

### Multiphysics modeling



Hourly volume

# Introducing



Toulouse

### Objectives

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

- Lumped (OD/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 OD/1D (electrical, mechanical, hydraulical, thermal) and 3D models (mechanical) for mechatronics systems.

- Use OD/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.

## Practical info

