

# Digital Logic Circuit Analysis And Design Solution Manual

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**Microelectronic Circuits** - Muhammad H. Rashid 2011

Digital Logic for Computing - John Seiffertt 2017-05-26

The book provides a bottom-up approach to understanding how a computer works and how to use computing to solve real-world problems. It covers the basics of digital logic through the lens of computer organization and programming. The reader should be able to design his or her own computer from the ground up at the end of the book. Logic simulation with Verilog is used throughout, assembly languages are introduced and discussed, and the fundamentals of computer architecture and embedded systems are touched upon, all in a cohesive design-driven framework suitable for class or self-study.

**Basic Engineering Circuit Analysis** - J. David Irwin 2019-01-03

Digital Electronics: A Primer - Introductory Logic Circuit Design - Mark S Nixon 2015-01-27

This practical introduction explains exactly how digital circuits are designed, from the basic circuit to the advanced system. It covers combinational logic circuits, which collect logic signals, to sequential logic circuits, which embody time and memory to progress through sequences of states. The primer also highlights digital arithmetic and the integrated circuits that implement the logic functions. Based on the author's extensive experience in teaching digital electronics to undergraduates, the book translates theory directly into practice and presents the essential information in a compact, digestible style. Worked problems and examples are accompanied by abbreviated solutions, with demonstrations to ensure that the design material and the circuits' operation are fully understood. This is essential reading for any electronic or electrical engineering student new to digital electronics and requiring a succinct yet comprehensive introduction.

*Digital Design* - M. Morris Mano 2013

For courses on digital design in an Electrical Engineering, Computer Engineering, or Computer Science department. Digital Design, fifth edition is a modern update of the classic authoritative text on digital design. This book teaches the basic concepts of digital design in a clear, accessible manner. The book presents the basic tools for the design of digital circuits and provides procedures suitable for a variety of digital applications.

**switching theory & logic design** - Rao 2006

*Fundamentals of Digital Logic and Microcomputer Design* - M. Rafiquzzaman 2005-07-08

Fundamentals of Digital Logic and Microcomputer Design, has long been hailed for its clear and simple presentation of the principles and basic tools required to design typical digital systems such as microcomputers. In this Fifth Edition, the author focuses on computer design at three levels: the device level, the logic level, and the system level. Basic topics are covered, such as number systems and Boolean algebra, combinational and sequential logic design, as well as more advanced subjects such as assembly language programming and microprocessor-based system design. Numerous examples are provided throughout the text. Coverage includes: Digital circuits at the gate and flip-flop levels Analysis and design of combinational and sequential circuits Microcomputer organization, architecture, and programming concepts Design of computer instruction sets, CPU, memory, and I/O System design features

associated with popular microprocessors from Intel and Motorola Future plans in microprocessor development An instructor's manual, available upon request Additionally, the accompanying CD-ROM, contains step-by-step procedures for installing and using Altera Quartus II software, MASM 6.11 (8086), and 68asmsim (68000), provides valuable simulation results via screen shots. Fundamentals of Digital Logic and Microcomputer Design is an essential reference that will provide you with the fundamental tools you need to design typical digital systems.

*Digital Logic and Computer Design* - M. Morris Mano 2017

This book presents the basic concepts used in the design and analysis of digital systems and introduces the principles of digital computer organization and design.

Electrical, Electronics, and Digital Hardware Essentials for Scientists and Engineers - Ed Lipiansky 2012-11-07

A practical guide for solving real-world circuit board problems Electrical, Electronics, and Digital Hardware Essentials for Scientists and Engineers arms engineers with the tools they need to test, evaluate, and solve circuit board problems. It explores a wide range of circuit analysis topics, supplementing the material with detailed circuit examples and extensive illustrations. The pros and cons of various methods of analysis, fundamental applications of electronic hardware, and issues in logic design are also thoroughly examined. The author draws on more than twenty-five years of experience in Silicon Valley to present a plethora of troubleshooting techniques readers can use in real-life situations. Plus, he devotes an entire chapter to the design of a small CPU, including all critical elements—the complete machine instruction set, from its execution path to logic implementation and timing analysis, along with power decoupling, resets, and clock considerations. Electrical, Electronics, and Digital Hardware Essentials for Scientists and Engineers covers: Resistors, inductors, and capacitors as well as a variety of analytical methods The elements of magnetism—an often overlooked topic in similar books Time domain and frequency analyses of circuit behavior Numerous electronics, from operational amplifiers to MOSFET transistors Both basic and advanced logic design principles and techniques This remarkable, highly practical book is a must-have resource for solid state circuit engineers, semiconductor designers and engineers, electric circuit testing engineers, and anyone dealing with everyday circuit analysis problems. A solutions manual is available to instructors. Please email [ahref="mailto:ieeeproposals@wiley.com"ieeeproposals@wiley.com/a](mailto:ieeeproposals@wiley.com) to request the solutions manual. An errata sheet is available.

