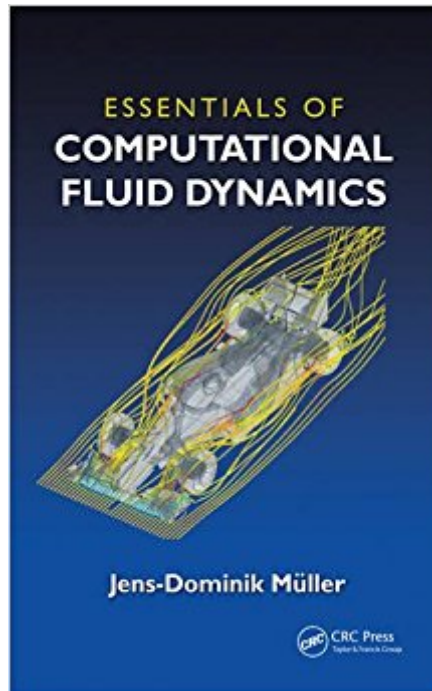




Ebook Directory
the best source of ebook

The book was found

Essentials Of Computational Fluid Dynamics



Synopsis

Covered from the vantage point of a user of a commercial flow package, *Essentials of Computational Fluid Dynamics* provides the information needed to competently operate a commercial flow solver. This book provides a physical description of fluid flow, outlines the strengths and weaknesses of computational fluid dynamics (CFD), presents the basics of the discretization of the equations, focuses on the understanding of how the flow physics interact with a typical finite-volume discretization, and highlights the approximate nature of CFD. It emphasizes how the physical concepts (mass conservation or momentum balance) are reflected in the CFD solutions while minimizing the required mathematical/numerical background. In addition, it uses cases studies in mechanical/aero and biomedical engineering, includes MATLAB and spreadsheet examples, codes and exercise questions. The book also provides practical demonstrations on core principles and key behaviors and incorporates a wide range of colorful examples of CFD simulations in various fields of engineering. In addition, this author:

- Introduces basic discretizations, the linear advection equation, and forward, backward and central differences
- Proposes a prototype discretization (first-order upwind) implemented in a spreadsheet/MATLAB example that highlights the diffusive character
- Looks at consistency, truncation error, and order of accuracy
- Analyzes the truncation error of the forward, backward, central differences using simple Taylor analysis
- Demonstrates how the of upwinding produces Artificial Viscosity (AV) and its importance for stability
- Explains how to select boundary conditions based on physical considerations
- Illustrates these concepts in a number of carefully discussed case studies

Essentials of Computational Fluid Dynamics provides a solid introduction to the basic principles of practical CFD and serves as a resource for students in mechanical or aerospace engineering taking a first CFD course as well as practicing professionals needing a brief, accessible introduction to CFD.

Book Information

Paperback: 239 pages

Publisher: CRC Press; 2015 edition (November 6, 2015)

Language: English

ISBN-10: 1482227304

ISBN-13: 978-1482227307

Product Dimensions: 6.1 x 0.5 x 9.1 inches

Shipping Weight: 12.6 ounces (View shipping rates and policies)

Average Customer Review: Be the first to review this item

Best Sellers Rank: #1,478,516 in Books (See Top 100 in Books) #416 in Books > Engineering & Transportation > Engineering > Mechanical > Hydraulics #2168 in Books > Textbooks > Engineering > Mechanical Engineering #2183 in Books > Engineering & Transportation > Engineering > Materials & Material Science

[Download to continue reading...](#)

Essentials of Computational Fluid Dynamics Computational Fluid Mechanics and Heat Transfer, Third Edition (Series in Computational and Physical Processes in Mechanics and Thermal Sciences) Computational Fluid Dynamics Computational Photochemistry, Volume 16 (Theoretical and Computational Chemistry) In Silico Medicinal Chemistry: Computational Methods to Support Drug Design (Theoretical and Computational Chemistry Series) Introduction to Mathematical Fluid Dynamics (Dover Books on Physics) Schaum's Outline of Fluid Dynamics (Schaum's) Introduction to Geophysical Fluid Dynamics Numerical Methods for Fluid Dynamics: With Applications to Geophysics (Texts in Applied Mathematics) Riemann Solvers and Numerical Methods for Fluid Dynamics: A Practical Introduction Modern Essentials Bundle - Modern Essentials *7th Edition* a Contemporary Guide to the Therapeutic Use of Essential Oils, an Intro to Modern Essentials, Reference Card, and Aroma Designs Bookmark Prepper Essentials: Prepper Essentials What Every Survivalist Needs To Know When Building The Ultimate SHTF Stockpile (Survival Handbook, DIY, Emergency ... Essentials Books, Emergency Prepared) Essentials of Computational Chemistry: Theories and Models DSP Architecture Design Essentials (Electrical Engineering Essentials) Evernote Essentials: The Basics of the Most Popular Notebook App for Beginners with pics examples:(101 evernote app, evernote, evernote essentials, evernote for beginners, evernote mastery) Packaging Essentials: 100 Design Principles for Creating Packages (Design Essentials) Essentials of Online Course Design: A Standards-Based Guide (Essentials of Online Learning) Essentials for Blended Learning: A Standards-Based Guide (Essentials of Online Learning) Essentials of Lewis's Child and Adolescent Psychiatry (Essentials Of... (Lippincott Williams & Wilkins)) Essentials of WJ IV Tests of Achievement (Essentials of Psychological Assessment)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)