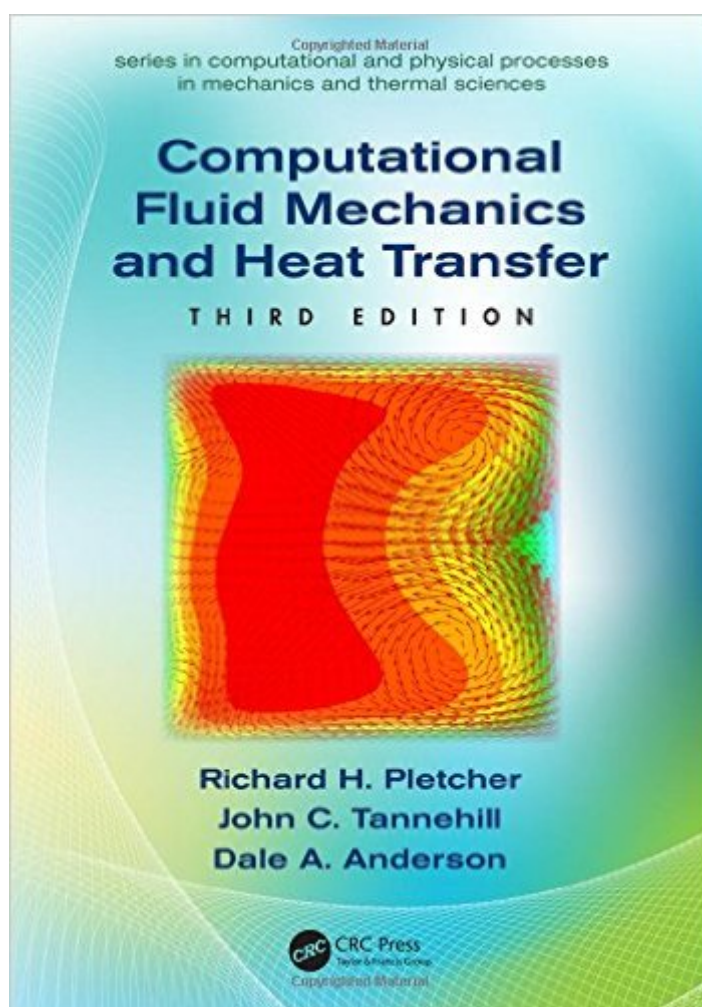


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# Computational Fluid Mechanics And Heat Transfer, Third Edition (Series In Computational And Physical Processes In Mechanics And Thermal Sciences)



## Synopsis

Thoroughly updated to include the latest developments in the field, this classic text on finite-difference and finite-volume computational methods maintains the fundamental concepts covered in the first edition. As an introductory text for advanced undergraduates and first-year graduate students, *Computational Fluid Mechanics and Heat Transfer, Third Edition* provides the background necessary for solving complex problems in fluid mechanics and heat transfer. Divided into two parts, the book first lays the groundwork for the essential concepts preceding the fluids equations in the second part. It includes expanded coverage of turbulence and large-eddy simulation (LES) and additional material included on detached-eddy simulation (DES) and direct numerical simulation (DNS). Designed as a valuable resource for practitioners and students, new homework problems have been added to further enhance the student's understanding of the fundamentals and applications.

## Book Information

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## Customer Reviews

As a researcher working with CFD codes, I found this book very useful. It has algorithms to all types of problems ranging from simple heat or wave equation to Navier-Stokes equations. All the algorithms are well explained and precise. I strongly recommend this book for anyone pursuing CFD.

I've read many CFD books, but this is the best one. It is well organized and explained from the fundamental to advanced about the numerical approaches. I recommend this book not only for the beginners but for experts. It is really worth of having this book.

The book is one of best books in Computational Fluid Mechanics And Heat Transfer area I have read. It not only covers basic knowledge but also talk a lot about advanced technique about CFD. It is very helpful for students just like me. After I bought this book by using a discount from coupons-center.com, I have used the book for one year. I also found CFD code is very helpful. If you are beginner to CFD coding or want to some free code as reference, this book has many good code examples. you can learn from the code examples and then can easily make your CFD code.

I come with a degree/background in mathematics. This book is my self-teaching, first exposure to CFD and numerical solution of PDEs. I'm studying chapters 3 and 4. I find this book useful but it's desirable that errata were posted somewhere. The book contains errors, like switching plus and minus signs. This type of errors would seem trivial to knowledgeable readers, but for someone trying to make sense of a new subject it slows progress. Another defect is how some calculations are shown. A sketchy explanation early on chapter 10 is followed by a numerical example, where it feels like numbers being thrown randomly. It would be more didactic to present numerical equations in factorized form, so as to allow the reader figure out where these numbers come from. I'll give the benefit of doubt on this point, considering that I skipped chapters 5-9. Unfortunately there are no answers to problems. Inclusion of answers would bring confidence to the learning process. Other than that, I think I'm getting value out of this book.

I learnt CFD on this book. Definitely I give it 5 star, unfortunately I can't give it 6. It covers all the CFD from the beginning to the advance level. You will use it as an undergraduate, graduate, PhD, post doctorate researcher. No kidding. There are some codes, the book contains all the information you need, it is easy to read, never criptic like many others. I suggest you to buy this book without any esitation if you are really wanting to learn and do CFD. There are more specific books on some arguments, say, turbulence, but none is more comprehensive and well written like this one.

I had to get this for a class and it seems to get the point across. One thing that I don't really like is that it doesn't really go into detail about what it is explaining and rather focuses on the math behind everything. Having the math is nice but a better explanation would do wonders.

Fairly comprehensive coverage of CFD using the finite difference approach. Do not expect treatment of the subject with theorems and proofs on stability, accuracy and convergence. Having said this, this book is meant for engineers. The book contains various simple diagrams and examples which help with understanding of concepts and numerical schemes. The text would function as a good reference for anyone wanting to implement their own CFD code. Coverage of material can be brief in some sections, but is detailed enough to be self-starting. There is also a long list of references at the end of the book if the reader desires additional details missing from the text. I think there was a comment on the typeset quality of the book from a reviewer. The book is well bounded, but there are multiple equations scattered throughout that are misprinted. Equality signs, brackets, and some symbols are replaced with boxes for example; this seems to be a document conversion error during the printing process. To point out a few, see equations: 7.9, 7.12, 8.104, 10.44. The publisher should seriously remedy this problem in future prints. Otherwise, book is 4/5 stars.

I refer to this book as my CFD bible. I first used this book approximately 19 years ago as part of a two semester course in CFD. Since that time, I have referred to this book often. The authors treatment of the subject aids in the understanding of the subject. Their building block approach tends to lead the reader from simple examples to more complex problems. Their treatment of both Euler and Navier-Stokes equations and their solution has been a great benefit in my work. Their explanations of potential theory and its use as a CFD tool have been responsible for many hours save on development and coding of computational tools to analyze aerodynamic shapes. I am so thankful for the text I currently have that I plan to pick up a second text just to have the updated material.

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