

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
<b>Hours</b>	<b>56</b>
Lecture	28
Exercises	28
<b>Number of positions</b>	

**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) Multivariable 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>