

IDENTIFICATION

Course code : E1CP2BE2
ECTS : 1

DURATION

Lectures : 8
Tutorial classes : 10
Labs : 0
Total : 18

Project :
Personnal work :

ASSESSMENT

TEACHING MATERIALS

Materials available on the Moodle platform.

LANGUAGE

English

CONTACT

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UE : BATIMENT

COURSE : Statics of rigid bodies

SCOPE OF THE COURSE

OBJECTIVES

COMPETENCE AND SKILLS

- Understand the concepts of force, moment of force, and torque.
- Analyze force systems in two and three dimensions.
- Solve static equilibrium problems for rigid bodies.
- Use a vector approach and the formalism of torsors.
- Construct free-body diagrams to isolate and analyze forces acting on a rigid body.
- Identify and correctly represent reaction forces at contact points (supports, connections).
- Isolate the appropriate material system and determine external mechanical actions.
- Identify different types of connections and supports (hinges, sliders, fixed supports, etc.).
- Analyze the effect of connections and supports on the equilibrium and stability of structures.
- Solve practical statics problems in engineering and physics contexts.
- Use software and modeling tools to simulate and analyze statics problems.

PROGRAM

Moment of a force and the concept of torque

Resultant of a force and point of application of the resultant

2D and 3D mechanical connections

Fundamental Principle of Statics (PFS)

Isostaticity

Solving a 3D statics problem

Statics of trusses

BIBLIOGRAPHY

REQUIREMENTS