



# The Finite Element Method for Engineers

By Kenneth H. Huebner, Donald L. Dewhirst, Douglas E. Smith, Ted G. Byrom

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A useful balance of theory, applications, and real-world examples

The Finite Element Method for Engineers, Fourth Edition presents a clear, easy-to-understand explanation of finite element fundamentals and enables readers to use the method in research and in solving practical, real-life problems. It develops the basic finite element method mathematical formulation, beginning with physical considerations, proceeding to the well-established variation approach, and placing a strong emphasis on the versatile method of weighted residuals, which has shown itself to be important in nonstructural applications. The authors demonstrate the tremendous power of the finite element method to solve problems that classical methods cannot handle, including elasticity problems, general field problems, heat transfer problems, and fluid mechanics problems. They supply practical information on boundary conditions and mesh generation, and they offer a fresh perspective on finite element analysis with an overview of the current state of finite element optimal design.

Supplemented with numerous real-world problems and examples taken directly from the authors' experience in industry and research, The Finite Element Method for Engineers, Fourth Edition gives readers the real insight needed to apply the method to challenging problems and to reason out solutions that cannot be found in any textbook.

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## **Editorial Review**

From the Back Cover

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About the Author

**KENNETH H. HUEBNER**, PhD, is retired from Ford Motor Company, where he was manager of the Computer-Aided Engineering Research Staff. He received his PhD from Purdue University in 1969.

**DONALD L. DEWHIRST**, PhD, has many years of experience in the aerospace and automotive industries. He is recently retired from Ford Motor Company. He received his PhD from the Department of Theoretical and Applied Mechanics at the University of Illinois.

**DOUGLAS E. SMITH**, PhD, is Assistant Professor, Division of Engineering at the Colorado School of Mines, Golden, Colorado. He has been involved with finite element analysis (FEA) for over fifteen years while working at IBM Corporation and Ford Motor Company. He received his PhD from the University of Illinois, Urbana-Champaign.

**TED G. BYROM**, PhD, is an independent consulting engineer and a former technology consultant with Oryx Energy Co., Inc. He received his PhD in aerospace engineering from Texas A&M University.

## **Users Review**

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**Dale Perez:**

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