Reminder of fluids mechanics and introduction to turbulence

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

- **plugin.odf-inp:PLUGINS_ODF_COURSE_NBHOURS_TXT:** 10
- **Code ELP:** N9EM14B

Presentation

Objectives

Reminder on local balances in fluids mechanics (mass and momentum balances)

Description of the transition to turbulence.

Write Navier-Stokes equations with Reynolds averaging.

Obtain the profile mean velocity in a turbulent channel

Description

Differential operators and calculation with matrices

Navier-Stokes equations in cartesian, cylindrical, spherical coordinates

Couette and Poiseuille laminar flows

Transition to turbulence

Navier-Stokes equations with Reynolds averaging

Non-contractual information.
Last update on 18 December 2024

Pre-requisites

Basic knowledge on differential operators and matrices

Mass and momentum balances in fluids mechanics

Non-contractual information.
Last update on 18 December 2024