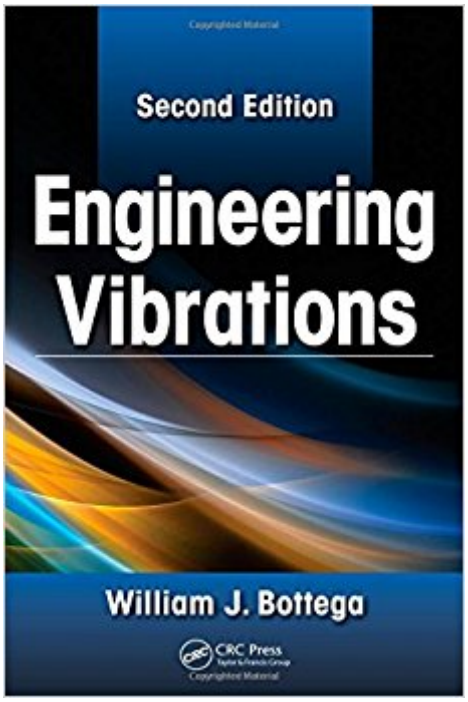
Engineering Vibrations, Second Edition



Synopsis

A thorough study of the oscillatory and transient motion of mechanical and structural systems, Engineering Vibrations, Second Edition presents vibrations from a unified point of view, and builds on the first edition with additional chapters and sections that contain more advanced, graduate-level topics. Using numerous examples and case studies to reinforce concepts, the author reviews basic principles, incorporates advanced abstract concepts from first principles, and weaves together physical interpretation and fundamental principles with applied problem solving. For each class of system, the text explores the fundamental dynamics and studies free and forced vibrations. This revised version combines the physical and mathematical facets of vibration, and emphasizes the connecting ideas, concepts, and techniques. Whatâ ™s New in the Second Edition: Includes a section on the forced response of structurally damped one-dimensional continua Adds three new chapters: Dynamics of Two-Dimensional Continua, Free Vibration of Two-Dimensional Continua, and Forced Vibration of Two-Dimensional Continua Addresses the linear and geometrically nonlinear characterization of three-dimensional deformation for mathematically two-dimensional structures, and the dynamics and vibration of various types of structures within this class Covers deformation, dynamics, and vibration of membranes, of Kirchhoff plates, of von Karman plates, and of Mindlin plates Details a full development for the characterization of deformation and motion for mathematically two-dimensional continua Discusses the free and forced vibration of two-dimensional continua and the steady state response of two-dimensional continua with structural damping Engineering Vibrations, Second Edition offers a systematic and unified treatment of mechanical and structural vibrations, and provides you with a complete overview of vibration theory and analysis.

Book Information

Hardcover: 927 pages
Publisher: CRC Press; 2 edition (December 11, 2014)
Language: English
ISBN-10: 1439830355
ISBN-13: 978-1439830352
Product Dimensions: 2.2 x 6.8 x 9.8 inches
Shipping Weight: 3.2 pounds (View shipping rates and policies)
Average Customer Review: Be the first to review this item
Best Sellers Rank: #717,574 in Books (See Top 100 in Books) #106 inÂ Books > Science & Math

> Physics > Nanostructures #727 inÂ Books > Textbooks > Engineering > Civil Engineering #1258 inÂ Books > Textbooks > Engineering > Mechanical Engineering

Customer Reviews

"This book is a pleasure to read. The book is very thorough and rigorous, yet it is student-friendly with very readable text and excellent illustrative examples."â •Haim Baruh, Rutgers University, New Brunswick, New Jersey, USA "The bookâ ™s breadth of coverage, and the depth of its treatment of the mathematical foundations of the subject, makes it valuable as either a reference or a text for either a practitioner or a first graduate-level course in vibrations. â |As sound and complete a foundation for vibration of two-dimensional continua as you will find anywhere. If you have only one reference on the subject, this is the one to have."â •J. A. M. Boulet, The University of Tennessee, Knoxville, USA "In the field of vibration analysis, it is useful to observe many points of view and also gain insight as various experts approach a problem and then go about solving it. I would certainly recommend Bottega's Engineering Vibrations as a companion to some of the classical references." â •Noise Control Engineering, March-April 2017

William J. Bottega is Professor of Mechanical and Aerospace Engineering at Rutgers University, where he has been since 1984. He received his Ph.D. in applied mechanics from Yale University, his M.S. in theoretical and applied mechanics from Cornell University, and his B.E. from the City College of New York. He also spent several years in R&D at General Dynamics where he worked on vibration and sound-structure interaction problems. In addition, Dr. Bottega is the author of numerous archival publications on various areas of theoretical and applied mechanics.

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