CVS Design

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

- **Ametys Code:** N9EE22A
- **Open to exchange students:** Yes

Presentation

Objectives

Know how to analyze specifications in order to determine the number of switching cells required, taking into account:

The fundamental characteristics to be obtained (voltage or current sources, associated frequency range) and the properties of the systems interconnected by the converter to be designed;

Whether the structure is a step-up or step-down converter (in voltage or current);

The reversibilities to be obtained (voltage, current, power) and associated time scales;

The need to introduce passive filtering elements (differential mode)

Know how to connect these cells together and identify their operating constraints, with a view to synthesizing the semiconductors that compose them (see prerequisites)

Identify the degrees of freedom available, through cell control, to drive the operation of the converter; synthesize and size control and regulation solutions that guarantee compliance with the specifications.

Description

Design of static converters, mainly focused on the study of topologies and the construction of circuits that meet specifications

Pre-requisites

Concept of switching cells

- Concept of connection function
- Synthesis of switching cell semiconductors
- Concept of Pulse Width Modulation

All of these prerequisites can be acquired through the course “Energy Approaches to the Design of Static Converters (CVS)” N7EE02A1

Dimensioning of a proportional-integral type corrector