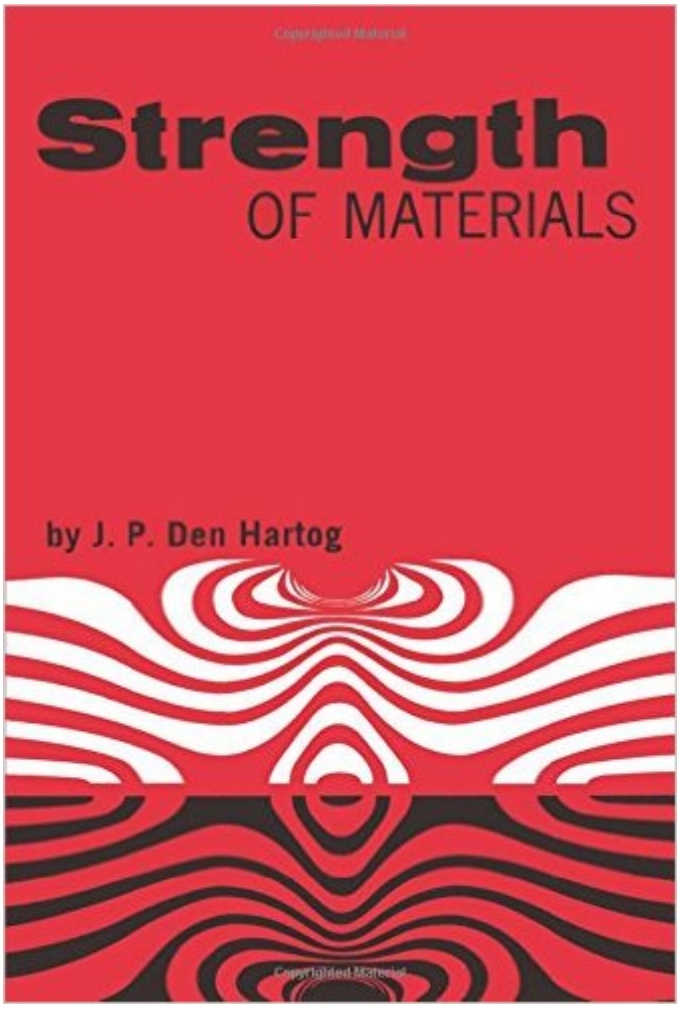
Strength Of Materials (Dover Books On Physics)



Synopsis

Among introductory texts on the strength of materials, this work is particularly distinguished. It was originally developed by Professor Den Hartog to meet the needs of engineering students at M.I.T. for a sound yet lucid first course in strength of materials. As such it has also enjoyed wide popularity in engineering schools throughout the world.But the book was remarkable in a number of other ways, so that it has become one of the favorite refresher and reference works for engineers as well as a popular self-study text. Perhaps the chief reason for this is that in addition to all the customary elementary material on the subject (i.e., clear instructions to the fundamentals of tension, torsion, bending, compound stresses, deflection of beams, etc.) it also contains a considerable amount of more advanced material concerning methods of great practical value to working engineers which are not usually included in introductory texts. This material is presented in starred sections (which may be omitted on a first reading without interrupting the flow of the presentation) and includes a full treatment of the Mohr circle and its application to the determination of moments of inertia and strains as well as stresses; a lucid elementary presentation of the theory of the center of shear; and one of the few elementary presentations of the theory of the center of shear; and one of the few elementary discussions of the "Myosotis" method of calculating beam deflections, a method which often possesses considerable advantages over the more usual methods involving moment-area or the differential equation of bending.Other material not usually found in elementary texts but which are frequently of great value to the practicing engineer are the discussions of the statically indeterminate truss, reinforced concrete, plastic deformations, thick-walled cylinders, thick curved bars, Maxwell’s Reciprocal Theorem, and photoelasticity.In all sections, both general principles and concrete applications are given. Another feature which readers have found unusually helpful is the 85-page section of 350 problems which gives the student practice in techniques and further illustrates applications. All problems are complete with answers.

Book Information

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Average Customer Review: 4.7 out of 5 starsÂ Â See all reviewsÂ (19 customer reviews)
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Customer Reviews

This is the best book on mechanics of materials I have come across. Much more mathematical rigor than similar books by Gere and others. I read this book as an undergraduate and it put me at the top of the class. Of particular note is the Myosotis Method in the section on deflection of beams. This extremely useful method is very powerful, and has been abondonded in most new books becuase of computer software now available. Also has the best treatment of Castigliano Theorem. This book is a must have for any engineer concerned with materials. If your looking for a more advanced book, Advanced Strength of Materials, by the same offer is also very good, but outdated. It does have a very good treatment of shell theory. Better than a good amount of the books on theoretical elasticity that I own. Simply; good author; good book.

Both books on mechanics of materials by Den Hartog are remarkable. All the questions have answers, the writing is clear and to the point. In this book, he gives the method of Myosotis to calculate the deflections of beams. Although such material is outdated, it does illustrate an elegant way of solving beam deflection problems. Today, many problems are being solved by brute-force computer methods. (Just make an FE mesh!!) Read this book even though it will not teach you anything new, if only like a novel.

If you have no knowledge of materials science, this book will get you up to speed to be able to get at least a basic fundamental understanding of materials and how they behave under stress!I would suggest taking a few courses in Metallurgy, or materials science before trying to read this entire book, as it is written assuming the reader has a basic understanding of terms

I just love this little book. If you are interested in structures, Strengths of Materials is a must. You'll need some math skills for this one - Trig and analytic geometry are a must. An understanding of calculus is desirable, but not entirely necessary. After mastering mechanics in the basic Physics

book, you'll want to study Statics. This is how you analyze forces and their reactions as they travel through structures. You will use free body diagrams and vectors for this one. The next field to study is Strength of Materials. Here you will learn how materials behave (deform) under various loading conditions; How beams bend, how springs react to loads, how wheels deform on tracks, how posts buckle, etc. In statics we study the stresses in a material - the forces. In Strengths of Materials we study the strains - the deformations - materials exhibit in response to those stresses. This tidy little book is lucid and to the point. This is a difficult subject, but this book shows us how to employ engineering conventions to understand and analyze the complexities inherent in the subject matter. A handy little book and dirt cheap. Buy it.

READ THIS. Learned so much useful information (Myosotis method is so much easier than the traditionally taught method, but learn the reason why it works first before applying it.) It's been a very handy and useful reference for me when doing analysis, lots of examples that have lined up almost perfectly with the problems I've faced. Realize that he does occasionally leave final analysis up to you or leave things as "obvious" whether they are or are not.

I bought this book to learn engineering, and just for the fun of it. With degrees in physics and math, the material is quite accessible. If you learn mainly by working problems, these are really wonderful. But I deduct a star because most of the problems omit some critical information needed to get an answer, or the answer is numerically inaccurate (as if it was obtained hastily with a slide rule) making it difficult to know if it's correct or not. I see now that this is a hazard of buying an old first edition reprint boasting "unabridged and unaltered reproduction". Unfortunately, I have not been unable to find a later edition of the book online, or published errata. On the other hand, one does learn more from correcting errors, and maybe that's something to be grateful for.

Looks like a great book, with excellent explanations, but look at a sample first. The display of formulas seems to be handled differently and is extremely small. Does anybody check at the display on a Kindle paper-white? It leaves me wanting to give 1 star for a 1 star execution.

The most traditional book on strenght of material - it is outstanding. I have used it during my engineering student years (40 years ago!!) and almost 10 years ago I lost it - It is nice the have it again in my bookshelf.

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