Multiphysics modeling

ECTS
6 crédits

Hourly volume

Introducing

Description

Objectives

At the end of this module, the student will have understood and be able to explain (main concepts):
- Lumped (0D/1D) and distributed (3D) parameters models for Multiphysic systems.
- Network approach for lumped parameters models, Acausal/causal concepts, bond graph, Finite Element Methods.

The student will be able to:
- Set up 0D/1D (electrical, mechanical, hydraulical, thermal) and 3D models (mechanical) for mechatronics systems.
- Use 0D/1D platforms such as : Dymola/Modeilca, AMESim, Simulink.
- Use 3D platforms such as : Patran/Nastran or Abaqus

Necessary prerequisites

Kirchhoff laws, electrocinetic, work/energy/power, pressure and hydrostatic, conduction/convection, heat transfer.
Strength of material for BSME.

Évaluation

L'évaluation des acquis d'apprentissage est réalisée en continu tout le long du semestre. En fonction des enseignements, elle peut prendre différentes formes : examen écrit, oral, compte-rendu, rapport écrit, évaluation par les pairs...

Practical info

Location(s)

Toulouse