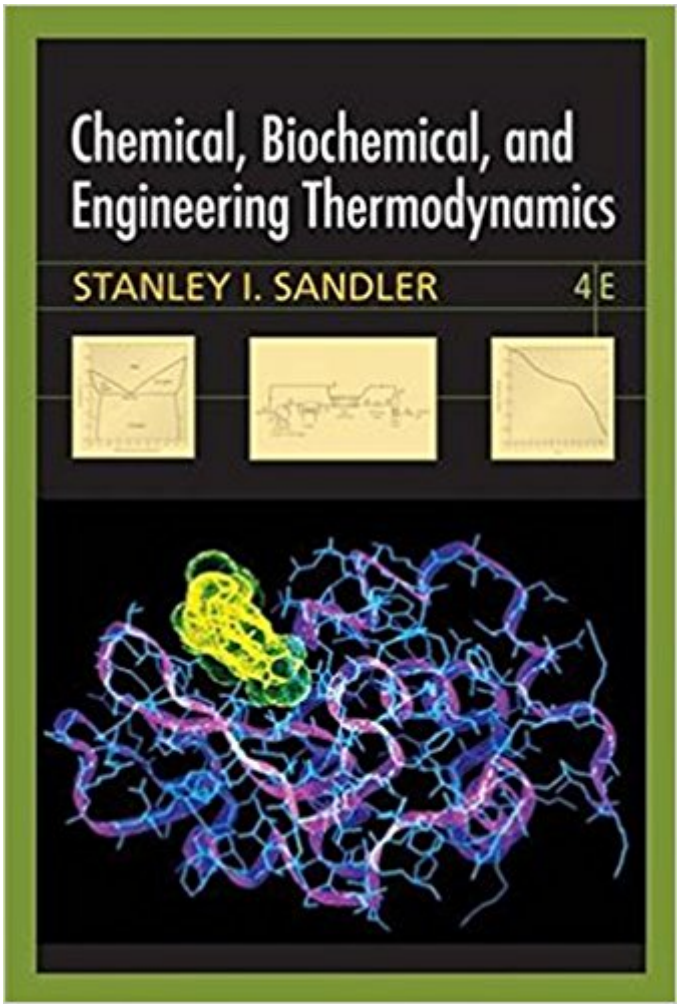
Chemical, Biochemical, And Engineering Thermodynamics



Synopsis

A modern, accessible, and applied approach to chemical thermodynamics Thermodynamics is central to the practice of chemical engineering, yet students sometimes feel that the discipline is too abstract while they are studying the subject. By providing an applied and modern approach, Stanley Sandler's Chemical, Biochemical, and Engineering Thermodynamics, Fourth Edition helps students see the value and relevance of studying thermodynamics to all areas of chemical engineering, and gives them the depth of coverage they need to develop a solid understanding of the key principles in the field. Key Features * Highlights applications of thermodynamics to subjects that chemical engineering students will see in later courses. * Realistic problems introduce students to the types of challenges they will encounter in industry and graduate research. * The Fourth Edition has been reorganized into 15 chapters, providing shorter chapters that introduce students to the subject in more bite-sized pieces. * Presents biochemical examples, particularly in Chapters 11 and 12, and in all of Chapter 15 entitled "Biochemical Applications of Thermodynamics." * Coverage of environmental and safety applications of thermodynamics provides course material useful for ABET accreditation. * Includes a brief introduction to the new field of product engineering in Chapter 12. * Instructional objectives and nomenclature lists at the beginning of each chapter provide useful study tools. * Students can solve problems using MATHCAD(r), MATLAB(r) and Visual Basic programs that accompany this textbook. * An accompanying CD features a 120-day trial version of MATHCAD, as well as MATHCAD worksheets, an extensive properties database, and Windows-friendly Visual Basic and MATLAB programs for equation of state and UNIFAC calculations. (These worksheets and programs are also available online at the book website.) * Also included on the CD are PDF files of important data figures that students can download and print for use in solving homework problems. www.wiley.com/college/sandler

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Customer Reviews

A modern, accessible, and applied approach to chemical thermodynamics Thermodynamics is central to the practice of chemical engineering, yet students sometimes feel that the discipline is too abstract while they are studying the subject. By providing an applied and modern approach, Stanley SandlerÃ¢â ¬â„¢s Chemical, Biochemical, and Engineering Thermodynamics, Fourth Edition helps students see the value and relevance of studying thermodynamics to all areas of chemical engineering, and gives them the depth of coverage they need to develop a solid understanding of the key principles in the field. Key Features Highlights applications of thermodynamics to subjects that chemical engineering students will see in later courses. Realistic problems introduce students to the types of challenges they will encounter in industry and graduate research. The Fourth Edition has been reorganized into 15 chapters, providing shorter chapters that introduce students to the subject in more bite-sized pieces. Presents biochemical examples, particularly in Chapters 11 and 12, and in all of Chapter 15 entitled Ã¢â ¬Å“Biochemical Applications of Thermodynamics.Ã¢â ¬Â• Coverage of environmental and safety applications of thermodynamics provides course material useful for ABET accreditation. Includes a brief introduction to the new field of product engineering in Chapter 12. Instructional objectives and nomenclature lists at the beginning of each chapter provide useful study tools. Students can solve problems using MATHCADÃ Â®, MATLABÃ Â® and Visual Basic programs that accompany this textbook. An accompanying CD features a 120-day trial version of MATHCAD, as well as MATHCADÃ Â worksheets,Ã Â an extensive properties database, and Windows-friendly Visual Basic and MATLAB programs for equation of state and UNIFAC calculations. (These worksheets and programs are also available online at the book website.) Also included on the CD are PDF files of important data figures that students can download and print for use in solving homework problems. www.wiley.com/college/sandler