*Digital Logic Circuit Analysis and Design* - Victor Peter Nelson 1995

A text developed from a previous work, An Introduction to Computer Logic (1974) by Nagle, Carroll, and Irwin, which was a widely adopted text on the fundamentals of combinational and sequential logic circuit analysis and synthesis. The present text retains its predecessor's strong coverage of fundamental theory. To address practical design issues, over half of the text is new material that reflects the many changes which have occurred in recent years, including modular design, CAD methods, and the use of programmable logic, as well as such practical issues as device timing characteristics and standard logic symbols. Annotation copyright by Book News, Inc., Portland, OR

**CMOS Digital Integrated Circuits** - Sung-Mo Kang 2002

The fourth edition of CMOS Digital Integrated Circuits: Analysis and Design continues the well-established



employing more complex technology. It is therefore essential for engineers and students to understand the fundamentals, implementation and application principles of digital electronics, devices and integrated circuits. This is so that they can use the most appropriate and effective technique to suit their technical need. This book provides practical and comprehensive coverage of digital electronics, bringing together information on fundamental theory, operational aspects and potential applications. With worked problems, examples, and review questions for each chapter, Digital Electronics includes: information on number systems, binary codes, digital arithmetic, logic gates and families, and Boolean algebra; an in-depth look at multiplexers, de-multiplexers, devices for arithmetic operations, flip-flops and related devices, counters and registers, and data conversion circuits; up-to-date coverage of recent application fields, such as programmable logic devices, microprocessors, microcontrollers, digital troubleshooting and digital instrumentation. A comprehensive, must-read book on digital electronics for senior undergraduate and graduate students of electrical, electronics and computer engineering, and a valuable reference book for professionals and researchers.

Introduction to Logic Circuits & Logic Design with Verilog - Brock J. LaMeres 2017-04-17

This textbook for courses in Digital Systems Design introduces students to the fundamental hardware used in modern computers. Coverage includes both the classical approach to digital system design (i.e., pen and paper) in addition to the modern hardware description language (HDL) design approach (computer-based). Using this textbook enables readers to design digital systems using the modern HDL approach, but they have a broad foundation of knowledge of the underlying hardware and theory of their designs. This book is designed to match the way the material is actually taught in the classroom. Topics are presented in a manner which builds foundational knowledge before moving onto advanced topics. The author has designed the presentation with learning Goals and assessment at its core. Each section addresses a specific learning outcome that the student should be able to "do" after its completion. The concept checks and exercise problems provide a rich set of assessment tools to measure student performance on each outcome.

**Microelectronic Circuit Design** - Richard C. Jaeger 1997

"Microelectronic Circuit Design" is known for being a technically excellent text. The new edition has been revised to make the material more motivating and accessible to students while retaining a student-friendly approach. Jaeger has added more pedagogy and an emphasis on design through the use of design examples and design notes. Some pedagogical elements include chapter opening vignettes, chapter objectives, "Electronics in Action" boxes, a problem solving methodology, and "design note" boxes. The number of examples, including new design examples, has been increased, giving students more opportunity to see problems worked out. Additionally, some of the less fundamental mathematical material has been moved to the ARIS website. In addition this edition comes with a Homework Management System called ARIS, which includes 450 static problems.

