



# Finite Element Simulations Using ANSYS, Second Edition

By Esam M. Alawadhi



**Finite Element Simulations Using ANSYS, Second Edition** By Esam M. Alawadhi

*Uses a Step-By-Step Technique Directed with Guided Problems and Relevant Screen Shots*

Simulation use is on the rise, and more practicing professionals are depending on the reliability of software to help them tackle real-world mechanical engineering problems. **Finite Element Simulations Using ANSYS, Second Edition** offers a basic understanding of the principles of simulation in conjunction with the application of ANSYS. Employing a step-by-step process, the book presents practical end-of-chapter problems that are solved using ANSYS and explains the physics behind them. The book examines structure, solid mechanics, vibration, heat transfer, and fluid dynamics. Each topic is treated in a way that allows for the independent study of a single subject or related chapter.

What's New in the Second Edition:

- Introduces the newest methods in modeling and meshing for finite element analysis
- Modifies ANSYS examples to comply with the newest version of ANSYS
- Replaces many ANSYS examples used in the first edition with more general, comprehensive, and easy-to-follow examples
- Adds more details to the theoretical material on the finite element
- Provides increased coverage of finite element analysis for heat transfer topics

- Presents open-ended, end-of-chapter problems tailored to serve as class projects

Finite Element Simulations Using ANSYS, Second Edition functions as a fundamental reference for finite element analysis with ANSYS methods and procedures, as well as a guide for project and product analysis and design.

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#### Review

"A must read for those interested in exploring the possibilities of using the finite element method (FEM) as a practical analysis tool for structural mechanics, stress analysis, vibration, heat transfer, and fluid dynamic problems. ... Alawadhi systematically introduces the theory of FEA, and demonstrates a step-by-step procedure for practical analysis using ANSYS. This book is a must-have reference for students, academics, and practitioners in the field of mechanical, civil, environmental, and design engineering."

?Dr. Arun Arjunan, University of Wolverhampton, UK

#### About the Author

**Esam M. Alawadhi** is a professor of mechanical engineering at Kuwait University. He earned his doctor of philosophy (May 2001) in mechanical engineering from Carnegie Mellon University, Pittsburgh, Pennsylvania. His research focuses on renewable energy, thermal management of electronics devices, energy conservation for buildings, fluid flow stability, and phase-change heat transfer.

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