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Digital Logic & Computer Design *Digital Logic and Computer Design* **Digital Logic Techniques, 3rd Edition** **Digital Electronics: A Primer - Introductory Logic Circuit Design** **Digital Logic and Computer Operations** *Foundations of Digital Logic Design* *Introduction to Digital Electronics* **Fundamentals of Digital Logic and Microcomputer Design** **Digital Logic for Computing** *Digital Logic Circuits using VHDL* **Digital Logic Design and Computer Organization with Computer Architecture for Security** **DIGITAL LOGIC DESIGN** **Digital Logic Circuit Analysis and Design** **Digital Logic Design and Computer Organization with Computer Architecture for Security** *Digital Logic Design* *Digital Logic Techniques* **Digital Logic and Microprocessor Design with Interfacing** **DIGITAL LOGIC AND COMPUTER ORGANIZATION** *Digital Electronics* *Fundamentals of Power Electronics* *Baby Steps: Intro to Computer Engineering* *Computer Logic* **DIGITAL LOGIC DESIGN** **Digital Logic Design Principles** **Digital Design and Computer Architecture** *Essential Logic for Computer Science* **Principles of Digital Electronics** **Digital Electronics with Arduino** **Fundamentals of Digital Logic with Verilog Design** *Digital Logic Techniques, 3rd Edition* **Digital Logic Design** *Computer, Network, Software, and Hardware Engineering with Applications* **Digital Principles and Logic Design** *Digital Logic for Computing* *Boolean Algebra and Its Applications* *Fundamentals of Digital Logic and Microcontrollers* **Introduction to Digital Logic & Boolean Algebra: A Comprehensive Guide to Binary Operations, Logic Gates, Logical Expression Analysis and Number Repre** *Foundation of Digital Electronics and Logic Design* *Digital Design and Computer Organisation* *Digital Logic Techniques, 3rd Edition*

Foundations of Digital Logic Design May 30 2022 This text is intended for a first course in digital logic design, at the sophomore or junior level, for electrical engineering, computer engineering and computer science programs, as well as for a number of other disciplines such as physics and mathematics. The book can also be used for self-study or for review by practicing engineers and computer scientists not intimately familiar with the subject. After completing this text, the student should be prepared for a second (advanced) course in digital design, switching and automata theory, microprocessors or computer organization.

Digital Electronics with Arduino Jul 08 2020 A great way for technicians to learn about digital techniques and computers DESCRIPTION As computer technology has evolved, there have been two groups of people: the hardware group that understands the machine, and the software group that codes in high-level programming languages. This book puts the two together by providing an understanding of the nuts and bolts of digital devices and implementing hardware operations by coding a microController. We use the Arduino microController, which is embraced by the world-wide maker community of well over 300,000 people of all ages and technical backgrounds. The projects start at ground level and scaffold upward to fun challenges. We begin with a background on digital circuitry and cover the operation of the Arduino microController. From there, we examine digital logic gates, which are the building blocks of computer hardware, and see how they make decisions. Next, we explore how digital devices work with numbers and do arithmetic along with how they count binary numbers. We also see how data moves between points in serial or parallel form as we build and test the circuitry to do the work. The topic of random number generation is explained, and we design a few simple computer games to see how this all works and have some fun. The book leads up to the reader producing a final capstone project. The format of the book is perfect for a digital electronics high school or college course, but easy enough to follow so that anyone with a basic background in DC circuits will have an enjoyable time with the many projects. KEY FEATURES 1. Work with (gates) the building blocks of computers 2. Discover logic circuits that can make decisions 3. See how computers work with ones and zeros 4. Understand how computers count and keep track of numbers 5. Build and test memory circuits 6. Implement hardware using code 7. Have fun while learning about the Arduino WHAT WILL YOU LEARN You will learn that there is nothing mysterious about the digital devices that make up a computer, or the code that programs a computer to function. We cover the basic hardware as it is constructed into functional sections of a modern computer. You will learn about gates, flip-flops, registers, counters, and data I/O. WHO THIS BOOK IS FOR Anyone with a background in electricity and electronics with the knowledge of constructing circuits on a breadboard should have no problem using this book. It is designed for people with inquisitive minds in the hope that both the hardware projects and code samples are modified by the reader to gain additional information. TABLE OF CONTENTS 1. A Bit about Arduino. 2. Digital Function Implementation. 3. Designing Functional Computer Circuits. 4. Memory Devices. 5. Registers and Numbers. 6. Counters. 7. Multiplexing and demultiplexing. 8. Addresses, specialized counters, and serial monitor interaction. 9. Random Numbers 10. Interactive I/O 11. Capstone project