Digital Electronics and Design with VHDL - Volnei A. Pedroni 2008-01-25

Digital Electronics and Design with VHDL offers a friendly presentation of the fundamental principles and practices of modern digital design. Unlike any other book in this field, transistor-level implementations are also included, which allow the readers to gain a solid understanding of a circuit's real potential and limitations, and to develop a realistic perspective on the practical design of actual integrated circuits. Coverage includes the largest selection available of digital circuits in all categories (combinational, sequential, logical, or arithmetic); and detailed digital design techniques, with a thorough discussion on state-machine modeling for the analysis and design of complex sequential systems. Key technologies used in modern circuits are also described, including Bipolar, MOS, ROM/RAM, and CPLD/FPGA chips, as well as codes and techniques used in data storage and transmission. Designs are illustrated by means of complete, realistic applications using VHDL, where the complete code, comments, and simulation results are included. This text is ideal for courses in Digital Design, Digital Logic, Digital Electronics, VLSI, and VHDL; and industry practitioners in digital electronics. Comprehensive coverage of fundamental digital concepts and principles, as well as complete, realistic, industry-standard designs. Many circuits shown with internal details at the transistor-level, as in real integrated circuits. Actual technologies used in state-of-the-art digital circuits presented in conjunction with fundamental concepts and principles. Six chapters dedicated to VHDL-based techniques, with all VHDL-based designs synthesized onto CPLD/FPGA chips.

**Pulse and Digital Circuits** - Rao K Venkata 2010

Pulse and Digital Circuits is designed to cater to the needs of undergraduate students of electronics and communication engineering. Written in a lucid, student-friendly style, it covers key topics in the area of pulse and digital circuits. This is an introductory text that discusses the basic concepts involved in the design, operation and analysis of waveshaping circuits. The book includes a preliminary chapter that reviews the concepts needed to understand the subject matter. Each concept in the book is accompanied by self-explanatory circuit diagrams. Interspersed with numerous solved problems, the text presents detailed analysis of key concepts. Multivibrators and sweep generators are covered in great detail in the book.

**An Introduction to Logic Circuit Testing** - Parag K. Lala 2009

An Introduction to Logic Circuit Testing provides a detailed coverage of techniques for test generation and testable design of digital electronic circuits/systems. The material covered in the book should be sufficient for a course, or part of a course, in digital circuit testing for senior-level undergraduate and first-year graduate students in Electrical Engineering and Computer Science. The book will also be a valuable resource for engineers working in the industry. This book has four chapters. Chapter 1 deals with various types of faults that may occur in very large scale integration (VLSI)-based digital circuits. Chapter 2 introduces the major concepts of all test generation techniques such as redundancy, fault coverage, sensitization, and backtracking. Chapter 3 introduces the key concepts of testability, followed by some ad hoc design-for-testability rules that can be used to enhance testability of combinational circuits. Chapter 4 deals with test generation and response evaluation techniques used in BIST (built-in self-test) schemes for VLSI chips. Table of Contents: Introduction / Fault Detection in Logic Circuits / Design for Testability / Built-in Self-Test / References

**Digital Logic Design** - Brian Holdsworth 2002-11-01

New, updated and expanded topics in the fourth edition include: EBCDIC, Grey code, practical applications of flip-flops, linear and shaft encoders, memory elements and FPGAs. The section on fault-finding has been expanded. A new chapter is dedicated to the interface between digital components and analog voltages. \*A highly accessible, comprehensive and fully up to date digital systems text \*A well known and respected text now revamped for current courses \*Part of the Newnes suite of texts for HND/1st year modules

*Op Amps for Everyone* - Ron Mancini 2003

The operational amplifier ("op amp") is the most versatile and widely used type of analog IC, used in audio and voltage amplifiers, signal conditioners, signal converters, oscillators, and analog computing systems. Almost every electronic device uses at least one op amp. This book is Texas Instruments' complete professional-level tutorial and reference to operational amplifier theory and applications. Among the topics covered are basic op amp physics (including reviews of current and voltage division, Thevenin's theorem, and transistor models), idealized op amp operation and configuration, feedback theory and methods, single and dual supply operation, understanding op amp parameters, minimizing noise in op amp circuits, and practical applications such as instrumentation amplifiers, signal conditioning, oscillators, active filters, load and level conversions, and analog computing. There is also extensive coverage of circuit construction techniques, including circuit board design, grounding, input and output isolation, using decoupling capacitors, and frequency characteristics of passive components. The material in this book is applicable to all op amp ICs from all manufacturers, not just TI. Unlike textbook treatments of op amp theory that tend to focus on idealized op amp models and configuration, this title uses idealized models only when necessary to explain op amp theory. The bulk of this book is on real-world op amps and their applications; considerations such as thermal effects, circuit noise, circuit buffering, selection of appropriate op amps for a given application, and unexpected effects in passive components are all discussed in detail. \*Published in conjunction with Texas Instruments \*A single volume, professional-level guide to op amp theory and applications \*Covers circuit board layout techniques for manufacturing op amp circuits.

