

Embedded software and command for energy



4 crédits



Hourly volume

48h

Introducing

Description

Objectives

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The electrical efficiency of electronic systems can be drastically improved by an appropriate selection of controls and algorithms whose objectives are to reduce as much as possible the activation of available resources of programable devices. The modeling of processing energy systems is central to evaluate their stability properties but also their dynamic performances which are key properties for the design of adequate control laws. One of the main difficulties is due to the nonlinear behavior and the commuting nature of all the processing energy systems which impose an important adaption of the control design methods. In this UF, control law design methods considering efficiency constraints are presented for static power electronics converters and for electrical motors. Some algorithmic aspects for the low energy programming associated to a wireless system are also developed.

Expected Competences:

- Modeling of static power electronic converters (Linearization around an equilibrium state, Nonlinear model, Switched model)
- Design and implementation of a control law for a static converter (linear and nonlinear control)

- Development of an embedded software reducing the energy consumption of the programable platform

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

