

#### The Finite Element Method for Solid and Structural Mechanics, Seventh Edition

By Olek C Zienkiewicz, Robert L Taylor, David D. Fox



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The Finite Element Method for Solid and Structural Mechanics is the key text and reference for engineers, researchers and senior students dealing with the analysis and modeling of structures, from large civil engineering projects such as dams to aircraft structures and small engineered components.

This edition brings a thorough update and rearrangement of the book's content, including new chapters on:

- Material constitution using representative volume elements
- Differential geometry and calculus on manifolds
- · Background mathematics and linear shell theory

Focusing on the core knowledge, mathematical and analytical tools needed for successful structural analysis and modeling, The Finite Element Method for Solid and Structural Mechanics is the authoritative resource of choice for graduate level students, researchers and professional engineers.

- A proven keystone reference in the library of any engineer needing to apply the finite element method to solid mechanics and structural design.
- Founded by an influential pioneer in the field and updated in this seventh edition by an author team incorporating academic authority and industrial simulation experience.
- Features new chapters on topics including material constitution using representative volume elements, as well as consolidated and expanded sections on rod and shell models.



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#### **Editorial Review**

#### Review

"...most up to date and comprehensive reference yet on the finite element method for engineers and mathematicians...part of a collection of 3 other books on the Finite Element Method... Renowned for their scope, range and authority..."--MCADCafe, March 12, 2014

"Focusing on the core knowledge, mathematical and analytical tools needed for successful structural analysis and modeling, The Finite Element Method for Solid and Structural Mechanics is the authoritative resource of choice for graduate level students, researchers and professional engineers."--MCADCafe.com, March 12, 2014

"...this is a book that you simply cannot afford to be without."--International Journal of Numerical Methods in Engineering

#### From the Back Cover

The classic solid mechanics FEM reference that no serious engineer concerned with finite elements should be without

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The Finite Element Method Set is an extensive reference resource covering the theory and application of FEM in solid, structural and fluid systems. The books are software independent and cover founding principles alongside the latest developments in mathematics, modeling and analysis.

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#### About the Author

O. C. Zienkiewicz was one of the early pioneers of the finite element method and is internationally recognized as a leading figure in its development and wide-ranging application. He was awarded numerous honorary degrees, medals and awards over his career, including the Royal Medal of the Royal Society and Commander of the British Empire (CBE). He was a founding author of The Finite Element Method books and developed them through six editions over 40 years up to his death in 2009.

R. L. Taylor is Emeritus Professor of Engineering and Professor in the Graduate School, Department of Civil and Environmental Engineering at the University of California, Berkeley.

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