

Combustion



Component
École Nationale
Supérieure
d'Électrotechnique
d'Électronique

In brief

- **Code:** N9EM21A
- **Open to exchange students:** No

Presentation

Objectives

Introduction to the basics of combustion for students familiar with fluid mechanics of non-reactive media. Theoretical aspects and numerical implications. Flame temperatures, laminar flame velocities, diffusion flame structure, turbulent reactive flows, combustion instabilities. Application to piston engines and gas turbines.

Description

- Introduction to combustion, refresher course
- Basic equations of combustion
- Premixed laminar flame: theory and calculation codes
- Turbulent premixed flames: models, direct simulations
- The laminar diffusion flame: theory and calculation
- Turbulent diffusion and premixing flames: physical description and models for calculation codes
- Flame-wall interaction, ignition, pollution.
- Combustion instabilities