*CMOS Logic Circuit Design* - John P. Uyemura 2007-05-08

This is an up-to-date treatment of the analysis and design of CMOS integrated digital logic circuits. The self-contained book covers all of the important digital circuit design styles found in modern CMOS chips, emphasizing solving design problems using the various logic styles available in CMOS.

**System Engineering Analysis, Design, and Development** - Charles S. Wasson 2015-11-16

Praise for the first edition: "This excellent text will be useful to every system engineer (SE) regardless of the domain. It covers ALL relevant SE material and does so in a very clear, methodical fashion. The breadth and depth of the author's presentation of SE principles and practices is outstanding." -Philip Allen This textbook presents a comprehensive, step-by-step guide to System Engineering analysis, design, and development via an integrated set of concepts, principles, practices, and methodologies. The methods presented in this text apply to any type of human system -- small, medium, and large organizational systems and system development projects delivering engineered systems or services across multiple business sectors such as medical, transportation, financial, educational, governmental, aerospace and defense, utilities, political, and charity, among others. Provides a common focal point for "bridging the gap" between and unifying System Users, System Acquirers, multi-discipline System Engineering, and Project, Functional, and Executive Management education, knowledge, and decision-making for developing systems, products, or services Each chapter provides definitions of key terms, guiding principles, examples, author's notes, real-world examples, and exercises, which highlight and reinforce key SE & D concepts and practices Addresses concepts employed in Model-Based Systems Engineering (MBSE), Model-Driven Design (MDD), Unified Modeling Language (UMLTM) / Systems Modeling Language (SysMLTM), and Agile/Spiral/V-Model Development such as user needs, stories, and use cases analysis; specification development; system architecture development; User-Centric System Design (UCSD); interface definition & control; system integration & test; and Verification & Validation (V&V) Highlights/introduces a new 21st Century Systems Engineering & Development (SE&D) paradigm that is easy to understand and implement. Provides practices that are critical staging points for technical decision making such as Technical Strategy Development; Life Cycle requirements; Phases, Modes, & States; SE Process; Requirements Derivation; System Architecture Development, User-Centric System Design (UCSD); Engineering Standards, Coordinate Systems, and Conventions; et al. Thoroughly illustrated, with end-of-chapter exercises and numerous case studies and examples, Systems Engineering Analysis, Design, and Development, Second Edition is a primary textbook for multi-discipline, engineering, system analysis, and project management undergraduate/graduate level students and a valuable reference for professionals.

Introduction to Logic Circuits & Logic Design with Verilog - Brock J. LaMeres 2019-04-10

This textbook for courses in Digital Systems Design introduces students to the fundamental hardware used in modern computers. Coverage includes both the classical approach to digital system design (i.e., pen and paper) in addition to the modern hardware description language (HDL) design approach (computer-based). Using this textbook enables readers to design digital systems using the modern HDL approach, but they have a broad foundation of knowledge of the underlying hardware and theory of their designs. This book is designed to match the way the material is actually taught in the classroom. Topics are presented in a manner which builds foundational knowledge before moving onto advanced topics. The author has designed the presentation with learning goals and assessment at its core. Each section addresses a specific learning outcome that the student should be able to "do" after its completion. The concept checks and exercise problems provide a rich set of assessment tools to measure student performance on each outcome.

**Digital Electronics 2** - Tertulien Ndjountche 2016-08-29

As electronic devices become increasingly prevalent in everyday life, digital circuits are becoming even more complex and smaller in size. This book presents the basic principles of digital electronics in an accessible manner, allowing the reader to grasp the principles of combinational and sequential logic and the underlying techniques for the analysis and design of digital circuits. Providing a hands-on approach, this work introduces techniques and methods for establishing logic equations and designing and analyzing digital circuits. Each chapter is supplemented with practical examples and well-designed exercises with worked solutions. This second of three volumes focuses on sequential and arithmetic logic circuits. It covers various aspects related to the following topics: latch and flip-flop; binary counters; shift registers; arithmetic and logic circuits; digital integrated circuit technology; semiconductor memory; programmable logic circuits. Along with the two accompanying volumes, this book is an indispensable tool for students at a bachelors or masters level seeking to improve their understanding of digital electronics, and is detailed enough to serve as a reference for electronic, automation and computer engineers.

