Numerical Methods for PDE

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

> **Ametys Code:** N7EM04B
> **Open to exchange students:** Yes

Presentation

Objectives

- Introduction to the methods of resolution of linear systems applied to numerical methods for solving a partial differential equation (PDE).

- From an existing code solving a 2D advection-diffusion PDE (language: Fortran 90, explicit scheme), modify it in order to use implicit scheme.

Description

Teaching (2 classes):

- Explicit/implicit scheme, finite-volume method

- Introduction to direct/iterative methods for solving linear systems

Project (8 classes):

- getting use to the explicit code

- writing of the implicit scheme

- implementation and exploitation of the implicit scheme

Pre-requisites

- Notions in the numerical analysis of partial differential equations.

- Notions programming (python, C, fortran, etc)

- Notions regarding the finite volume method

Useful info