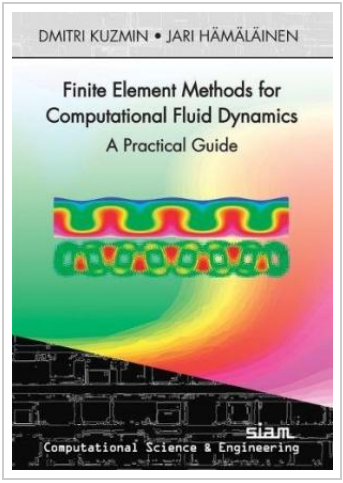

Finite Element Methods for Computational Fluid Dynamics: A Practical Guide (Paperback)

By Dmitri Kuzmin, Jari Hamalainen

Society for Industrial Applied Mathematics,U.S., United States, 2016. Paperback. Condition: New. Language: English . Brand New Book. This informal introduction to computational fluid dynamics and practical guide to numerical simulation of transport phenomena covers the derivation of the governing equations, construction of finite element approximations, and qualitative properties of numerical solutions. A comprehensive review of stabilization techniques for convection-dominated transport problems introduces the reader to streamline diffusion methods, Petrov-Galerkin approximations and Taylor-Galerkin schemes among other topics. Subsequent material includes Petrov-Galerkin stabilization, classical projection schemes, Schur complement solvers and the k-epsilon turbulence model for incompressible flow problems. Although the text is primarily aimed at advanced undergraduate and graduate students in computational engineering, it may also be useful to physicists, computational scientists, and developers of numerical simulation software. The book begins at a basic level and advances to numerical tools for increasingly difficult flow problems, with an emphasis on practical implementation, in order to be accessible to readers with diverse backgrounds and interests.

Reviews

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