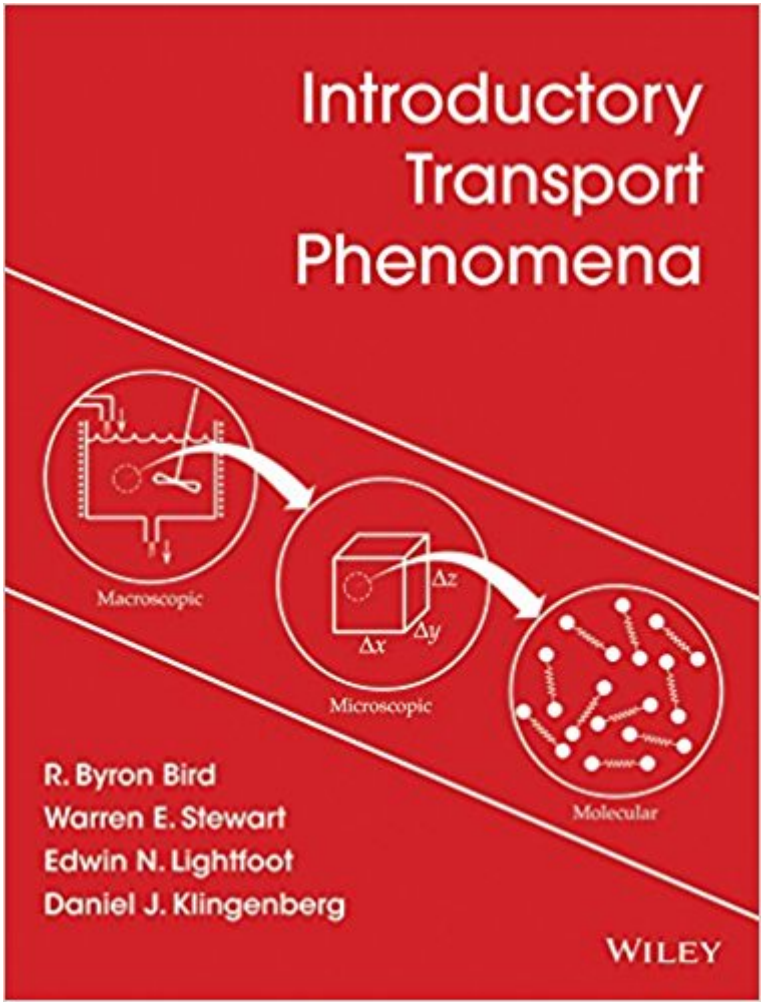
Introductory Transport Phenomena



Synopsis

Introductory Transport Phenomena by R. Byron Bird, Warren E. Stewart, Edwin N. Lightfoot, and Daniel Klingenberg is a new introductory textbook based on the classic Bird, Stewart, Lightfoot text, Transport Phenomena. The authorsÃ¢â ¬â„¢ goal in writing this book reflects topics covered in an undergraduate course. Some of the rigorous topics suitable for the advanced students have been retained. Ã Â The text covers topics such as: the transport of momentum; the transport of energy and the transport of chemical species. The organization of the material is similar to Bird/Stewart/Lightfoot, but presentation has been thoughtfully revised specifically for undergraduate students encountering these concepts for the first time. Ã Â Devoting more space to mathematical derivations and providing fuller explanations of mathematical developmentsÃ¢â ¬â •including a section of the appendix devoted to mathematical topicsÃ¢â ¬â •allows students to comprehend transport phenomena concepts at an undergraduate level.

Book Information

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Customer Reviews

"Introductory Transport Phenomena is one of the most complete books on the subject, including sections on the topics of momentum, mass and energy transport. ItÃ¢â ¬â„¢s unusual to find a book that so deeply covers all three subjects as this one."Ã¢â ¬â •May 2015 TCE Book Review, JosÃƒÂ© Carlos MagalhÃƒÂ£es Pires, postdoctoral researcher, University of Porto

I’m a third year undergraduate Biomedical Engineering student, and I used this book in a Fluid Flow

& Heat Transfer class. Without a doubt it was crucial to my performance in that class. The methodology of each chapter is straightforward, the work is clearly outlined, and concepts are explained with relative simplicity. The most important part of understanding the concepts is understanding the math, which this book excels at. Equations are numbered, and given clear context and descriptions. Example problems tie-in with the homework problems, and provide a good foundation for tackling the homework. I also recommend using the solutions manual, which I believe can be found online. At the time of this review, I am not aware of an undergraduate version of the solutions, although the problems in the graduate version are largely the same. Keep in mind that the solutions may be a little advanced for undergraduates, so don’t rely on it too much if you can help it.In total, this is the best textbook I’ve ever used in college, no question. All professors should be using this for their classes.

Exactly the same as the revised 2nd edition for the most part. Its missing a couple sections, mostly the graduate level material. Only thing new is a couple of different examples and Buckingham pi theorem couple of new sentences here and there

Perfect condition

school

Looks like brand new book

As a junior chemical engineering student in top 10 ranked program, this book is a must

This is by far my favorite textbook that I have used in my college career. The book is very clear in its explanations. I know that many people find the book hard to follow because of all the math that is contained, but this is inevitable when learning transport phenomena well. The book does well in explaining what the math means, and supposedly it walks the reader through the math more than previous versions of the book (the book used to be "Transport Phenomena" by Bird, Stewart, and Lightfoot. Then Klingenberg contributed and they changed the title).side note: I have used "Transport Phenomena" as well for a reference material, but have not looked at the mathematical explanations, but can say that Transport Phenomena also appears to be clear in the explanations that I have seen, if you are looking for a cheaper version of this book.The pros for this book are:-

The book does a great job of tying together the three broad topics of transport phenomena: momentum transport (fluid dynamics), heat transport, and mass transport. All three of these topics rely on similar equations for many problems, and can be related to each other through simple analogies; BSLK does a great job of showing this to the reader.- Each section is laid very clearly, and the authors did a good job of formatting (using italics, line spacing, etc) to guide the reader smoothly.- There are plenty of problems, all of which are unique, that can be used for homework or practice.- There are good examples to show how to approach problems.- The appendix is full of useful equations for getting started in problems (for example, the equation of continuity in different for different coordinates), defines all variables used in the book along with the variable's dimensions, and goes over solving common math problems (especially differential equations and uncommon math topics like hyperbolic functions) that come up throughout the book.- Makes for an excellent reference book that is easily maneuverable. I have have used this book many times in research projects that rely upon fluid mechanics and heat transport.Cons- The only weakness I see in this book is that empirical problems always feel out of place. The book is heavy on concepts and theory, and sprinkles in empirical charts/tables, along with back-of-the-chapter problems that use the empirical correlations. I don't think the book adequately prepares you for solving empirical problems because of how infrequently they come up. Often the student feels confused on how to begin the problem, even realize that they need to use a correlation to solve a given problem, and often don't know when a particular correlation is appropriate to use. I have experienced this personally, and observed this with students that I tutor for this class. This is a small issue though, and empirical problems are covered in more in next-semester engineering classes (at least at my university).In summary: this is a great textbook that is well designed for guiding the reader through different concepts. I would highly recommend for any student who needs this for a transport phenomena class or an instructor that would like to use it for teaching. It would not be good though for more applied instruction where correlations will be used or understanding of equipment is desired (such as how pumps work).

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