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Nota di contenuto	Cover; Title Page; Copyright Page; Table of Contents; Preface; About the Author; About this Book; Reading Guide; Acknowledgements; Contributions to Examples; Contributors to the Modelica Standard Library, Version 3.2.1; Contributors to the Modelica Standard Library, Versions 1.0 to 2.1; Contributors to the Modelica Language, Version 3.3 and Version 3.3 revision 1; Contributors to the Modelica Language, Version 3.2; Contributors to the Modelica Language, Version 3.0; Contributors to the Modelica Language, Version 2.0; Contributors to the Modelica Language, up to Version 1.3 Modelica Association Member Companies and Organizations 2013Funding Contributions; Part I Introduction; Chapter 1 Introduction to Modeling and Simulation; 1.1 Systems and Experiments; 1.2 The Model Concept; 1.3 Simulation; 1.4 Building Models; 1.5 Analyzing Models; 1.6 Kinds of Mathematical Models; 1.7 Using Modeling and Simulation in Product Design; 1.8 Examples of System Models; 1.9 Summary; 1.10 Literature; Chapter 2 A Quick Tour of Modelica; 2.1 Getting Started with Modelica; 2.2 Object-Oriented Mathematical Modeling; 2.3 Classes and Instances; 2.4 Inheritance; 2.5 Generic

Classes

2.6 Equations; 2.7 Acausal Physical Modeling; 2.8 The Modelica Software Component Model; 2.9 Partial Classes; 2.10 Component Library Design and Use; 2.11 Example: Electrical Component Library; 2.12 The Simple Circuit Model; 2.13 Arrays; 2.14 Algorithmic Constructs; 2.15 Discrete Event and Hybrid Modeling; 2.16 Packages; 2.17 Annotations; 2.18 Naming Conventions; 2.19 Modelica Standard Library; 2.20 Implementation and Execution of Modelica; 2.21 Tool Interoperability through Functional Mockup Interface; 2.22 History; 2.23 Summary; 2.24 Literature; 2.25 Exercises; Part II The Modelica Language Chapter 3 Classes, Types, Declarations, and Lookup; 3.1 Contract between Class Designer and User; 3.2 A Class and Instance Example; 3.3 Variables; 3.4 Behavior as Equations; 3.5 Access Control; 3.6 Simulating the Moon Landing Example; 3.7 Short Classes and Nested Classes; 3.8 Specialized Classes; 3.9 Predefined Types/Classes; 3.10 Structure of Variable Declarations; 3.11 Declaration Prefixes; 3.12 Variable Specifiers; 3.13 Initial Values of Variables; 3.14 Conditional Instance Declarations; 3.15 Declaration Order and Use before Declaration; 3.16 Introduction to Scoping and Name Lookup; 3.17 Nested Lookup Procedure in Detail; 3.18 The Concepts of Type and Subtype; 3.19 Use of Subtyping and Type Compatibility; 3.20 Summary of Type Concepts; 3.21 Summary; 3.22 Literature; 3.23 Exercises; Chapter 4 Inheritance, Modifications, and Generics; 4.1 Inheritance; 4.2 Inheritance through Modification; 4.3 Redeclaration; 4.4 Parameterized Generic Classes; 4.5 Designing a Class to Be Extended; 4.6 Adapting and Extending Libraries by class extends; 4.7 Summary; 4.8 Literature; 4.9 Exercises; Chapter 5 Components, Connectors, and Connections; 5.1 Software Component Models; 5.2 Connectors and Connector Classes

Sommario/riassunto

Fritzson covers the Modelica language in impressive depth from the basic concepts such as cyber-physical, equation-based, object-oriented, system, model, and simulation, while also incorporating over a hundred exercises and their solutions for a tutorial, easy-to-read experience.

The only book with complete Modelica 3.3 coverage
Over one hundred exercises and solutions
Examines basic concepts such as cyber-physical, equation-based, object-oriented, system, model, and simulation