About the author STANLEY I. SANDLER is the H. B. du Pont Professor of Chemical Engineering at the University of Delaware as well as professor of chemistry and biochemistry. He is also the founding director of its Center for Molecular and Engineering Thermodynamics. In addition to this book, Sandler is the author of 235 research papers and a monograph, and is the editor of a book on thermodynamic modeling and five conference proceedings. He earned the B.Ch.E. degree in 1962

from the City College of New York, and the Ph.D. in chemical engineering from the University of Minnesota in 1966.

absolutely terrible textbook in every single way. I have had a number of rough textbooks throughout my undergrad career as a chemistry BS major but those books do not even compare to this one!first, the notation they use is hardly used anywhere else and only serves to cause confusionsecond, it does not do example problems with actual numbers. just long winded derivations and very general problems. additionally there is no student answer manual so not only does the book not teach but without the answer manual the problems in the book cannot be treated like example problems to learn from. while i know some professors assign homework from the book and some students will just copy answers from them and get 100s on the homework, there are errors in the manual so the professor will know and the student will not actually learn and will most likely not perform well.third, the layout of the text even sucks in the fact that the lines are spaced slightly too far apart in general and without a larger space to separate steps of the derivations they do. there are just solid pages of evenly spaced text with no breaks to help you understand where one step/part of the problem ends and another begins. this may sound petty but its hard to get into and follow general problems without numbers, it just becomes a bunch of letters and the notation they use is found almost nowhere else so that doesnt help the process.

While I thoroughly enjoyed the class, I found this book to be somewhat difficult to read. The worked out example problems were definitely helpful, but I was left to many times having to take a step they did "at face value," due to a lack of explanation.As for the extra content on the CD, its almost all useless. The MATLAB scripts are outdated, and will not run unless you correct them yourself. This was not a problem for me, but others lacking Matlab experience might struggle. The graphs on the CD are useful supplements to the book, as the reproductions in the book are oftentimes small and hard to read.

This book is really complex and not helpful to learn from if you've never taken (or briefly taken) thermodynamics before. You definitely need the teacher to explain what is going on in the book (which mine doesn't so relying on the book doesn't help). The problems are mostly different from the examples in the book and definitely not straightforward at all (I would not have been able to solve some of the problems if my teacher didn't show me how to do them because some are tricky and you need to know little tricks here and there). Furthermore, if you are one of those persons that

needs to see almost every step to solving problems, this book skips quite a bit of steps and leaves you wondering how they got there. It would be a great book if you already know thermodynamics and are a graduate student. For those taking thermo (for some crazy requisite, like I need to despite the fact that I'm in environmental engineering) not a good textbook.

This book was intended for undergrads. However, I feel this book is more advanced for that unless this is at least your second thermo book. With that said, this is an excellent book on chemical engineering thermodynamics. It has many many excellent sections, and too many too list. But it is not perfect event though it is more perfect than any other graduate level text books I own. Unlike undergraduate text books, graduate text books are never perfect to me. The topics, the depth are never perfect for self study. I alway use one book as a primary source and use a couple of other ones as reference. But I find this book is exceptional and I did not purchase another book on this topic.The only complain I have about this book is its treatment on entropy. It is too terse and too quick. Entropy is critical for subsequent understanding of Gibbs free energy and so forth. But there is an easy solution. Get yourself Moran's book as a companion to bridge the gap and maybe a few other minor gaps you find here and there.As a summary, I would not buy this book if this were my first thermo book. I will highly recommend it, however, to people who already know the basics.

indian version

I like this book. Rationale:1. The mathematical rigor, the absolute only way to communicate anything in the physical sciences, is very much present. If you don't know what total differentials are, as well as simultaneous equations, function notation, differential equations, and the like, don't balk at its presence in this book. It's necessary.2. The examples (called "Illustrations" for some odd reason) are sufficient in number, and, after doing out the examples myself, key concepts I was missing sunk in, to the credit of Dr. Sandler.3. Ample Figures and Diagrams well-described.4. A very good system of equation numbering (it seems that equations simultaneous to each other, or algebraically equivalent are assigned alphabetical suffixes).5. Plenty of room in the margins to write comments (Sandler encourages this, and I do too).I could go on. I'll leave you with an algorithm to reading this book that I found helpful:HOW TO READ THIS BOOK: Use a pencil and take notes on each and every word in this book. Then, go back and recopy the Illustrations into a notebook (or into your computer using any word processor, and MathType, a very nice FREE software package obtainable upon any Google search. I know. A tangent.)...This is working really well, since, as you take notes in

the book, you get to skip over the Illustrations (and you get to feel like you're moving fast!), and when you're doing the Illustrations, you get to skip over the text (ditto). It also helps if, when Sandler references an equation in the text (example, "Eq. 6.4-25"), circle this equation reference and write its page number next to it (example, p. 217).Best Wishes!UPDATE: This book is not just a model thermodynamics textbook, it's a model for all textbooks.

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