



Fundamentals of Structural Engineering

By Jerome J. Connor, Susan Faraji



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Fundamentals of Structural Engineering provides a balanced, seamless treatment of both classic, analytic methods and contemporary, computer-based techniques for conceptualizing and designing a structure. The book's principle goal is to foster an intuitive understanding of structural behavior based on problem solving experience for students of civil engineering and architecture who have been exposed to the basic concepts of engineering mechanics and mechanics of materials.

Distinct from many undergraduate textbooks, which are focused mainly on either teaching manual analysis methods and applying them to simple, idealized structures or reformulating structural analysis methods in terms of matrix notation, this text instead encourages the student to develop intuition about structural behavior. The authors of this text recognize the notion that engineers reason about behavior using simple models and intuition they acquire through problem solving. The approach adopted in this text develops this type of intuition by presenting extensive, realistic problems and case studies together with computer simulation, which allows rapid exploration of how a structure responds to changes in geometry and physical parameters.

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Editorial Review

Review

From the reviews:

“The intended audience of this book is that of students majoring in civil engineering and architecture who have obtained preliminary concepts of engineering mechanics and mechanics of materials. The main objective is to develop the student’s ability to analyze structures using manual computational procedures and validate computer-based predictions of structural response. ... The book is sufficiently comprehensive and can be used for elementary and higher-level undergraduate subjects.” (Irina Alexandrovna Bolgrabskaya, Zentralblatt MATH, Vol. 1256, 2013)

From the Back Cover

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Making it distinct from many other undergraduate textbooks, the authors of this text recognize the notion that engineers reason about behavior using simple models and intuition they acquire through problem solving. The approach adopted in this text develops this type of intuition by presenting extensive, realistic problems and case studies together with computer simulation, which allows rapid exploration of how a structure responds to changes in geometry and physical parameters.

This book also:

- Emphasizes problem-based understanding of structural behavior
- Organizes chapters by structural types
- Provides balanced, seamless treatment of both classic and contemporary computer-based analysis methods
- Offers extensive sample problems and detailed solutions to problems of structural analysis
- Cultivates intuitive thinking about structural behavior
- Incorporates input data operable with numerous widely used engineering design software packages
- Features 900 figures and graphs

The integrated approach employed in *Fundamentals of Structural Engineering* makes it an ideal and comprehensive book for students and an authoritative reference for practitioners of structural engineering.

About the Author

Dr. Jerome J. Connor is Professor of Civil Engineering at Massachusetts Institute of Technology. His research interests include computational mechanics, structural analysis, motion based structural design, and novel design methodologies for structural systems and has taught courses in computational mechanics and structural engineering. In recent years Connor’s work has involved motion based design and damage

assessment of engineering materials and he is directing a number of projects related to the applications of structural control to large civil structures as well as investigating methods to quantify damage in engineering materials.

Dr. Susan Faraji has been Professor of Structural Engineering in the Department of Civil and Environmental Engineering at the University of Massachusetts at Lowell since 1984. Dr. Faraji has close to three decades of teaching, research, publication, and consulting experience and has taught a wide range of courses at the undergraduate and at the graduate level, such as Concrete Design, Steel Design, Bridge Design, Seismic Design, Concrete Design, Finite Elements, Structural Dynamics, and Behavior of Structures. Her professional work involves the analysis, design (using the latest design codes), and computer modeling of a wide range of structures. She has worked on more than 30 bridges and on aircraft, elevators, pontoons, ramps, concrete parking garages, domes, culverts, retaining walls, and steel and concrete frame buildings.

Users Review

From reader reviews:

Paul Skeens:

Spent a free a chance to be fun activity to accomplish! A lot of people spent their free time with their family, or all their friends. Usually they accomplishing activity like watching television, gonna beach, or picnic inside the park. They actually doing ditto every week. Do you feel it? Do you need to something different to fill your personal free time/ holiday? May be reading a book may be option to fill your free time/ holiday. The first thing that you will ask may be what kinds of reserve that you should read. If you want to test look for book, may be the book untitled Fundamentals of Structural Engineering can be excellent book to read. May be it could be best activity to you.

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