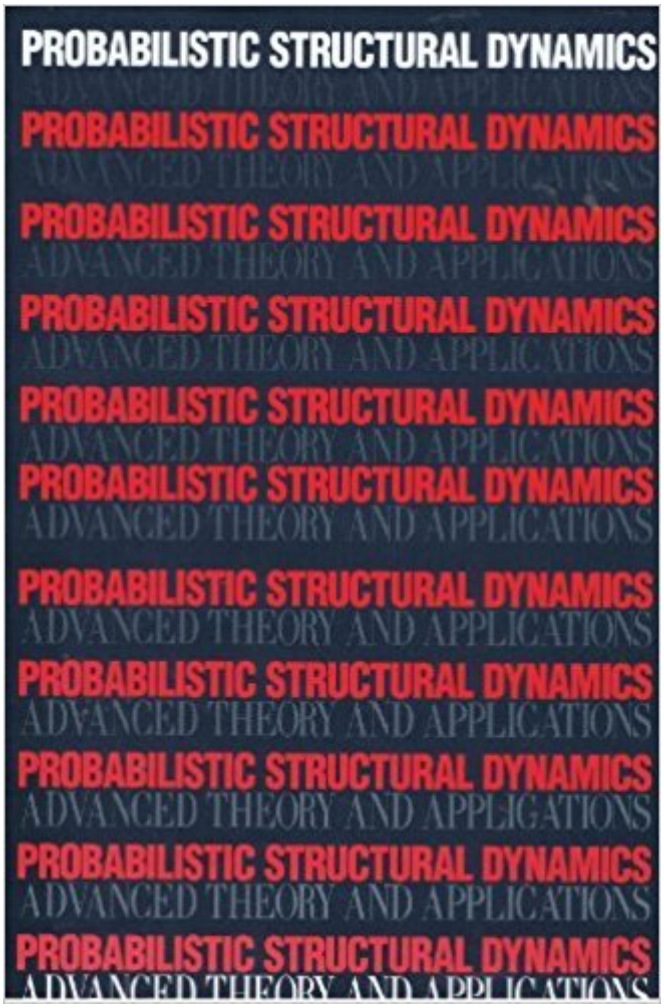
Probabilistic Structural Dynamics: Advanced Theory And Applications



Synopsis

This graduate-level text, ideal for such courses as the random vibrations course offered to civil, mechanical and aerospace engineers, includes theories on topics such as earthquake engineering, offshore engineering and vehicle engineering.

Book Information

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POWERFUL NEW MATHEMATICAL TOOLS FOR STRUCTURAL DYNAMICS Presenting powerful new methods for analyzing uncertainties in the performance of designed systems, Probabilistic Structural Dynamics offers unparalleled tools for predicting the performance of new designs with new materials. In this text, pioneering engineers Y.K. Lin and G.Q. Cai demonstrate innovative mathematical techniques and explain how they can both improve safety and drive new efficiencies in contemporary structures. Employing spectral analysis, Markov processes, and other stochastic tools, Lin and Cai show you step-by-step how to: * Perform dynamic analyses of linear and nonlinear systems * Apply evolutionary spectral analysis * Approximate solutions for multidimensional nonlinear systems * Use insights from first-excursion failures * Find answers for disordered structures * Employ stochastics to achieve safer, more efficient design --This text refers to an out of print or unavailable edition of this title.

Y. K. Lin holds the Charles E. Schmidt Eminent Scholar Chair in Engineering at Florida Atlantic University. He founded the Center for Applied Stochastics Research at Florida Atlantic University

and has served as its Director since 1984. He received his Ph.D. degree in Civil Engineering (Structural) from Stanford University, and Doctor of Engineering honoris causa from the University of Waterloo, Canada. Prior to moving to Florida, he taught for two years in China, one year in Ethiopia, and 24 years (1960-1983) at the University of Illinois at Urbana-Champaign, as Professor of Aeronautical and Astronautical Engineering. He is a Member of the U.S. National Academy of Engineering and Foreign Member of the Russian Academy of Engineering, a Fellow of the American Society of Civil Engineers and American Academy of Mechanics. He has served as a consultant for defense, aerospace, automotive companies, and government laboratories. His publications include Probabilistic Theory of Structural Dynamics (McGraw-Hill, 1967; Krieger Publishing Co., 1976), and over 200 technical papers. He is the recipient of the Alfred M. Freudenthal Medal and the Theodore von Karman Medal from the American Society of Civil Engineers, the J. P. Den Hartog Award from the American Society of Mechanical Engineers, and the Alexander von Humboldt Award for Senior U.S. Scientists from Germany. A Registered Professional Engineer in Florida and Illinois, Lin is listed in Whoâ ™s Who in the World, Whoâ ™s Who in America, and the International Whoâ ™s Who in Education. G. Q. Cai holds a joint appointment of Associate Professor in the Department of Mechanical Engineering and the Center for Applied Stochastics Research at Florida Atlantic University where he received a Ph.D. in Mechanical Engineering. His work has been presented at multiple conferences and published in the Journal of Applied Mechanics, Journal of Sound and Vibration, Probabilistic Engineering Mechanics, the AIAA Journal, the International Journal of Non-Linear Mechanics, and the Journal of Engineering Mechanics. --This text refers to an out of print or unavailable edition of this title.

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