

1. Record Nr.	UNINA9910337561903321
Autore	Posthoff Christian
Titolo	Logic functions and equations : binary models for computer science // Christian Posthoff, Bernd Steinbach
Pubbl/distr/stampa	Cham, Switzerland : , : Springer Nature, , [2019] 2019
ISBN	3-030-02420-2
Edizione	[2nd ed. 2019.]
Descrizione fisica	1 online resource (xvi, 508 pages) : illustrations (some color), charts
Collana	Gale eBooks
Disciplina	511.3
Soggetti	Logic, Symbolic and mathematical Machine theory Algebra, Boolean Logic design Computational complexity Computer engineering Computer science Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Theoretical Foundations -- 1. Basic Algebraic Structures -- 2. Logic Functions -- 3. Logic Equations -- 4. Boolean Differential Calculus -- 5. Sets, Lattices, and Classes of Logic Functions -- Part II Applications -- 6. Logic, Arithmetic, and Special Functions -- 7. SAT-Problems -- 8. Extremely Complex Problems -- 9. Combinational Circuits -- 10. Sequential Circuits -- References -- Index.
Sommario/riassunto	The expanded and updated 2nd edition of this classic text offers the reader a comprehensive introduction to the concepts of logic functions and equations and their applications across computer science. The approach emphasizes a thorough understanding of the fundamental principles as well as numerical and computer-based solution methods. Updated throughout, some major additions for the 2nd edition include: - an expanded introductory section on logic equations; - a new chapter on sets, lattices, and classes of logic functions; - a new chapter about

SAT-problems; - a new chapter about methods to solve extremely complex problems; and -an expanded section with new decomposition methods utilizing the Boolean Differential Calculus extended to lattices of logic functions. The book provides insight into applications across binary arithmetic, coding, complexity, logic design, programming, computer architecture, and artificial intelligence. Based on the extensive teaching experience of the authors, Logic Functions and Equations is highly recommended for a one- or two-semester course in computer science and related programs. It provides straightforward high-level access to these methods and enables sophisticated applications, elegantly bridging the gap between mathematics and the theoretical foundations of computer science.

---