



# Fundamental Finite Element Analysis and Applications: With Mathematica and Matlab Computations

M. Asghar Bhatti

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## About the Book

A unique, hands-on introduction to the Finite Element Method

Fundamental Finite Element Analysis and Applications: with Mathematica® and MATLAB® Computations is an innovative, practical guide to discovering the Finite Element Method (FEM). Providing a helpful balance between theory and application, it presents the FEM as a tool to find approximate solutions of differential equations, making it a useful resource for students from a variety of disciplines.

Using a unique combination of live Mathematica® and MATLAB® implementations, along with problems in both ANSYS® and ABAQUS® formats, this hands-on book reveals the logic behind the equations to facilitate a full understanding of methods and solutions. In nine convenient chapters, Fundamental Finite Element Analysis and Applications: with Mathematica® and MATLAB® Computations covers:

- Finite Element Method: The Big Picture
- Mathematical Foundation of the Finite Element Method
- One-Dimensional Boundary Value Problems
- Trusses, Beams, and Frames
- Two-Dimensional Elements
- Mapped Elements
- Analysis of Elastic Solids
- Transient Problems
- p-Formulation

An associated Web site ([wiley.com/go/bhatti](http://wiley.com/go/bhatti)) includes interactive application files and notebooks for Mathematica®, MATLAB®, ANSYS®, and ABAQUS®, with expanded exercises to use with the book.

Fundamental Finite Element Analysis with Mathematica® and MATLAB® Computations is a clear and accessible learning tool for senior undergraduate and graduate-level students.

## About the Author

**M. Asghar Bhatti** :- is Associate Professor in the Department of Civil and Environmental Engineering at The University of Iowa, Iowa City