Digital Logic Techniques, 3rd Edition Jun 26 2019 The third edition of Digital Logic Techniques provides a clear and comprehensive treatment of the representation of data, operations on data, combinational logic design, sequential logic, computer architecture, and practical digital circuits. A wealth of exercises and worked examples in each chapter give students valuable experience in applying the concepts and techniques discussed. Beginning with an objective comparison between analogue and digital representation of data, the author presents the Boolean algebra framework for digital electronics, develops combinational logic design from first principles, and presents cellular logic as an alternative structure more relevant than canonical forms to VLSI implementation. He then addresses sequential logic design and develops a strategy for designing finite state machines, giving students a solid foundation for more advanced studies in automata theory. The second half of the book focuses on the digital system as an entity. Here the author examines the implementation of logic systems in programmable hardware, outlines the specification of a system, explores arithmetic processors, and elucidates fault diagnosis. The final chapter examines the electrical properties of logic components, compares the different logic families, and highlights the problems that can arise in constructing practical hardware systems.

Digital Principles and Logic Design Feb 01 2020 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.

Principles of Digital Electronics Aug 09 2020 This book teaches the basic principles of digital circuits. It is appropriate for an introductory course in digital electronics for the students of: • B.Sc. (Computer Science) • B.Sc. (Electronics) • B.Sc. (Information Technology) • B.Sc. (Physics) • Bachelor of Computer Applications (BCA) • Postgraduate Diploma in Computer Applications • Master of Computer Applications (MCA) The book emphasizes the must know concepts that should be covered in an introductory course and provides an abundance of clearly explained examples, so essential for a thorough understanding of the principles involved in the analysis and design of digital computers. The book takes students step-by-step through digital theory, focusing on: » Number representation systems and codes for representing

information in digital systems » Use of logic gates in building digital circuits » Basic postulates and theorems of Boolean algebra » Karnaugh map method for simplifying Boolean functions » Arithmetic circuits such as adders and subtractors » Combinational circuit building blocks such as multiplexers, decoders and encoders » Sequential circuit building blocks such as flip-flops, counters and registers » Operation of memory elements such as RAM, DRAM, magnetic disk, magnetic bubble, optical disk, etc. 1. Number Systems and Codes 2. Logic Gates and Circuits 3. Boolean Algebra 4. Combinational Logic Circuits 5. Sequential Logic Circuits 6. Counters and Shift Registers 7. MEMORY ELEMENTS

Digital Logic and Microprocessor Design with Interfacing Jun 18 2021

Introduction to Digital Logic & Boolean Algebra: A Comprehensive Guide to Binary Operations, Logic Gates, Logical Expression Analysis and Number Repre Sep 29 2019 Digital technology has become ubiquitous in our modern society, to the extent that we risk of being left behind and becoming cut-off if we do not adopt it! This KES aims to show why digital technology is becoming so appealing, what digital data are, what operations can be performed on them, and how digital logic theory can be used to systematically formulate solutions to several practical problems. As we become immersed in the 0's and 1's of a digital world, knowing the differences between the way our smart digital companions work and how we humans interpret information is of high relevance today, irrespective of the wake of life we find ourselves in with respect to digital technology. Customers are increasingly asked to understand digital terms like bits, bytes, GB, GHz and TB when selecting their next laptop or smartphone, and for anyone aspiring to get into this rapidly evolving environment as a professional, the basics and principles are a must. The underlying digital principles are also found to be a useful asset for learning computer programming, as it enables to understand the machine level operations of the computer, and hence equips one to understand unexpected behaviors of a piece of code and in troubleshooting bugs.

