
Mechanical vibration B

Finalità

The course gives the basics for the theoretical and experimental vibration analysis of continuous systems

Programma

Vibrations of continuous systems: local and global discretization (Rayleigh-Ritz, Galerkin, Lagrange Equations, FEM); vibrations of beams, plates and shells.

Introduction to large-amplitude vibrations and nonlinear phenomena.

Stability problems of systems with fluid-structure interaction: flutter and divergence of aeronautical and aerospace structures.

Applications to actual problems.

Experimental modal analysis on structures with high modal density.

Attività d'esercitazione

Laboratory experiences: experimental modal analysis of thin panels

Modalità d'esame

Written exam on the program that can be integrated with assignments and reports of laboratory experiences.

Testi consigliati

M. AMABILI, 2007, Nonlinear vibrations and stability of shells and plates, Cambridge University Press, New York/Cambridge.