



Reliability of Structures, Second Edition

By Andrzej S. Nowak, Kevin R. Collins

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Reliability of Structures, Second Edition By Andrzej S. Nowak, Kevin R. Collins

Reliability of Structures enables both students and practising engineers to appreciate how to value and handle reliability as an important dimension of structural design. It discusses the concepts of limit states and limit state functions, and presents methodologies for calculating reliability indices and calibrating partial safety factors. It also supplies information on the probability distributions and parameters used to characterize both applied loads and member resistances.

This revised and extended second edition contains more discussions of US and international codes and the issues underlying their development. There is significant revision and expansion of the discussion on Monte Carlo simulation, along with more examples.

The book serves as a textbook for a one-semester course for advanced undergraduates or graduate students, or as a reference and guide to consulting structural engineers. Its emphasis is on the practical applications of structural reliability theory rather than the theory itself. Consequently, probability theory is treated as a tool, and enough is given to show the novice reader how to calculate reliability. Some background in structural engineering and structural mechanics is assumed.

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Review

"This is a great book ... easy to teach from; students can readily learn the theory from its beginnings to its practical applications; it is a course topic that will be of great value in understanding structural design during the professional life of the engineer; it is an invaluable tool to guide in the development of national design standards such as the AASHTO bridge design specification; it is logical and it is fun to go back to time and again."

?Theodore V. Galambos, Emeritus Professor, University of Minnesota

"... a must read for any engineer working in the civil engineering structures arena. ... provides the necessary knowledge to give structural engineers the tools they need to make better designs *a priori* and determine structural failures *a posteriori*."

?Andrew D. Sorensen, Ph.D., Idaho State University,

"Compared to other textbooks in this area, Reliability of Structures is particularly easy to understand. ... ideal for a first course in this topic, or if the classroom contains undergraduate students who might be otherwise lost in an advanced theoretical presentation. A particular strength is its discussion of design code development and calibration, perhaps the most important application of reliability analysis in structural engineering."

?Christopher Eamon, Wayne State University

About the Author

Andrzej S. Nowak is Robert W. Brightfelt Professor of Engineering at the University of Nebraska, USA. He has received the ASCE Moisseiff Award, the IFIP WG 7.5 Award, the Bene Merentibus Medal, and the Kasimir Gzowski Medal from the Canadian Society of Civil Engineers.

Kevin R. Collins is an Associate Professor at Valley Forge Military College, USA.

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