Digital Logic Design Aug 21 2021 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

Digital Logic Design and Computer Organization with Computer Architecture for Security Dec 25 2021 A COMPREHENSIVE GUIDE TO THE DESIGN & ORGANIZATION OF MODERN COMPUTING SYSTEMS Digital Logic Design and Computer Organization with Computer Architecture for Security provides practicing engineers and students with a clear understanding of computer hardware technologies. The fundamentals of digital logic design as well as the use of the Verilog hardware description language are discussed. The book covers computer organization and architecture, modern design concepts, and computer security through hardware. Techniques for designing both small and large combinational and sequential circuits are thoroughly explained. This detailed reference addresses memory technologies, CPU design and techniques to increase performance, microcomputer architecture, including "plug and play" device interface, and memory hierarchy. A chapter on security engineering methodology as it applies to computer architecture concludes the book. Sample problems, design examples, and detailed diagrams are provided throughout this practical resource. COVERAGE INCLUDES: Combinational circuits: small designs Combinational circuits: large designs Sequential circuits: core modules Sequential circuits: small designs Sequential circuits: large designs Memory Instruction set architecture Computer architecture: interconnection Memory system Computer architecture: security

Fundamentals of Digital Logic with Verilog Design Jun 06 2020 Fundamentals of Digital Logic With Verilog Design is intended for an introductory course in digital logic design. The main goals are (1) to teach students the fundamental concepts in classical manual digital design, and (2) illustrate clearly the way in which digital circuits are designed today, using CAD tools. Use of CAD software is well integrated into the book. Some excellent CAD tools are available free of charge. For example, the Altera Corporation has its Quartus II CAD software, used for implementing designs in programmable logic devices such as FPGAs. The Web Edition of the Quartus II software can be downloaded from Altera's website and used free of charge, without the need to obtain a license. Previous editions of this book a set of tutorials for using Quartus II software was provided in the appendices. These tutorials can now be found on the Author's website. Another set of useful tutorials about Quartus II can be found on Altera's University Program website, which is located at www.altera.com/education/univ

DIGITAL LOGIC DESIGN Nov 23 2021 This textbook covers latest topics in the field of digital logic design along with tools to design the digital logic circuits. It is designed for the undergraduate students pursuing courses in areas of engineering disciplines such as Electrical and Electronics, Electronics and Communication, Electronics and Instrumentation, Telecommunications, and Computer Science and Engineering. It is also useful as a text for MCA, M.Sc. (Electronics) and M.Sc. (Computer Science) students. The contents of this book have been organized in a systematic manner so as to inculcate sound knowledge and concepts amongst its readers. It covers basic concepts in combinational and sequential circuit design such as digital electronics, digital signal processing, number system, data and information representation and, computer arithmetic. Besides this, advanced topics in digital logic design such as various types of counter design, register design, ALU design, threshold circuit and, digital computer design are also discussed in the book. Key features • Question Bank containing numerous multiple choice questions with their answers • Short answer questions, long answer questions and multiple choice questions at the end of each chapter • Extensive use of graphs and diagrams for better understanding of the subject

Introduction to Digital Electronics Apr 28 2022 This text takes the student from the very basics of digital electronics to an introduction of state-of-the-art techniques used in the field. It is ideal for any engineering or science student who wishes to study the subject from its basic principles as well as serving as a guide to more advanced topics for readers already familiar with the subject. The coverage is sufficiently in-depth to allow the reader to progress smoothly onto higher level texts.

Digital Logic Design Apr 04 2020 This textbook, based on the author's fifteen years of teaching, is a complete teaching tool for turning students into logic designers in one semester. Each chapter describes new concepts, giving extensive applications and examples. Assuming no prior knowledge of discrete mathematics, the authors introduce all background in propositional logic, asymptotics, graphs, hardware and electronics. Important features of the presentation are: • All material is presented in full detail. Every designed circuit is formally specified and implemented, the correctness of the implementation is proved, and the cost and delay are analyzed • Algorithmic solutions are offered for logical simulation, computation of propagation delay and minimum clock period • Connections are drawn from the physical analog world to the digital abstraction • The language of graphs is used to describe formulas and circuits • Hundreds of figures, examples and exercises enhance understanding. The extensive website (<http://www.eng.tau.ac.il/~guy/Even-Medina/>) includes teaching slides, links to Logisim and a DLX assembly simulator.

