

Advanced modeling in computational structural mechanics





Introducing

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):

A few advanced modelling methods in structural mechanics to tackle current real applications such as: - computation of shell-type structures;

- use of CAD data for the computation;

- model and computation of contact problems between elastic bodies;

- image registration in view of performing data $\dot{\epsilon}$ model comparison in experimental mechanics.

The student will be able to:

On simple cases:

- Formulate and solve by the FEM beam models.

- Apprehend a computational technique based on the exact geometric representation in CAD (NURBS-based isogeometric analysis).

- Formulate and solve using various finite elements algorithms a frictionless contact problem

- Apprehend the data-driven (model-free) paradigm in computational mechanics.

- Identify material properties by image data - model comparison.

Necessary prerequisites

- Continuum mechanics.
- Elasticity modelling.
- Finite element method.

Practical info

Location(s)

Toulouse