*Foundations of Analog and Digital Electronic Circuits* - Anant Agarwal 2005-07-01

Unlike books currently on the market, this book attempts to satisfy two goals: combine circuits and electronics into a single, unified treatment, and establish a strong connection with the contemporary world of digital systems. It will introduce a new way of looking not only at the treatment of circuits, but also at the treatment of introductory coursework in engineering in general. Using the concept of "abstraction," the book attempts to form a bridge between the world of physics and the world of large computer systems. In particular, it attempts to unify electrical engineering and computer science as the art of creating and exploiting successive abstractions to manage the complexity of building useful electrical systems. Computer systems are simply one type of electrical systems. +Balances circuits theory with practical digital electronics applications. +Illustrates concepts with real devices. +Supports the popular circuits and electronics course on the MIT OpenCourseWare from which professionals worldwide study this new approach. +Written by two educators well known for their innovative teaching and research and their collaboration with industry. +Focuses on contemporary MOS technology.

**Engineering Digital Design** - Richard F. Tinder 2000-01-18

Engineering Digital Design, Second Edition provides the most extensive coverage of any available textbook in digital logic and design. The new REVISED Second Edition published in September of 2002 provides 5 productivity tools free on the accompanying CD ROM. This software is also included on the Instructor's Manual CD ROM and complete instructions accompany each software program. In the REVISED Second Edition modern notation combines with state-of-the-art treatment of the most important subjects in digital design to provide the student with the background needed to enter industry or graduate study at a competitive level. Combinatorial logic design and synchronous and asynchronous sequential machine design methods are given equal weight, and new ideas and design approaches are explored. The productivity tools provided on the accompanying CD are outlined below: [1] EXL-Sim2002 logic simulator: EXL-Sim2002 is a full-featured, interactive, schematic-capture and simulation program that is ideally suited for use with the text at either the entry or advanced-level of logic design. Its many features include drag-and-drop capability, rubber banding, mixed logic and positive logic simulations, macro generation, individual and global (or randomized) delay assignments, connection features that eliminate the need for wire connections, schematic page sizing and zooming, waveform zooming and scrolling, a variety of printout capabilities, and a host of other useful features. [2] BOOZER logic minimizer: BOOZER is a software minimization tool that is recommended for use with the text. It accepts entered variable (EV) or canonical (1's and 0's) data from K-maps or truth tables, with or without don't cares, and returns an optimal or near optimal single or multi-output solution. It can handle up to 12 functions Boolean functions and as many inputs when used on modern computers. [3] ESPRESSO II logic minimizer: ESPRESSO II is another software minimization tool widely used in schools and industry. It supports advanced heuristic algorithms for minimization of two-level, multi-output Boolean functions but does not accept entered variables. It is also readily available from the University of California, Berkeley, 1986 VLSI Tools Distribution. [4] ADAM design software: ADAM (for Automated Design of Asynchronous Machines) is a very powerful productivity tool that permits the automated design of very complex asynchronous state machines, all free of timing defects. The input files are state tables for the desired state machines. The output files are given in the Berkeley format appropriate for directly programming PLAs. ADAM also allows the designer to design synchronous state machines, timing-defect-free. The options include the lumped path delay (LPD) model or NESTED CELL model for asynchronous FSM designs, and the use of D FLIP-FLOPs for synchronous FSM designs. The background for the use of ADAM is covered in Chapters 11, 14 and 16 of the REVISED 2nd Edition. [5] A-OPS design software: A-OPS (for Asynchronous One-hot Programmable Sequencers) is another very powerful productivity tool that permits the design of asynchronous and synchronous state machines by using a programmable sequencer kernel. This software generates a PLA or PAL output file (in Berkeley format) or the VHDL code for the automated timing-defect-free designs of the following: (a) Any 1-Hot programmable sequencer up to 10 states. (b) The 1-Hot design of multiple asynchronous or synchronous state machines driven by either PLDs or RAM. The input file is that of a state table for the desired state machine. This software can be used to design systems with the capability of instantly switching between several radically different controllers on a time-shared basis. The background for the use of A-OPS is covered in Chapters 13, 14 and 16 of the REVISED 2nd Edition.

