

Advanced mechanical modelling



Level
BAC +3



ECTS
7 credits



Component
INSTITUT
NATIONAL
DES SCIENCES
APPLIQUEES
TOULOUSE



Number of
hours
99h

Presentation

Description

Mechanical systems :

The basis of behavior under preload is highlighted through the study of fatigue life of shafts, angular contact bearings, fasteners, interference shaft assemblies and mechanical springs.

Materials :

Training to the fundamental basis of plasticity, creep, corrosion and mechanical damage.

Vibrations and transient dynamics :

Vibrations with finite elements : modal superposition, FRF, damping

Transient dynamics : explicit computing, Newmark's algorithm.

Practical sessions illustrates some experimental aspects of vibration : impact hammer, shaker.

Objectives

At the end of this module, the student will have understood and be able to explain how works a pre-stressed (or preloaded) mechanical system, basis of fracture mechanics and computations of vibrations and transient dynamics.

The student will be able to identify mechanical systems that are preloaded, discuss with a specialist of fracture mechanics and carry out a simulation of vibrations and transient dynamics.

Useful info

Contacts

Education manager

ALAIN DAIDIE

📞 61+33.(0)83101

✉ daidie@insa-toulouse.fr

Place

➤ Toulouse