

# UE Linear dynamical systems



Niveau d'étude  
Bac +4



ECTS  
3 crédits



Composante  
UFR PhITEM  
(physique,  
ingénierie, terre,  
environnement,  
mécanique)



Période de  
l'année  
Automne (sept.  
à dec./janv.)

- > **Langue(s) d'enseignement:** Anglais
- > **Ouvert aux étudiants en échange:** Oui
- > **Code d'export Apogée:** PAX7ECAC

## Présentation

### Description

In this module, we will lay the foundations for the control of linear systems in the continuous-time as well as in the discrete-time. In the continuous-time case, we will consider the time domain as well as the frequency domain. After a brief introduction, the following concepts will be addressed: transfer function, state-space representation of linear and nonlinear systems, linearization, Linear Time invariant (LTI) and Linear Time variant (LTV) systems, Input-Output stability.

### Objectifs

#### Objectives:

The purpose of this module is to lay off the bases of control for linear systems in continuous-time as well as in discrete-time case. At the end of this class the students will be familiar with the concepts of: state-space representation, linearization, time invariance, input response, transfer function of state-space systems, input-output stability. C. Prieur and M. Fiacchini will later use these concepts in their advanced control classes.

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## Heures d'enseignement

UE Linear dynamical systems - CM/TD

Cours magistral - Travaux dirigés

25h

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## Pré-requis recommandés

Laplace Transform, Bode plot, block diagram representation, Vector and matrix operations, P/PI/PID control.

**Période :** Semestre 7

## Infos pratiques

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### Campus

› Grenoble - Polygone scientifique