

Strength of Materials 1

Introducing

Description

Modeling with beam-like structures ;
Internal forces (cohesion forces), Relation between continuum stresses and internal forces, Equilibrium equations (in terms of internal forces) ;
Computing strains, stresses and displacements for the elementary loading cases : axial, bending and torsion.

Objectives

Strength of materials: Introduction to beam theory

- Drawing internal forces diagrams for an isostatic, straight, planar beams.
- Calculate the beam strains and stresses for a few simple loads in the case of a simple section and a slender beam.
- Final objective is to learn how to analyse and design beam-like structural members or machine elements subjected to tension, compression, torsion, and bending.

Necessary prerequisites

Equilibrium equations in terms of forces and moments.
Differential and integral calculus.

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