



3rd edition

Introduction to the Theory of Computation

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Features

CLEAR COVERAGE THOROUGHLY INTRODUCES THEORETICAL COMPUTING. This edition covers the foundations of theoretical computing designed around theorems and proofs. Students learn the fundamental mathematical properties of computer hardware, software and applications. The book blends both practical and theoretical aspects in an approachable and concise presentation. FORMAL AND INFORMAL DEFINITIONS AND DESCRIPTIONS INCREASE STUDENT RETENTION This edition's exceptional treatment of challenging topics incorporates both formal and informal definitions and descriptions of methods to ensure student retention and prepare readers for more advanced study. WORKED-OUT EXAMPLES ENCOURAGE READER UNDERSTANDING. In addition to a wealth of practical, class-tested exercises, this edition offers helpful worked-out examples throughout the text to guide student practice and ensure topics are conducive to students' learning. READER-FRIENDLY APPROACH MAKES EVEN THE MOST COMPLEX TOPICS APPROACHABLE FOR STUDENTS AT ALL LEVELS. Well known for its crystal-clear presentation, this book continues to offer a concise, accessible presentation to computer theory that makes even complex topics understandable for students at every level. CURRENT REVISIONS REFLECT THE LATEST INDUSTRY DEVELOPMENTS WITH NEW EXAMPLES AND EXERCISES TO ENSURE COMPREHENSION. The latest revisions throughout this edition ensure readers are studying the most current theory and practice with additional examples and updated end-of-chapter exercises. Refined presentations throughout ensure the latest accuracy and relevancy. ADDITIONAL EXERCISES, PROBLEMS AND EXAMPLES EMPHASIZE THE PRACTICAL APPLICATION OF THEORY. New classroom-tested exercises with corresponding solutions as well as additional memorable examples in specific key areas review definitions and expand on concepts to challenge and extend your students' understanding. EXPANDED MATH TOPICS OFFERS SUPPORT FOR READERS WHO NEED REVIEW. This edition offers slightly expanded coverage of important mathematical concepts in Chapter 0, which is ideal for any students struggling with the mathematical fundamentals necessary for this course. NEW COVERAGE OF DETERMINISTIC CONTEXT-FREE LANGUAGES PROVIDES UNIQUE, CLEAR AND THOROUGH EXPLANATION. A new section

in Chapter 2 (Context-Free Languages) covers deterministic context-free languages with application to the parsing problem in compilers and programming languages. This first-of-its-kind, understandable theoretical treatment explains this highly complex, but critical, topic and its applications thoroughly and clearly. Coverage includes deterministic pushdown automata, deterministic context-free grammars, and more.