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By Tianjian Ji, Adrian J. Bell, Brian R. Ellis



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This is achieved through:

- Connecting abstract theory with visual and practical examples
- Providing simple illustrative demonstration models, which can be used in conventional class teaching, to capture the essence of the concepts
- Including associated engineering examples, which demonstrate the application of the concepts and help to bridge the gap between theory and practice
- Incorporating the development of teaching material and innovative examples relating to structural concepts based on current research work

In addition to new models and examples, **Understanding and Using Structural Concepts, Second Edition** provides a third part, Synthesis. This considers the relationships between static and modal stiffnesses, static and dynamic problems, experimental and theoretical studies, and theory and practice. All of these relationships are linked to structural concepts. This book will be of interest to all engineers, from students to consultants. It will be useful to civil and structural engineering students, including graduate students, in all years of their courses as well as the more technically-minded architecture students and practicing engineers.



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Editorial Review

Review

"Tianjian Ji and his co-authors have assembled a wealth of models, practical and visual examples to illustrate structural concepts, many of which students find confusing. They show that many structural concepts can be understood in quite simple, physical terms, without recourse to mathematics. Their text offers a valuable and interesting supplement to the more analytical structures books with which many students will be familiar."

?Martin Williams, University of Oxford, UK

"... an excellent source for both undergraduate and postgraduate students on any engineering course. ... of great value to researchers and practitioners involved with the analysis of structures. There is a very good coverage of the subject: as it covers both the statics and dynamics of structures. The book also brings together theoretical and experimental approaches in analyzing structures and how the gap between them may be bridged. This is quite unique in structural analysis books."

?Messaoud Saidani, Coventry University, UK

About the Author

Tianjian Ji, MSc, PhD, CEng, FIStructE, is a senior lecturer at the University of Manchester. He worked on the design of structures and on structural investigation with consultants, China Academy of Building Research and Building Research Establishment Ltd., UK, for over 10 years before joining Manchester University in 1996. He has taught courses in structural analysis and structural design at all levels and has carried out research into structural dynamics and structural concepts. Together with Adrian Bell, he received the award for Excellence in Structural Engineering Education from the Institution of Structural Engineers, UK, in 2014.

Adrian Bell, BEng, MSc, PhD, is a senior lecturer at the University of Manchester. He has worked with consultants on the design of a wide range of structures including long-span roofs and tower structures. He has taught courses in structural analysis and structural design at all levels for over 30 years and has carried out research into cable, steel and masonry structures. Together with Tianjian Ji, he received the award for Excellence in Structural Engineering Education from the Institution of Structural Engineers, UK, in 2014.

Brian Ellis, BSc, PhD, DSc, CEng, MIStructE, was a technical director at the Building Research Establishment Ltd., UK. He worked at the Building Research Establishment for most of his career, where he undertook a wide range of work primarily related to structural dynamics. A significant part of the work involved testing and monitoring various structures in situ. He was also involved in work on national and international standards. Following his retirement, he has undertaken a limited amount of consultancy work.

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