



Numerical Methods for Engineering Applications

By Joel H. Ferziger

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State-of-the-art numerical methods for solving complex engineering problems

Great strides in computer technology have been made in the years since the popular first edition of this book was published. Several excellent software packages now help engineers solve complex problems. Making the most of these programs requires a working knowledge of the numerical methods on which the programs are based. Numerical Methods for Engineering Application provides that knowledge.

While it avoids intense mathematical detail, Numerical Methods for Engineering Application supplies more in-depth explanations of methods than found in the typical engineer's numerical "cookbook." It offers complete coverage of most commonly encountered algebraic, interpolation, and integration problems. Ordinary differential equations are examined in great detail, as are three common types of partial differential equations--parabolic, elliptic, and hyperbolic. The author also explores a wide range of methods for solving initial and boundary value problems.

This complete guide to numerical methods for solving engineering problems on computers provides:

- * Practical advice on how to select the best method for a given problem
- * Valuable insights into how each method works and why it is the best choice
- * Complete algorithms and source code for all programs covered
- * Code from the book and problem-solving programs designed by the author available from the author's website

Numerical Methods for Engineering Application is a valuable working resource for engineers and applied physicists. It also serves as an excellent upper-level text for physics and engineering students in courses on modern numerical methods.

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Editorial Review

From the Publisher

Presents the numerical methods used in the solution of many engineering problems, including interpolation, integration, and ordinary and partial differential equations. Many methods are reduced to FORTRAN programs, with concrete examples demonstrating their actual behavior.

From the Back Cover

State-of-the-art numerical methods for solving complex engineering problems

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About the Author

JOEL H. FERZIGER, PhD, is a professor in the Stanford University Department of Mechanical Engineering. Dr. Ferziger holds a doctorate in nuclear engineering from the University of Michigan. He is a Max Planck Award recipient, a Humboldt Fellow, and a Fellow of ASME and APS. His other books include Computational Methods for Fluid Dynamics.

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