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Nota di contenuto	Cover; Vibration in Continuous Media; Title Page; Copyright Page; Table of Contents; Preface; Chapter 1. Vibrations of Continuous Elastic Solid Media; 1.1. Objective of the chapter; 1.2. Equations of motion and boundary conditions of continuous media; 1.2.1. Description of the movement of continuous media; 1.2.2. Law of conservation; 1.2.3. Conservation of mass; 1.2.4. Conservation of momentum; 1.2.5. Conservation of energy; 1.2.6. Boundary conditions; 1.3. Study of the vibrations: small movements around a position of static, stable equilibrium 1.3.1. Linearization around a configuration of reference 1.3.2. Elastic solid continuous media; 1.3.3. Summary of the problem of small movements of an elastic continuous medium in adiabatic mode; 1.3.4. Position of static equilibrium of an elastic solid medium; 1.3.5. Vibrations of elastic solid media; 1.3.6. Boundary conditions; 1.3.7.

Vibrations equations; 1.3.8. Notes on the initial conditions of the problem of vibrations; 1.3.9. Formulation in displacement; 1.3.10. Vibration of viscoelastic solid media; 1.4. Conclusion

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2.4.2. Some particular cases of boundary conditions

2.5. Approximate solutions; 2.6. Euler equations associated to the extremum of a functional; 2.6.1. Introduction and first example; 2.6.2. Second example: vibrations of plates; 2.6.3. Some results; 2.7. Conclusion;

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3.4. Equations of vibrations of torsion of straight beams; 3.4.1. Basic equations with mixed variables; 3.4.2. Equation with displacements; 3.5. Equations of bending vibrations of straight beams; 3.5.1. Basic equations with mixed variables: Timoshenko's beam; 3.5.2. Equations with displacement variables: Timoshenko's beam; 3.5.3. Basic equations with mixed variables: Euler-Bernoulli beam; 3.5.4. Equations of the Euler-Bernoulli beam with displacement variable

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Sommario/riassunto

Three aspects are developed in this book: modeling, a description of the phenomena and computation methods. A particular effort has been made to provide a clear understanding of the limits associated with each modeling approach. Examples of applications are used throughout the book to provide a better understanding of the material presented.
