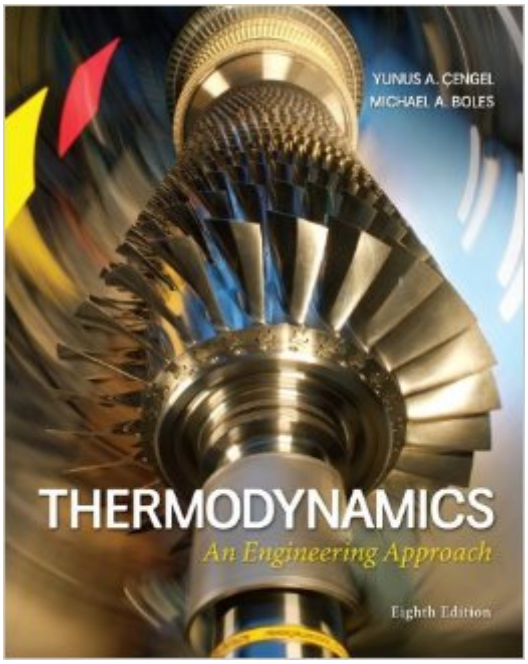
Thermodynamics: An Engineering Approach



Synopsis

Thermodynamics, An Engineering Approach, eighth edition, covers the basic principles of thermodynamics while presenting a wealth of real-world engineering examples so students get a feel for how thermodynamics is applied in engineering practice. This text helps students develop an intuitive understanding by emphasizing the physics and physical arguments. Cengel and Boles explore the various facets of thermodynamics through careful explanations of concepts and use of numerous practical examples and figures, having students develop necessary skills to bridge the gap between knowledge and the confidence to properly apply their knowledge.

Book Information

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Customer Reviews

If you read only one book on Thermodynamics, make it this one.I would strongly encourage students of science - whether physics, chemistry, or even biology and geology - to study this book before moving on to more specialized texts. This book is the best "big picture" book for Thermodynamics I have seen, and it manages to cover a wide variety of the different aspects of the subject, at times in surprising depth. Plus it does so in the most natural context for this subject: engineering, where it was born.I have read quite a few books on Thermodynamics before this one, and I was really surprised and delighted by how much I got out of it. I’d give it six stars if I could.The prerequisites are basic multivariable calculus and elementary ordinary differential equations as well as elementary classical mechanics. Some elementary fluid mechanics would be helpful too, but is by no means essential.The book includes more than enough problems for even the most avid student, and the problems cover the gamut from simple plug-and-chug, to computational problems

that can be solved using the software included on the DVD, to conceptual questions, to open ended design and investigation problems.The book also includes copious tables of thermodynamical property data that can - and sometimes must - be consulted to solve the problems.The only substantial criticism I have concerns some of the optional sections that typically end the chapters. In particular the one on entropy rubbed me the wrong way by trying to explain entropy as disorganization. The example of the messy library having more entropy than the one where the books are organized appropriately on the shelves really bothered me. What we casually mean by disorganization should absolutely not be confused with entropy and books like this one should work to dispel such notions rather than encourage them in the same way mechanics books seek to dispel misconceptions about terms such as "work" and "energy".On the other hand the optional section on separation of mixtures more than made up for this.I also found the treatment of exergy quite illuminating. This is a concept with which I was completely unfamiliar prior to reading this book.Overall, this is a truly excellent book which does a good job of awakening the reader to the thermodynamic phenomena all around them, and consequently bringing them to a deeper understanding of the physical world.Take your time with it, and you will get a lot out of it.

To all eng thermo learners: i did an intensive comparison of Cengel4 and MoranShapiro5 whenever on the john. Sonntag6 was out-of-race: book really bad (in comparison to the two in question), so let’s not talk about it any further. So the remaining top-sellers, they are *the* most widely-used most popular intro texts (the very first two semesters on thermo for engineering students) available; very comprehensive (~800pages) and extremely modern in didactics, layout, and content presentation. No wonder that they are the two best-sold intro texts. Question: which is better?Results: Both are 100% equally top choices (and 95% equal in teaching text) and in the end it s only a matter of taste and peripheral preferences. My personal peripheral preference would be the "Which one s the better deal (US $)?". Well, MoranShapiro5 is a little harder to read (it uses one colour only: pics, drawings, and images all in GREEN, aarrgh!) and not as nicely layout as Cengel4. But text is a little more detailed and the examples are much longer, and a bit harder and thus more detailed too! Number of examples seems to be higher too (!?) ("So, if you re not a dummie (=total beginner), go for S/M as text and ref!"). Furthermore, the WileyInternationalEdition comes in HARDCOVER whereas the McGraw-HillInternationEdtion comes in PAPERBACK. Both books feature a student book companion site or online learning center. The Wiley book site has the fantastic "ThermoNet"-website, and instructors will find digitized solutions to all text problems. The McGraw-Hill book site does not offer much neither to the student nor to the instructor. Textwise,

Cengel *is* better. Easier to read, grasp, learn, and understand. And apply ("So, the best thermo book for dummies is Cengel!"). VERY VERY nice layout, VERY attractive and fun to work with. An enjoyable reading. A bit more fun than Moran's. But as explained, all in all the better deal would be MoranShapiro5. Moran's text is the more serious one: useful as text *and* reference. Cengel's book-for-dummies is very useful for total beginners and poor learners. Well, if you *now* begin to complain that neither Cengel's nor Moran's book pleases you, then you wont find any other good intro tome ('picture book'). These two intro tomes *are* the best, there are no better on the market. Choose one of the two, or dont buy any intro text on eng thermo! If you dont like these two books because eng thermo is too hard for you, then please have a close look at Octave Levenspiel's intro text "Understanding Engineering Thermo". This might be the best to start with then. For you.BTW, both Moran's and Cengel's are rated 4 stars only because even though those two are the very best on the market (any other intro text is worse, believe me. dont lose your time with looking for another and comparing!), they are not perfect. There are few points to criticize (less for Cengel than for Moran.) but where s the point in criticizing/enumerating con's if there aint any better intro text on the market? you wouldnt have any other choice anyway: these two *are* the best, even if not perfect, they are still worth buying for those who like the subject and who really need an intro tome. Doesnt matter if you like Moran's Cengel's or not: you wont find any other intro tome to like better. So my final advise: buy one of the two (if you like it OR if you need it OR if you dont like it but need one) or buy none intro text on eng thermo at all (because all other competitors on the market are much worse)!

This is a great textbook if you want a detailed explanation for all aspects of thermodynamics; however if you just want to know the basics you will probably get tired of this text quickly. The books greatest strength is it writing style which talks too the student, not above the student, in a down to earth way. This writing style can also be a weakness. Many have complained that they have to read through pages upon pages of prose just to get at a simple concept. There is also a lot of information on "special interest topics" which the busy junior engineering student may want to skip because of time. Even though a lot of the answers are given, you may spend a lot of trying to solve problems that have the wrong answer printed in the text, which is always annoying. In my opinion, if you learn on your own, and you want to really learn a lot, you are going to spend a lot of time reading this text. This is great if you have a poor instructor. If you just need to learn the basics, then you will have to skip the text and supplement with some sort of course outline book to save time.

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