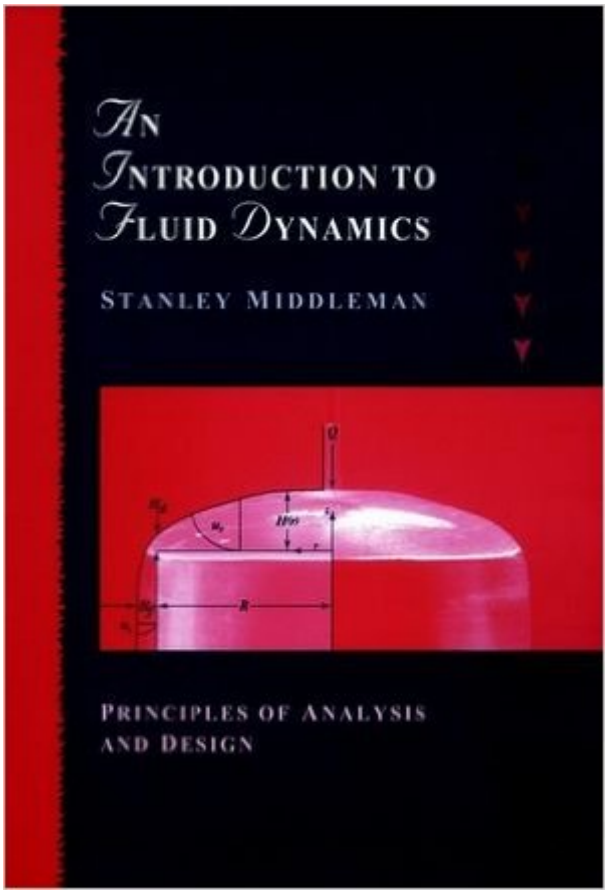
An Introduction To Fluid Dynamics: Principles Of Analysis And Design



Synopsis

This comprehensive text links abstract mathematics to engineering applications in order to provide a clear and thorough exploration of fluid dynamics. Focus is on the development of mathematical models of physical phenomena and the wide range of technologies available to students. Filled with examples and problems inspired by real engineering applications, this resource will not only teach, but motivate students to further emerge themselves in the field.

Book Information

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Customer Reviews

For a subject as complex and challenging as fluid dynamics, it’s imperative that the textbook be clear and comprehensive. It is mainly lacking in the first area. The mentality tends to be as follows:1. Here’s this complex problem.2. Let’s make these 5 assumptions, and these assumptions allow us to simplify the problem in this way. We say you are free to choose your assumptions, but really to get the answer we want there’s only one correct combination and we’re not going to tell you how we arrived at the one we did.3. Math math math. Lots of ambiguously defined notations.4. Now we have an expression that’s still to difficult to solve directly. Why don’t we make this extra assumption based on experimental data and previous experience. What, you’re a student so you don’t have data and 20 years of field experience to refer to? Well, tough luck.5. Here’s the answer. That was easy!You can begin to see how this is problematic. The book does run you through the process in a narrative sort of way, but fails to really teach the structure of the subject. It’s not a total waste of paper, but it could use a lot of work.

My Fluid Dynamics Professor is friends with this author and Dr. Professor taught the Fluid Dynamics course. Difficult book. The books skips a lot of math and explanation in the example problems and throughout the text, which make each example problem all the more difficult to wade through. Using this textbook places an unnecessary burden on fluid dynamic students.

I read this book first when preparing tutorials in fluid mechanics for 3rd-year chemical engineering students. Maybe there are other textbooks which give more detailed derivations (although I'd like to see them!), but Middleman's text is one of the extremely rare books where mathematical derivations are balanced with detailed accounts of the motivation behind it all. In fluid mechanics, it seems almost unique in this respect, and I found it a pleasure to read.

This book is terrible. I have taken 2 fluids courses before so I am not a beginner, and still this book was very difficult to understand. Very poor examples make it hard to understand the concepts being taught. Focus is more on mathematics than fluids. We all know these equations have to be derived, but let's leave that for the math classes. If your instructor is using this book, drop the course. Better to use the Munson book instead.

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