Introduction to structure mechanics

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

Ametys Code: N7EM03B

Presentation

Objectives

Introduce the basic concepts for dealing with a structural mechanics problem. At the end of this course, students will be able to deal with the static and dynamic problems of a structure subjected to loading as well as the problems of buckling of a structure.

Description

-Geometry of the beams and introduction of the torsor.

-Normal effort.

-Moment of flexion.

- Shearing effort.

-Energy methods (Castigiano's theorem, Menabréa's theorem, fictitious load method, Maxwell-Betti's theorem).

-Modeling of the buckling of a structure.

-Dynamic structures (Rayleigh method, Ritz method, introduction to finite element method).

This teaching will be broken down into 8 courses and 10 tutorials.