

Non Linear Systems



Component

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



Semester

Printemps

In brief

➤ **Ametys Code:** N8AE05C

➤ **Open to exchange students:** No

Presentation

Objectives

Master the approaches to modeling and analyzing nonlinear dynamic systems

Description

- Review of linear systems and the state equation formalism, definition of a nonlinear system, specific nonlinearities and combination of nonlinearities
- Methods for solving nonlinear systems: linearization around an operating point, first harmonic method, phase plane method
- Illustrative examples: position control with a nonlinearity, predator-prey model, simple pendulum (with and without friction), level regulation

Pre-requisites

modeling and analysis of linear systems