

The Finite Element Method for Mechanics of Solids with ANSYS Applications (Advances in Engineering Series)

By Ellis H. Dill

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While the finite element method (FEM) has become the standard technique used to solve static and dynamic problems associated with structures and machines, ANSYS software has developed into the engineer’s software of choice to model and numerically solve those problems.

An invaluable tool to help engineers master and optimize analysis, **The Finite Element Method for Mechanics of Solids with ANSYS Applications** explains the foundations of FEM in detail, enabling engineers to use it properly to analyze stress and interpret the output of a finite element computer program such as ANSYS.

Illustrating presented theory with a wealth of practical examples, this book covers topics including:

- Essential background on solid mechanics (including small- and large-deformation elasticity, plasticity, and viscoelasticity) and mathematics
- Advanced finite element theory and associated fundamentals, with examples
- Use of ANSYS to derive solutions for problems that deal with vibration, wave propagation, fracture mechanics, plates and shells, and contact

Totally self-contained, this text presents step-by-step instructions on how to use ANSYS Parametric Design Language (APDL) and the ANSYS Workbench to solve problems involving static/dynamic structural analysis (both linear and non-linear) and heat transfer, among other areas. It will quickly become a welcome addition to any engineering library, equally useful to students and experienced engineers alike.

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Editorial Review

Review

"… clearly written and addresses theory and solution of numerous example problems with the ANSYS software, including both ADPL and Workbench modules. … a useful reference for practicing engineers and scientists in industry and academia."
?John D. Clayton, Ph.D., A. James Clark School of Engineering, University of Maryland, College Park, USA

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