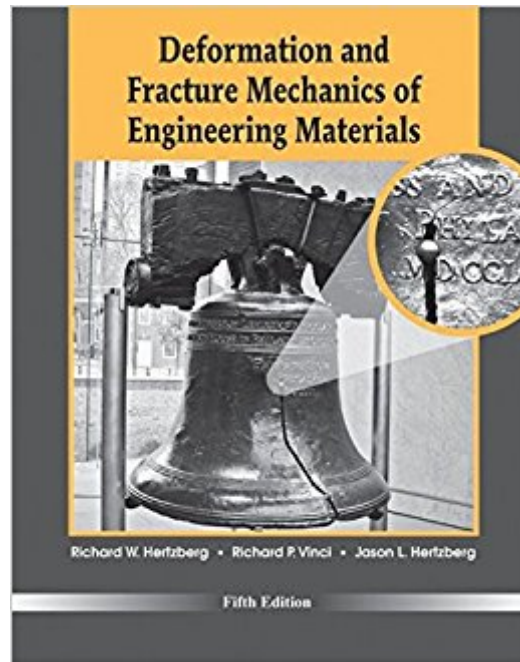


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# Deformation And Fracture Mechanics Of Engineering Materials



## Synopsis

Deformation and Fracture Mechanics of Engineering Materials provides a combined fracture mechanics-materials approach to the fracture of engineering solids with comprehensive treatment and detailed explanations and references, making it the perfect resource for senior and graduate engineering students, and practicing engineers alike. The 5th edition includes new end-of-chapter homework problems, examples, illustrations, and a new chapter on products liability and recall addressing the associated social consequences of product failure. The new edition continues to discuss actual failure case histories, and includes new discussion of the fracture behavior and fractography of ceramics, glasses, and composite materials, and a section on natural materials including bone and sea shells. New co-authors Richard P. Vinci and Jason L. Hertzberg add their talent and expertise to broaden the book's perspective, while maintaining a balance between the continuum mechanics understanding of the failure of solids and the roles of the material's nano- and microstructure as they influence the mechanical properties of materials.

## Book Information

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## Customer Reviews

I graduated a little over two years ago and now am a practicing metallurgist. Although we learned plenty in school, there were still a few things missing here and there. This book was recommended by one of my professors. It'll give you more detail than other books and can give your brain a boost when you think you may have forgotten something.

I bought this book for a one-credit course at Virginia Tech and hardly ever used it. That, I believe, chiefly reflects excellent teaching methodology and not insufficiency of this book. Back in Switzerland, I took a big, long course in deformation and fracture mechanics at the Swiss Federal Institute of Technology in Lausanne, and all of a sudden this book came in handy for extra illustrations and alternative explanations. While it is particularly excellent when treating fracture and devotes much space to this subject, deformation mechanics are often simplified or contain omissions in the derivation. Unfortunately, my course went into further detail than Dr. Hertzberg's book, so for the interesting details on deformation (e.g. a good explanation of the Lüders Bands) I must search elsewhere. However, readers will appreciate the last chapter of case studies, which is instructive and sometimes even humorous (though it might require black humor to find a bursting tank of molasses funny). In short, if you're into things that break, this book will make you happy. If you want to know what happens before, this book will help, but won't by any means be exhaustive.

Be wary of purchasing the international edition; I did and there were about 40 pages missing from the book - missing in the sense that I received a book in wonderful condition, no apparent damage anywhere, and the page numbers (and content) simply skip over two blocks of approximately 20 pages. This was a particularly painful realization for me because I needed the first of those two sections for my project.

Fracture mechanics in application is simple enough that it can be learned via wikipedia. Understanding it and the physical basis of the derivations - not so easy - but covered well in this great work. Well worth it for an older version.

pretty decent book, cheap enough to buy and I'll probably hang onto it instead of re-selling it. Some more sample problems would be nice since sometimes the problem set asks questions that are not previously covered in the chapter

You will need a fair amount of understanding of fracture mechanics to use this book. However, you will catch up quickly and the book reads fluently. It is still one of my main references and the first book I usually pick up on the topic.

I am happy with the quality and condition of the book and its pages, but when I received the book it had a plastic, sticky bookcover on it. It makes the book's hardcover look bubbly and used and I

would prefer it not be on there, but if I take it off I'm pretty sure it will leave an unwanted residue. Oh well, I guess it will keep the actual cover in a nicer condition should I decide to sell it back later.

This textbook reads more like an encyclopedia than a normal textbook. The presentation of the material is very thorough and accurate yet assumes a reader more mature in the material. I am using the text in a materials behavior course as a senior in mechanical engineering and many of my classmates have come to similar conclusions. Both my professor for the course and another in the same field also agreed the text is probably better suited as a reference rather than a stand-alone teaching tool. Overall, excellent text but maybe more useful for a more learned reader than I.

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