Finite Element Methods & Model Reductions

ECTS
4 crédits

Hourly volume

Introducing

Objectives

At the end of this course, the student will have understood and will be able to :

- Write the weak (variational) form of the classical PDE models (with the corresponding energy minimization in symmetric cases).
- Write and code a FE scheme (for linear and non-linear scalar models)

- Develop offline-online strategies to perform reduced basis models in real time (POD and Machine Learning based).

- Employ Finite Element libraries in Python, FEniCS (and FreeFEM++),

Necessary prerequisites

Fundamentals of PDE models and math. analysis, Numerical analysis.

Location(s)

Toulouse

Practical info