

UE Mechanics of material



Level
Baccalaureate
+4



ECTS
3 credits



Component
UFR PhITEM
(physique,
ingénierie, terre,
environnement,
mécanique)



Semester
Tous les ans

- > **Teaching language(s):** English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX7MEAG / PAX8MEAE

Presentation

Description

The course aims to provide the students with the basic concepts of mechanics of materials: classification of the different mechanical behaviours, elasticity and criteria formulations, plasticity, visco-plasticity.

Objectives

Course program:

– Part I: Elasticity and criteria

- Elasticity
- Formulation of criteria
 - Based on the traction vector (stress vector)
 - Based on the stress tensor (invariants)

– Part II: Plasticity

- Applications
- Uniaxial loading
- Multi-axial loadings

- Flow rule and strain hardening
- Examples

– **Part III: Viscoplasticity**

- Applications
- Uniaxial loading
- 1D modelling
- 3D modelling
- Examples

Course parts

UE Mechanics of material - CMTD

Lectures (CM) & Teaching Unit (UE)

20h

Recommended prerequisites

Basics in solid mechanics

Useful info

Place

> Grenoble

Campus

> Grenoble - University campus