

Continuous Linear Systems



Component

École Nationale
Supérieure
d'Électrotechnique
d'Électronique
d'Informatique
d'Hydraulique
et des
Télécommunications



Semester

Printemps

In brief

- **Code:** N6AE03C
- **Open to exchange students:** No

Presentation

Objectives

- Understand the basic principles of continuous linear control
- Know how to model energy systems using circuit formalism regardless of the physical domain (electrical, mechanical, hydraulic, magnetic, thermal)

Description

Introduction to Continuous Linear Control Systems

- Concept of linear systems
- Modeling using transfer functions and block diagrams
- Structure of a control system with feedback, link between the process to be controlled and the signal part

Physical Analogies

- Introduction to physical analogies in energy systems: generalized energy and power variables
- Elements of physical systems: source, dissipative, or energy storage elements (in kinetic or potential form), interconnection elements (generalized mesh and node laws, transformers, and gyrators)
- Causality in physical systems
- Examples of systems: academic cases, level control, position control

Pre-requisites

Circuit fundamentals, differential equations, complex variables

Useful info

Place

➤ Toulouse