Digital Logic Techniques, 3rd Edition Sep 02 2022 The third edition of Digital Logic Techniques provides a clear and comprehensive treatment of the representation of data, operations on data, combinational logic design, sequential logic, computer architecture, and practical digital circuits. A wealth of exercises and worked examples in each chapter give students valuable experience in applying the concepts and techniques discussed. Beginning with an objective comparison between analogue and digital representation of data, the author presents the Boolean algebra framework for digital electronics, develops combinational logic design from first principles, and presents cellular logic as an alternative structure more relevant than canonical forms to VLSI implementation. He then addresses sequential logic design and develops a strategy for designing finite state machines, giving students a solid foundation for more advanced studies in automata theory. The second half of the book focuses on the digital system as an entity. Here the author examines the implementation of logic systems in programmable hardware, outlines the specification of a system, explores arithmetic processors, and elucidates fault diagnosis. The final chapter

examines the electrical properties of logic components, compares the different logic families, and highlights the problems that can arise in constructing practical hardware systems.

Fundamentals of Digital Logic and Microcomputer Design Mar 28 2022 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 Oct 03 2022

Digital Logic and Computer Operations Jun 30 2022

Foundation of Digital Electronics and Logic Design Aug 28 2019 This book focuses on the basic principles of digital electronics and logic design. It is designed as a textbook for undergraduate students of electronics, electrical engineering, computer science, physics, and information technology. The text covers the syllabi of several Indian and foreign universities. It depicts the comprehensive resources on the recent ideas in the area of digital electronics explored by leading experts from both industry and academia. A good number of diagrams are provided to illustrate the concepts related to digital electronics so that students can easily comprehend the subject. Solved examples within the text explain the concepts discussed and exercises are provided at the end of each chapter.

Digital Design and Computer Architecture Oct 11 2020 Digital Design and Computer Architecture: ARM Edition covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Combining an engaging and humorous writing style with an updated and hands-on approach to digital design, this book takes the reader from the fundamentals of digital logic to the actual design of an ARM processor. By the end of this book, readers will be able to build their own microprocessor and will have a top-to-bottom understanding of how it works. Beginning with digital logic gates and progressing to the design of combinational and sequential circuits, this book uses these fundamental building blocks as the basis for designing an ARM processor. SystemVerilog and VHDL are integrated throughout the text in examples illustrating the methods and techniques for CAD-based circuit design. The companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. This book will be a valuable resource for students taking a course that combines digital logic and computer architecture or students taking a two-quarter sequence in digital logic and computer organization/architecture. Covers the fundamentals of digital logic design and reinforces logic concepts through the design of an ARM microprocessor. Features side-by-side examples of the two most prominent Hardware Description Languages (HDLs)—SystemVerilog and VHDL—which illustrate and compare the ways each can be used in the design of digital systems. Includes examples throughout the text that enhance the reader's understanding and retention of key concepts and techniques. The Companion website includes a chapter on I/O systems with practical examples that show how to use the Raspberry Pi computer to communicate with peripheral devices such as LCDs, Bluetooth radios, and motors. The Companion website also includes appendices covering practical digital design issues and C programming as well as links to CAD tools, lecture slides, laboratory projects, and solutions to exercises.

Digital Design and Computer Organisation Jul 28 2019 Digital Design and Computer Organization introduces digital design as it applies to the creation of computer systems. It summarizes the tools of logic design and their mathematical basis, along with in-depth coverage of combinational and sequential circuits. The book includes an accompanying CD that includes the majority of circuits highlighted in the text, delivering you hands-on experience in the simulation and observation of circuit functionality. These circuits were designed and tested with a user-friendly Electronics Workbench package (Multisim Textbook Edition) that enables your progression from truth tables onward to more complex designs. This volume differs from traditional digital design texts by providing a complete design of an AC-based CPU, allowing you to apply digital design directly to computer architecture. The book makes minimal reference to electrical properties and is vendor independent, allowing emphasis on the general design principles.

