Switching power supply - Non-isolated structures

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

Semester
Printemps

In brief

- **Ametys Code:** N6AE04B
- **Open to exchange students:** No

Presentation

Objectives

At the end of this course, students will be able to understand and simulate the operation of a non-isolated DC-DC converter. Two types of choppers are studied: the step-down chopper and the step-up chopper. Students will also be able to build a step-down chopper, perform a temporal and spectral analysis of the electrical input and output quantities, and determine the output characteristics and efficiency of the chopper.

Description

This course includes a lecture on the theory of operation of a non-isolated DC-DC converter. Buck and boost converters are studied with different voltage and current reversibility configurations.

This course is accompanied by a design office for the simulation of buck and boost converters and a project to build a buck converter.

Pre-requisites

This subject requires knowledge of the basic elements and theories of electronics and electrical circuits.