Linear Elasticity

Component
École Nationale Supérieure d'Électrotechnique d'Électronique

In brief

Code ELP: N5EM05B

Presentation

Objectives

The aim of the course is to propose a short introduction to linear elasticity. The student must become familiar with the use of stress and strain tensors. The resolution of plane elasticity problems by Airy function is presented and stress field solutions of simple geometries are established (bending of a beam, torsion of a circular bar, plate with a hole, cylindrical container under pressure, gravity dam...).

Description

1. Infinitesimal strain.
2. Stress tensor.
3. Constitutive law of linear elasticity of an isotropic homogeneous media (Hooke law).
4. Displacement and stress formulations : Navier/Lamé and Beltrami-Michell equations.
5. Plane elasticity.

Non-contractual information.
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