

Design and FPGA



Component

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

In brief

- **Ametys Code:** N8AE12C
- **Open to exchange students:** No

Presentation

Objectives

To design, implement, and validate a mixed analog-digital data transmission system based on a functional specification.

- Apply acquired knowledge in analog and digital electronics and FPGA design.
- Develop autonomy in project management.
- Select the sampling frequency and components to meet the specifications.
- Conduct experimental tests and present the final product orally.

Description

- The analog functions will be implemented using operational amplifier circuits and switching MOSFET transistors, tested through simulation before being implemented on a PCB.
- The digital part will be developed in VHDL on an FPGA development board.

- The choice of sampling frequency and components must be justified.

Pre-requisites

- Operational amplifier circuits
- MOSFET transistors in switching mode
- Transmission gates (MOSFETs)
- Voltage level converters (MOSFETs)
- Digital functions: counters, state machines, etc.
- VHDL programming language