**CMOS** - R. Jacob Baker 2008

This edition provides an important contemporary view of a wide range of analog/digital circuit blocks, the BSIM model, data converter architectures, and more. The authors develop design techniques for both long- and short-channel CMOS technologies and then compare the two.

**Digital Logic and Microprocessor Design with VHDL** - Enoch O. Hwang 2006

This book will teach students how to design digital logic circuits, specifically combinational and sequential circuits. Students will learn how to put these two types of circuits together to form dedicated and general-purpose microprocessors. This book is unique in that it combines the use of logic principles and the building of individual components to create data paths and control units, and finally the building of real dedicated custom microprocessors and general-purpose microprocessors. After understanding the material in the book, students will be able to design simple microprocessors and implement them in real hardware.

Analog Circuit Theory and Filter Design in the Digital World - George S. Moschytz 2019-04-15

This textbook is designed for graduate-level courses, and for self-study, in analog and sampled-data, including switched-capacitor, circuit theory and design for ongoing, or active electrical engineers, needing to become proficient in analog circuit design on a system, rather than on a device, level. After decades of experience in industry and teaching this material in academic settings, the author has extracted many of the most important and useful features of analog circuit theory and design and presented them in a manner that is easy to digest and utilize. The methodology and analysis techniques presented can be applied to areas well beyond those specifically addressed in this book. This book is meant to enable readers to gain a 'general knowledge' of one aspect of analog engineering (e.g., that of network theory, filter design, system theory and sampled-data signal processing). The presentation is self-contained and should be accessible to anyone with a first degree in electrical engineering.

*Introduction to Circuit Analysis and Design* - Tildon H. Glisson 2011-02-18

Introduction to Circuit Analysis and Design takes the view that circuits have inputs and outputs, and that relations between inputs and outputs and the terminal characteristics of circuits at input and output ports are all-important in analysis and design. Two-port models, input resistance, output impedance, gain, loading effects, and frequency response are treated in more depth than is traditional. Due attention to these topics is essential preparation for design, provides useful preparation for subsequent courses in electronic devices and circuits, and eases the transition from circuits to systems.

*Digital Circuit Analysis and Design with Simulink Modeling and Introduction to CPLDs and FPGAs* - Steven T. Karris 2007

This text includes the following chapters and appendices: Common Number Systems and Conversions Operations in Binary, Octal, and Hexadecimal Systems Sign Magnitude and Floating Point Arithmetic Binary Codes Fundamentals of Boolean Algebra Minterms and Maxterms Combinational Logic Circuits Sequential Logic Circuits Memory Devices Advanced Arithmetic and Logic Operations Introduction to Field Programmable Devices Introduction to the ABEL Hardware Description Language Introduction to VHDL Introduction to Verilog Introduction to Boundary-Scan Architecture. Each chapter contains numerous practical applications. This is a design-oriented text.

**Digital Principles and Logic Design** - Arijit Saha 2009-01-28

This text and reference provides students and practicing engineers with an introduction to the classical methods of designing electrical circuits, but incorporates modern logic design techniques used in the latest microprocessors, microcontrollers, microcomputers, and various LSI components. The book provides a review of the classical methods e.g., the basic concepts of Boolean algebra, combinational logic and sequential logic procedures, before engaging in the practical design approach and the use of computer-aided tools. The book is enriched with numerous examples (and their solutions), over 500 illustrations, and includes a CD-ROM with simulations, additional figures, and third party software to illustrate the concepts discussed in the book.

*Digital Electronics 1* - Tertulien Ndjountche 2016-06-17

The omnipresence of electronic devices in our everyday lives has been accompanied by the downscaling of chip feature sizes and the ever increasing complexity of digital circuits. This book is devoted to the analysis and design of digital circuits, where the signal can assume only two possible logic levels. It deals with the basic principles and concepts of digital electronics. It addresses all aspects of combinational logic and provides a detailed understanding of logic gates that are the basic components in the implementation of circuits used to perform functions and operations of Boolean algebra. Combinational logic circuits are characterized by outputs that depend only on the actual input values. Efficient techniques to derive logic equations are proposed together with methods of analysis and synthesis of combinational logic circuits. Each chapter is well structured and is supplemented by a selection of solved exercises covering logic design practices.