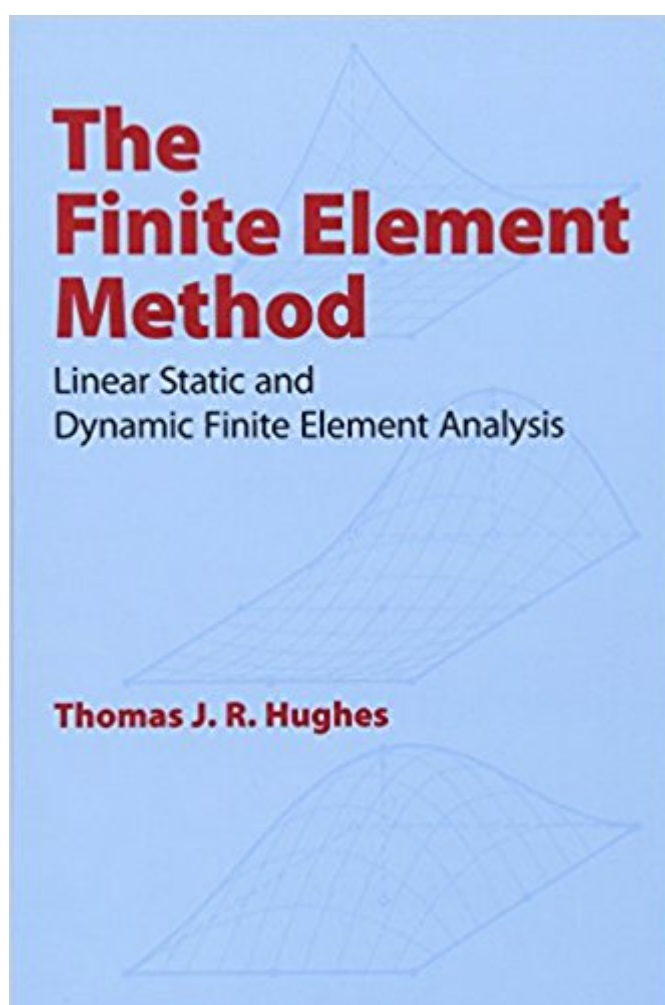


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# The Finite Element Method: Linear Static And Dynamic Finite Element Analysis (Dover Civil And Mechanical Engineering)



## Synopsis

This text is geared toward assisting engineering and physical science students in cultivating comprehensive skills in linear static and dynamic finite element methodology. Based on courses taught at Stanford University and the California Institute of Technology, it ranges from fundamental concepts to practical computer implementations. Additional sections touch upon the frontiers of research, making the book of potential interest to more experienced analysts and researchers working in the finite element field. In addition to its examination of numerous standard aspects of the finite element method, the volume includes many unique components, including a comprehensive presentation and analysis of algorithms of time-dependent phenomena, plus beam, plate, and shell theories derived directly from three-dimensional elasticity theory. It also contains a systematic treatment of "weak," or variational, formulations for diverse classes of initial/boundary-value problems. Directed toward students without in-depth mathematical training, the text incorporates introductory material on the mathematical theory of finite elements and many important mathematical results, making it an ideal primer for more advanced works on this subject.

## Book Information

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## Customer Reviews

Clear and comprehensive exposition from a recognized expert if not originator of the field. Problems are somewhat strenuous but you can find a solutions manual online. I would complement this with Ted Belytschko's introductory text and something well regarded in computational plasticity, maybe Belytschko's blue book or de Souza Netto's book. Or better yet all of them.

The Finite Element Methodology though conceptually simple (eat the elephant by chopping it up into mouthfuls), becomes somewhat involved when applied, because of the tricks used to get solutions, after all you still may have to solve 100,000 PDEs to get your approximate solution to an otherwise intractable problem. So in its own way FEM can become a bit of a pachyderm itself. This book is very good, but be aware that this book is aimed at graduate physical-science/engineering students. This means that you know how to solve basic second order differential equations and understand how to perform path integrals for example. This book is aimed at people who would like to be able to write their own FEM solver. If you are looking to gain some backgrounding in how to construct finite element models using a program to solve problems, this book is probably much more than you need. You might want to try *Schaum's Outline of Finite Element Analysis* if this is your objective. DLearn is available from the [...] or by typing "Dlearn program FEA" into google and following the link.

If you are a beginner, please avoid buying this book. This book is okay only for the 2 first chapters, and it becomes tougher and can not be understandable in the next following chapters. I do read a lot from this book, because my Prof. has chosen this book for our Graduate course, but honestly saying, it is not a good book for Beginners!!!

Book is overrated. Highly mathematical and does not go into problem solving. Jumps to 2D and 3D without explaining 1D concepts. Written from a mathematical point of view than an engineering point of view. The software is obsolete and cannot be found anywhere on the internet. Instead buy the book: *Finite element concepts* from Dr. David Burnett, Much better than any of the books out there. Follow it up with *Finite Elements* by Ottosen and Pettersson, and finally the book *Finite Element Programming* by Smith and Griffiths. These three are really good and contain software (the last one)

While this book is perfect for students as well for engineers who would like to understand the theory behind the F.E method, it's not really helpful for the common users of commercial FE software and it lacks of common practice. This is purely academical reference, and helps one to fully understand the code behind the GUI scene. I would recommend it to everyone who interested to understand and develop the math apparatus and new elements architecture.

Great book. Neatly packed. No complaints

The text is obviously considered a benchmark for FEA. The date of the first edition causes me to guess that it was among the first serious texts in the subject. For that reason, the book is worth the some of the price. But, detractors reduce the worth...Two major items detract from the usefulness of the text:1. It is written for a mathematician. So, reading is a little rough for those who are learning the notation as they read the book.2. The text spends pages describing examples using and an appendix providing user information for software that is missing from the reprint. This subtracts from the value, even if the code is a source in FORTRAN, because excellent examples of FEA implementations are missing.It turns out that the source code and a compiled executable for DLEARN is available on the web. However, you have to know where and how to search. [...]

What can I say. It's classic, and hard to understand... But hey, you got a classic with 15 dollars right?

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