Digital Logic Circuit Analysis and Design Oct 23 2021 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

Digital Logic & Computer Design Nov 04 2022

Digital Logic for Computing Jan 02 2020 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.

Computer, Network, Software, and Hardware Engineering with Applications Mar 04 2020 There are many books on computers, networks, and software engineering but none that integrate the three with applications. Integration is important because, increasingly, software dominates the performance, reliability, maintainability, and availability of complex computer and systems. Books on software engineering typically portray software as if it exists in a vacuum with no relationship to the wider system. This is wrong because a system is more than software. It is comprised of people, organizations, processes, hardware, and software. All of these components must be considered in an integrative fashion when designing systems. On the other hand, books on computers and networks do not demonstrate a deep understanding of the intricacies of developing software. In this book you will learn, for example, how to quantitatively analyze the performance, reliability, maintainability, and availability of computers, networks, and software in relation to the total system. Furthermore, you will learn how to evaluate and mitigate the risk of deploying integrated systems. You will learn how to apply many models dealing with the optimization of systems. Numerous quantitative examples are provided to help you understand and interpret model results. This book can be used as a first year graduate course in computer, network, and software engineering; as an on-the-job reference for computer, network, and software engineers; and as a reference for these disciplines.

Digital Electronics: A Primer - Introductory Logic Circuit Design Aug 01 2022 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 Electronics Apr 16 2021 This unique book describes 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 book also highlights digital arithmetic and the integrated circuits that implement the logic functions. Based on the author's extensive experience in teaching this subject, the book is full of practical value, and is presented in a compact and digestible style. There are worked problems and examples with abbreviated solutions. The worked solutions are accompanied by demonstrations to ensure that the design material and the circuits' operation are well appreciated.

Digital Logic Design Principles Nov 11 2020 Market_Desc: · Electrical engineers· Logic Designers in Computer Industry Special Features: · Provides extensive exercises for readers to work out while studying a topic· Presents up-to-date approaches in logic design in later chapters· Discusses the relationship between digital system design and computer architecture About The Book: This is an introductory-level book on the principles of digital logic design. While providing coverage to the usual topics in combinational and sequential circuit principles, it also includes a chapter on the use of the hardware description language ABEL in the design of circuits using PLDs and a chapter on computer organization.

DIGITAL LOGIC DESIGN Dec 13 2020 Description: The book is an attempt to make Digital Logic Design easy and simple to understand. The book covers various features of Logic Design using lots of examples and relevant diagrams. The complete text is reviewed for its correctness. This book is an outcome of sincere effort and hard work to bring concepts of Digital Logic Design close to the audience of this book. The salient features of the book:--Easy explanation of Digital System and Binary Numbers with lots of solved examples-Detailed covering of Boolean Algebra and Gate-Level Minimization with proper examples and diagrammatic representation-Detailed analysis of different Combinational Logic Circuits-Complete Synchronous sequential Logic understanding-Deep understanding of Memory and Programmable Logic-Detailed analysis of different Asynchronous Sequential Logic Table Of Contents: Unit 1 : Digital System and Binary Numbers; Part 1: Digital System and Binary Numbers Part 2 : Boolean Algebra and Gate Level Minimization Unit 2 : Combinational Logic Unit 3: Sequential Circuits Unit 4 : Memory, Programmable Logic and Design Unit 5 : Asynchronous Sequential Logic

Digital Logic Circuits using VHDL Jan 26 2022 The book is written for an undergraduate course on digital electronics. The book provides basic concepts, procedures and several relevant examples to help the readers to understand the analysis and design of various digital circuits. It also introduces hardware description language, VHDL. The book teaches you the logic gates, logic families, Boolean algebra, simplification of logic functions, analysis and design of combinational circuits using SSI and MSI circuits and analysis and design of the sequential circuits. This book provides in-depth information about multiplexers, de-multiplexers, decoders, encoders, circuits for arithmetic operations, various types of flip-flops, counters and registers. It also covers asynchronous sequential circuits, memories and programmable logic devices.

