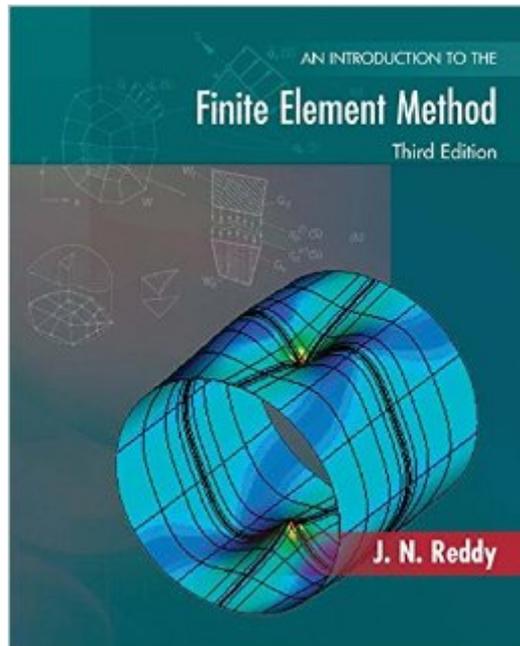# An Introduction To The Finite Element Method (McGraw-Hill Mechanical Engineering)

Synopsis

J.N. Reddy's, An Introduction to the Finite Element Method, third edition is an update of one of the most popular FEM textbooks available. The book retains its strong conceptual approach, clearly examining the mathematical underpinnings of FEM, and providing a general approach of engineering application areas. Known for its detailed, carefully selected example problems and extensive selection of homework problems, the author has comprehensively covered a wide range of engineering areas making the book approriate for all engineering majors, and underscores the wide range of use FEM has in the professional world. A supplementary text Web site located at http://www.mhhe.com/reddy3e contains password-protected solutions to end-of-chapter problems, general textbook information, supplementary chapters on the FEM1D and FEM2D computer programs, and more!

Book Information

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Customer Reviews

I taught myself FEM for a project that needed it from this book. The book was well structured and clearly written such that I needed no other outside resources to figure out what to do. (The project was a mechanical simulation for part of a physics experiment I was working on.) Would recommend without hesitation to the self-studier.

J.N. Reddy's has to be one of the finest books for learning the finite element method. The

presentation is simple and follows a careful order that essential for understanding the implementation of the technique. The book has many examples from structural engineering, but even if you are not interested in structures (as I am), there are many cross-disiplinary examples. The book also has some Fortran examples in the appendix. This book is far easier to understand than "The finite element method for engineers" by Juebner, Thornton and Byrom.

This book is quite good. It will really teach you the basics of Finite element Method. But one problem i encountered is that if you use this book to learn, the next time you need to study deeper FEM, you will have a hard time understanding the very different approaches and also notation. But still this book will give you many things you need to know.

Unlike most other FEM authors, Reddy goes out of his way to explain how the method applies to practically any differential equation/PDE one might encounter in just about any technical field (i.e. not just solid mechanics). Instead of harping away about the intracacies of variational methods and trying to rigorously prove every theorem, he rather develops the method of finite elements as a mathematical toolkit, while still giving sufficient mathematical background so that the reader fully understands how the method is applied, and its limitations.There is a lot of material already out there that is obviously the product of mathematicians, which is verbose, obfuscatory, and bedeviled with pointless formality. I'd even go a step further and say that most of this mathematician-inspired material strikes a condescending tone towards weak-form methods as if they were 'impure'. This text is totally the opposite - the author is clearly trying to show how the method of finite elements is a useful TOOL, rather than trying to appease the gods of mathematical orthodoxy. Reddy's text is very approachable, though the reader is well advised to supplement their reading with texts/classes on variational calculus, vector calculus, ODE's, and PDE's (though the lattermost is really not necessary).

I learnt FE from this book. It is clear, coincise, full of well-worked examples. It covers almost all of the aspectes of FE programming. The book contains two educational codes, thought both are FORTRAN77 code, one can easily understand what's going on, so as to rewrite it in C or, say, FORTRAN90.The first s chapters of the book regard the FEm method in general, the 4th focuses on structural mechanics, 5th is about errors in FE analysis, 6th and 7th about numerical integration and 8th is on 2 and 3 dimension FE problem.Actually this is an introductory book, so the 2 and 3 D problems are not deeply trated.The book is never hard to understand, and it's suitable (waw!!) for

self study.

The textbook is good, but I am primarily writing this review to let interested buyers know that the paperback copy is actually the international edition. I suppose it shows this in the picture, but nowhere in the description does it say this. The pages and printing is of decently high quality (as opposed to what I have read for other international editions), but I know there is some talk out there of trade agreements/import laws against international copies. The description should be edited to include this information.

This appears to be a photocopy of the book. The pages are thin and not the glossy type paper you expect in a textbook. The print is in all black and white and bleeds through the back side of the page. A replacement was ordered, but came in the exact same...very disappointing considering I paid full price for a brand new book.

A superbly easy to read (and study) textbook for a beginner, this is a masterpiece of pedagogy that, despite the passage of time and the hundreds of books written on this subject, still defines the way the Finite Element Method (FEM) should be taught. If you never took a formal course or seriously studied the inner workings and fundamentals of FEM, you need to read this book.

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