fall 2024

Summary

The course covers control theory and design for linear time-invariant systems: (i) Mathematical descriptions of systems (ii) Multivariables realizations; (iii) Stability; (iv) Controllability and Observability; (v) Minimal realizations and coprime fractions; (vi) Pole placement and model matching.

Content

The course contents include the following main chapters:

- Mathematical description of linear systems
- State-space solutions and realizations
- Stability
- · Controllability and observability
- Minimal realizations and coprime fractions
- State feedback and state estimation

Keywords

Linear dynamic models, Linear systems, Stability, State feedback, State estimation.

Learning Prerequisites

Recommended courses

- · Linear Algebra
- · Differential Equations
- Automatic Control

Assessment methods

Implementing a computational scheme and writing a report

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Resources

Moodle Link

• https://go.epfl.ch/EE-611

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