Essential Logic for Computer Science Sep 09 2020 An introduction to applying predicate logic to testing and verification of software and digital circuits that focuses on applications rather than theory. Computer scientists use logic for testing and verification of software and digital circuits, but many computer science students study logic only in the context of traditional mathematics, encountering the subject in a few lectures and a handful of problem sets in a discrete math course. This book offers a more substantive and rigorous approach to logic that focuses on applications in computer science. Topics covered include predicate logic, equation-based software, automated testing and theorem proving, and large-scale computation. Formalism is emphasized, and the book employs three formal notations: traditional algebraic formulas of propositional and predicate logic; digital circuit diagrams; and the widely used partially automated theorem prover, ACL2, which provides an accessible introduction to mechanized formalism. For readers who want to see formalization in action, the text presents examples using Proof Pad, a lightweight ACL2 environment. Readers will not become ACL2 experts, but will learn how mechanized logic can benefit software and hardware engineers. In addition, 180 exercises, some of them extremely challenging, offer opportunities for problem solving. There are no prerequisites beyond high school algebra. Programming experience is not required to understand the book's equation-based approach. The book can be used in undergraduate courses in logic for computer science and introduction to computer science and in math courses for computer science students.

Fundamentals of Power Electronics Mar 16 2021 Fundamentals of Power Electronics, Third Edition, is an up-to-date and authoritative text and reference book on power electronics. This new edition retains the original objective and philosophy of focusing on the fundamental principles, models, and technical requirements needed for designing practical power electronic systems while adding a wealth of new material. Improved features of this new edition include: new material on switching loss mechanisms and their modeling; wide bandgap semiconductor devices; a more rigorous treatment of averaging; explanation of the Nyquist stability criterion; incorporation of the Tan and Middlebrook model for current programmed control; a new chapter on digital control of switching converters; major new chapters on advanced techniques of design-oriented analysis including feedback and extra-element theorems; average current control; new material on input filter design; new treatment of averaged switch modeling, simulation, and indirect power; and sampling effects in DCM, CPM, and digital control. Fundamentals of Power Electronics, Third Edition, is intended for use in introductory power electronics courses and related fields for both senior undergraduates and first-year graduate students interested in converter circuits and electronics, control systems, and magnetic and power systems. It will also be an invaluable reference for professionals working in power electronics, power conversion, and analog and digital electronics. Includes an increased number of end of chapter problems; Updated and reorganized, including three completely new chapters; Includes key principles and a rigorous treatment of topics.

Boolean Algebra and Its Applications Dec 01 2019 Introductory treatment begins with set theory and fundamentals of Boolean algebra, proceeding to concise accounts of applications to symbolic logic, switching circuits, relay circuits, binary arithmetic, and probability theory. 1961 edition.

Digital Logic for Computing Feb 24 2022 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.

Baby Steps: Intro to Computer Engineering Feb 12 2021 An introduction to computer engineering for babies. Learn basic logic gates with hands on examples of buttons and an output LED.

Fundamentals of Digital Logic and Microcontrollers Oct 30 2019 Updated to reflect the latest advances in the field, the Sixth Edition of Fundamentals of Digital Logic and Microcontrollers further enhances its reputation as the most accessible introduction to the basic principles and tools required in the design of digital systems. Features updates and revision to more than half of the material from the previous edition Offers an all-encompassing focus on the areas of computer design, digital logic, and digital systems, unlike other texts in the marketplace Written with clear and concise explanations of fundamental topics such as number system and Boolean algebra, and simplified examples and tutorials utilizing the PIC18F4321 microcontroller Covers an enhanced version of both combinational and sequential logic design, basics of computer organization, and microcontrollers

Digital Logic Techniques Jul 20 2021 The third edition of Digital Logic Techniques provides a clear and comprehensive treatment of the representation of data, operations on data, combinational logic design, sequential logic, computer architecture, and practical digital circuits. A wealth of exercises and worked examples in each chapter give students valuable experience in applying the concepts and techniques discussed. Beginning with an objective comparison between analogue and digital representation of data, the author presents the Boolean algebra framework for digital electronics, develops combinational logic design from first principles, and presents cellular logic as an alternative structure more relevant than canonical forms to VLSI implementation. He then addresses sequential logic design and develops a strategy for designing finite state machines, giving students a solid foundation for more advanced studies in automata theory. The second half of the book focuses on the digital system as an entity. Here the author examines the implementation of logic systems in programmable hardware, outlines the specification of a system, explores arithmetic processors, and elucidates fault diagnosis. The final chapter examines the electrical properties of logic components, compares the different logic families, and highlights the problems that can arise in constructing practical hardware systems.

