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Introduction To Finite Elements In Engineering (3rd Edition)

INTRODUCTION TO
FINITE ELEMENTS
IN ENGINEERING

THIRD EDITION

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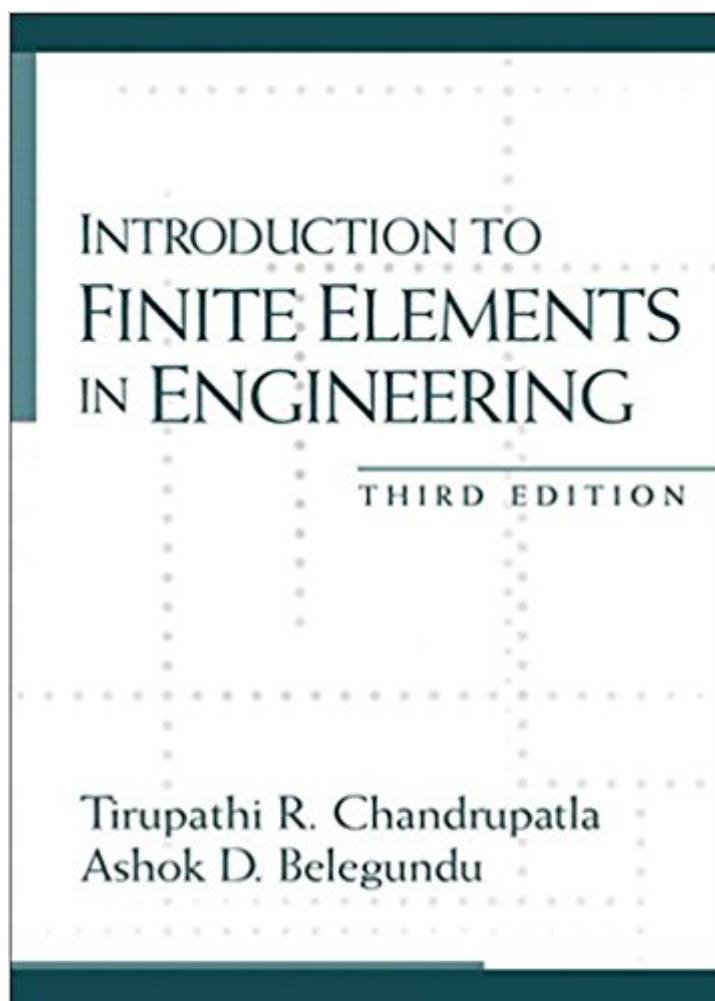
Synopsis

This book provides an integrated approach to finite element methodologies. The development of finite element theory is combined with examples and exercises involving engineering applications. The steps used in the development of the theory are implemented in complete, self-contained computer programs. While the strategy and philosophy of the previous editions has been retained, the Third Edition has been updated and improved to include new material on additional topics. Chapter topics cover fundamental concepts, matrix algebra and gaussian elimination, one-dimensional problems, trusses, two-dimensional problems using constant strain triangles, axisymmetric solids subjected to axisymmetric loading, two-dimensional isoparametric elements and numerical integration, beams and frames, three-dimensional problems in stress analysis, scalar field problems, dynamic considerations, and preprocessing and postprocessing.   For practicing engineers as a valuable learning resource.

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Customer Reviews

This book provides an integrated approach to finite element methodologies, combining sound theory, examples and exercises involving engineering applications, and the implementation of theory in complete, self-contained computer programs. While the strategy and philosophy of the previous edition has been retained, the Second Edition has been updated and improved to include new material on additional topics. --This text refers to an out of print or unavailable edition of this title.

Now in its third edition, Introduction to Finite Elements in Engineering provides an integrated approach to finite methodologies through the integration of exercises and examples involving engineering applications. The steps used in the development of the theory are implemented in complete, self-contained computer programs, while retaining the strategies and philosophies of previous editions. It serves as a primary textbook for senior undergraduate and first-year graduate students as well as an invaluable learning resource for practicing engineers. Hallmark Features: Over 250 illustrations integrated throughout the text. Problem formulation and modeling emphasized in each chapter. Practical examples and problems. Pre- and post-processing concepts discussed in the last chapter. New to the Third Edition: Additional programs and source code on a companion CD Includes complete self-contained computer programs with source codes in Visual Basic, Excel-based Visual Basic, MATLAB, QUICKBASIC, FORTRAN, and C.

I sat in Prof Chandrupatla class. This book was near impossible for me to follow due to his much different approach and terminology for solid mechanics. Students that had him or a similar mechanics class used the book effectively. I was totally lost without a solutions manual to translate what he was talking about into my experience.

This book is pretty bad. Mainly the explanations are not very clear. The subject is easy but the book does a horrible job. I gave it 2 stars because it has good practice problems.

It shows the theory behind FEA. Recommended for 3rd+ year engineering students. As a reference, it would be nice if there was a bit more info on solid mechanics in it.

A solid introduction to the finite element method. This book gives clear examples and does an excellent job of conveying not only the method, but also the reasoning behind the methods. The included FEA programs allow you to view the source code, which are very helpful for understanding what's going on behind the scene's, and writing your own code if you chose.

If you want to learn the basics of FEM, take this book. First half of the book is an excellent introduction to FEM. It explains nicely even the mathematical background, so you can basically "plug and play", make your first FE programs and solve the typical structural problems. But then, authors start to explain everything else regarding the linear FEM, in a very condensed way, and the

book becomes very difficult to read. Exercises are nicely prepared and for their solving sufficient help can be found in the text.

Needed for a finite element class. Arrived without any problems. Can't really comment on the book too much as I have yet to read through it. Seems promising from the semi-thorough skim through the pages.

As a finite element software developer, I find this book is so designed that it is relatively easy to understand by any level of graduate student. The first few chapters on 1-dimensional finite element equation formulation is the best I have ever seen so far in the "sea" of finite element text. Other than that, the overall content of the book is rather "light". It should be read by all users who use finite element.

This is a Great Book for a beginner to FEM and it clearlyfocusses on the method rather than vast theory.I have found thisbook extremely useful for developing the Java based FEM Software at my site...

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