

Dynamic Systems

Introducing

Description

Fundamentals of signals and systems. Transfer functions of linear time-invariant systems. Systems of 1st order, generalized 1st order, 2nd order, system delay. Frequency response in Bode diagram and its asymptotic plot. Introduction to state space representation.

Objectives

At the end of this module, the student should have understood the basics on signals and linear systems as well as the dynamical and frequency performances of the systems.

The student should be able to:

- Build in Matlab/Simulink a dynamic model of a system out of its algebro-differential equations;
- Determine and analyze the dynamic and frequency performances of a system of intermediate complexity (1st or 2nd order) based on its dynamic model;
- Carry out the preliminary sizing of a system of intermediate complexity (1st or 2nd order) to fulfill the dynamic specifications.

Necessary prerequisites

Laplace transform. Basic notions to model mechanical, electrical, thermal and hydraulic systems

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

 Toulouse