Computer Logic Jan 14 2021 This book provides the reader with the key concepts and techniques of modern digital logic design and applications. This concise treatment provides essential development and explanations for both classical and modern topics. The modern topics include unicode, unipolar transistors, copper technology, flash memory, HDL, verilog and logic simulation software tools. Also covered are combinatorial logic circuits and transistor circuits. It will be an essential resource for computer scientists, logic circuit designers and computer engineers.

Digital Logic Techniques, 3rd Edition May 06 2020 "The third edition of Digital Logic Techniques provides a clear and comprehensive treatment of the representation of data, operations on data, combinational logic design, sequential logic, computer architecture, and practical digital circuits. A wealth of exercises and worked examples in each chapter give students valuable experience in applying the concepts and techniques discussed. Beginning with an objective comparison between analogue and digital representation of data, the author presents the Boolean algebra framework for digital electronics, develops combinational logic design from first principles, and presents cellular logic as an alternative structure more relevant than canonical forms to VLSI implementation. He then addresses sequential logic design and develops a strategy for designing finite state machines, giving students a solid foundation for more advanced studies in automata theory. The second half of the book focuses on the digital system as an entity. Here the author examines the implementation of logic systems in programmable hardware, outlines the specification of a system, explores arithmetic processors, and elucidates fault diagnosis. The final chapter examines the electrical properties of logic components, compares the different logic families, and highlights the problems that can arise in constructing practical hardware systems."--Provided by publisher.

DIGITAL LOGIC AND COMPUTER ORGANIZATION May 18 2021 This introductory text on 'digital logic and computer organization' presents a logical treatment of all the fundamental concepts necessary to understand the organization and design of a computer. It is designed to cover the requirements of a first-course in computer organization for undergraduate Computer Science, Electronics, or MCA students. Beginning from first principles, the text guides students through to a stage where they are able to design and build a small computer with available IC chips. Starting with the foundation material on data representation, computer arithmetic and combinatorial and sequential circuit design, the text explains ALU design and includes a discussion on an ALU IC chip. It also discusses Algorithmic State Machine and its representation using a Hardware Description Language before shifting to computer organization. The evolutionary development of a small hypothetical computer is described illustrating hardware-software trade-off in computer organization. Its instruction set is designed giving reasons why each new instruction is introduced. This is followed by a description of the general features of a CPU, organization of main memory and I/O systems. The book concludes with a chapter describing the features of a real computer, namely the Intel Pentium. An appendix describes a number of laboratory experiments which can be put together by students, culminating in the design of a toy computer. Key Features • Self-contained presentation of digital logic and computer organization with minimal pre-requisites • Large number of examples provided throughout the book • Each chapter begins with learning goals and ends with a summary to aid self-study by students.

Digital Logic Design and Computer Organization with Computer Architecture for Security Sep 21 2021 A COMPREHENSIVE GUIDE TO THE DESIGN & ORGANIZATION OF MODERN COMPUTING SYSTEMS Digital Logic Design and Computer Organization with Computer Architecture for Security provides practicing engineers and students with a clear understanding of computer hardware technologies. The fundamentals of digital logic design as well as the use of the Verilog hardware description language are discussed. The book covers computer organization and architecture, modern design concepts, and computer security through hardware. Techniques for designing both small and large combinational and sequential circuits are thoroughly explained. This detailed reference addresses memory technologies, CPU design and techniques to increase performance, microcomputer architecture, including "plug and play" device interface, and memory hierarchy. A chapter on security engineering methodology as it applies to computer architecture concludes the book. Sample problems, design examples, and detailed diagrams are provided throughout this practical resource. COVERAGE INCLUDES: Combinational circuits: small designs Combinational circuits: large designs Sequential circuits: core modules Sequential circuits: small designs Sequential circuits: large designs Memory Instruction set architecture Computer architecture: interconnection Memory system Computer architecture: security

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