

# CVS reliability



Component  
École Nationale  
Supérieure  
d'Électrotechnique  
d'Électronique

## In brief

- > **Amety's Code:** N9EE23A
- > **Open to exchange students:** Yes

## Presentation

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### Objectives

Introduce and illustrate issues relating to reliability, protection, and fault tolerance in conversion structures. Presentation of reliability models and advanced technological solutions.

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### Description

Nature of constraints (environmental, switching functionality, usage constraints), - Design rules, SOA reminders, extreme conditions for semiconductor components, robustness, protection solutions, - Critical failure conditions, I<sup>2</sup>T and destruction energy - explosion, protection solutions, Component aging and technological aspects, main models, diagnostic design using predictive models or sensors, Methodological approach: failure rate, reliability model, reliability diagram, orders of magnitude and numerical applications, Application to conversion structures with and without redundancy, Illustration of secure structures with shared parallel passive redundancy and integrated serial active redundancy