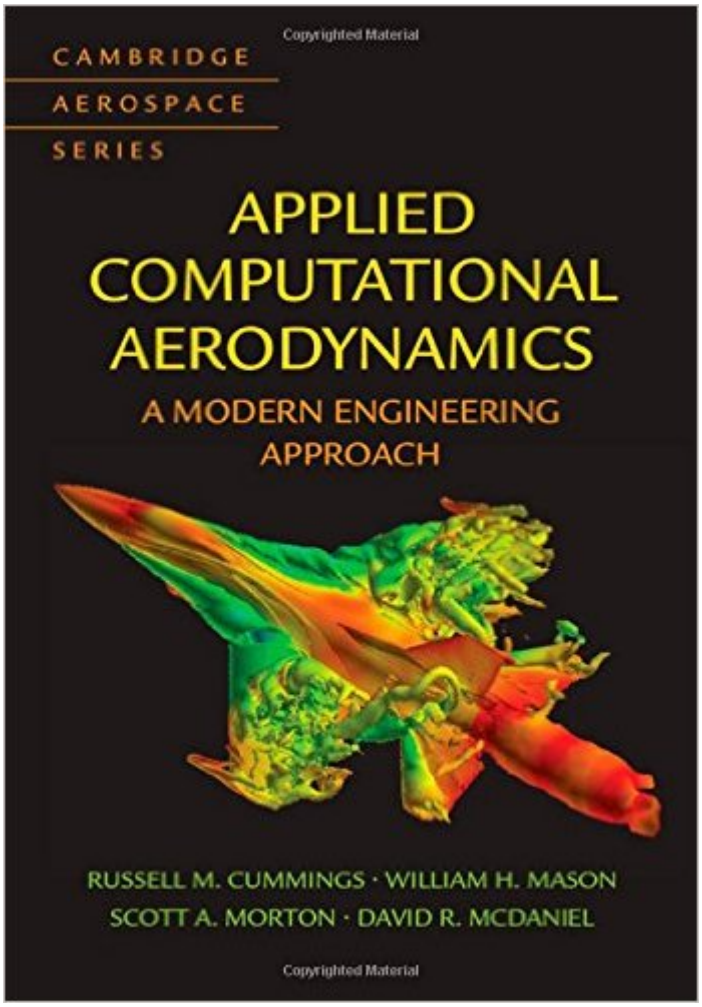
Applied Computational Aerodynamics: A Modern Engineering Approach (Cambridge Aerospace Series)



Synopsis

This computational aerodynamics textbook is written at the undergraduate level, based on years of teaching focused on developing the engineering skills required to become an intelligent user of aerodynamic codes. This is done by taking advantage of CA codes that are now available and doing projects to learn the basic numerical and aerodynamic concepts required. This book includes a number of unique features to make studying computational aerodynamics more enjoyable. These include: â ¢ The computer programs used in the book's projects are all open source and accessible to students and practicing engineers alike on the book's website, www.cambridge.org/aerodynamics. The site includes access to images, movies, programs, and more â ¢ The computational aerodynamics concepts are given relevance by CA Concept Boxes integrated into the chapters to provide realistic asides to the concepts â ¢ Readers can see fluids in motion with the Flow Visualization Boxes carefully integrated into the text.

Book Information

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Average Customer Review: 4.0 out of 5 starsÂ Â See all reviewsÂ (3 customer reviews)

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Customer Reviews

I used this as the recommended (not mandatory) text for an introductory, applied (very applied) CFD course at Cal Poly San Luis Obispo. Several students purchased it and read it avidly - we used it as a general reference for digging a little deeper into the "black box". To be clear, this is a book clearly aimed at those new-ish to CFD and is perfect for the undergraduate taking a course or two in computational aerodynamics as it covers both simpler (and older) techniques as well as what most

of us think of as industrial CFD in RANS (and some LES/DES). The descriptions of why things are the way they are are good and accessible, with an appropriate level of mathematical rigor while not being nearly as dense and off-putting as some of the more traditional CFD texts. The wealth of examples are useful for getting students thinking about what their results can look like, and the profiles of CFD researchers and developers is a nice touch that helps personalize some of the big names in CFD and CFD education, as well as showing the diversity of careers possible in CFD even if largely limited to the aerospace industry. It is obviously aimed at the aerospace industry, however a future version may benefit from expanding slightly into some related areas which are really only touched on, as the general content is actually fine for courses that might also be taught in Mechanical and Civil arenas and it wouldn't take too many additional examples to help that feel relevant for wind engineers in general.Overall I was pleased that the author team took the time to write for their intended audience and not just cram it full of the stuff that seems to be accepted as "the stuff you have to know about CFD", which is often woefully misjudged for students learning about computational aerodynamics for the first time. This is a very substantial book and as the students had already learned about aerodynamics and matlab-able potential flow/lifitng line theory, we skipped the first few chapters but it would be a nice catch-all for approximately 2 or even 3 courses in this area.I must admit we are fortunate to have plenty of software options available to us and our students, so we did not make use of some of the code/examples that are sprinkled throughout. If teaching CFD to an undergraduate population, I would highly recommend a modest investment in commercial software that is well-documented, with a user-friendly GUI, as the students will find it much easier to get started and get excited, after which they can delve further into the theory and the mechanics of it all - having them flail around feeling like a cold war hacker to solve problems is, in my experience, inauthentic of the industry we're preparing them for, and a sure-fire way to induce boredom and frustration. ANSYS or CD-Adapco, for instance, will often happily provide Formula SAE or AIAA DBF teams with licenses as sponsorship, and several other packages are competitive to the point of now costing less than a decent desktop on which to run them - for universities without established CFD infrastructure and expertise, this is probably the route to go down rather than relying on bits and pieces from the book which, while potentially useful, are probably more of a "bonus" item that would be particularly useful for the student who otherwise has little or no access to resources (which in this day and age means they are somehow sitting around with either a serious conscience or no internet connection...!).

The book gets 2 stars because it is fairly easy to read. The description is somewhat misleading with

respect to software. It advertises open source software, but a few Matlab scripts does not constitute open source software. The other software are trial versions of proprietary programs with preprogrammed examples, i.e. the reader does not have the opportunity to "play" with unique test cases.I do not recommend if you want to learn about CA

A groundbreaking work for the community of teaching and learning of CA. Look forward to tapping into the online resources.