1. Record Nr. UNINA9910798900903321 Autore Sharma Atul Titolo Introduction to computational fluid dynamics: development, application and analysis / / Dr. Atul Sharma Pubbl/distr/stampa West Sussex, [England]:,: Wiley,, 2017 ©2017 **ISBN** 1-119-00303-2 1-119-36918-5 1-119-00301-6 Descrizione fisica 1 online resource (416 p.) Collana Ane/Athena Books Disciplina 621.40229999999997 Computational fluid dynamics Soggetti Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Cover: Title Page: Copyright: Dedication: FOREWORD: PREFACE: Contents; Part I. INTRODUCTION AND ESSENTIALS; 1. Introduction; 1.1 CFD: What is it?; 1.1.1 CFD as a Scientic and Engineering Analysis Tool; 1.1.2 Analogy with a Video-Camera; 1.2 CFD: Why to study?; 1.3 Novelty, Scope, and Purpose of this Book; 2. Introduction to CFD: Development, Application, and Analysis; 2.1 CFD Development; 2.1.1 Grid Generation: Pre-Processor; 2.1.2 Discretization Method: Algebraic Formulation; 2.1.3 Solution Methodology: Solver; 2.1.4 Computation of Engineering-Parameters: Post-Processor; 2.1.5 Testing 2.2 CFD Application 2.3 CFD Analysis; 2.4 Closure; 3. Essentials of Fluid-Dynamics and Heat-Transfer for CFD; 3.1 Physical Laws; 3.1.1 Fundamental/Conservation Laws; 3.1.2 Subsidiary Laws; 3.2 Momentum and Energy Transport Mechanisms; 3.3 Physical Law based Differential Formulation; 3.3.1 Continuity Equation; 3.3.2 Transport Equation: 3.4 Generalized Volumetric and Flux Terms, and their Differential Formulation; 3.4.1 Volumetric Term; 3.4.2 Flux-Term; 3.4.3 Discussion; 3.5 Mathematical Formulation; 3.5.1 Dimensional Study; 3.5.2 Non-Dimensional Study: 3.6 Closure 4. Essentials of Numerical-Methods for CFD4.1 Finite Difference Method: A Differential to Algebraic Formulation for Governing PDE and

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