

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.
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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