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	120h
Hours	**56**
Courses	28
Exercises	28
Number of positions	

Frequency

Every 2 years

Remark

Next time: Fall 2026

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

Resources

Moodle Link

- https://go.epfl.ch/EE-611