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A multiple-valued algebra is introduced as a mathematical model for the study of switching circuits having two or more logic values. A minimization criterion is given and various minimization techniques for manipulating functions expressed in this algebra. In particular, an algorithmic method is presented for deriving all minimal cost representations of the switching functions. (Author).

Covers computer history, mathematics, databases, languages, and developments

This book is designed to facilitate a thorough understanding of fundamental principles without requiring readers to memorize an excess of confusing technological details. Rather than focusing on techniques for one particular phase of design, it covers the complete design process, from specification to manufacturing.

Explains Fundamentals of Digital Computers & Operation of Microprocessors Through a Hypothetical Model of a Microcomputer. Provides Problems after Each Chapter

Provides information about admission, financial aid, programs and institutions, and research specialties within the fields of engineering and applied sciences, including civil engineering, information technology, and bioengineering.

Accessible but rigorous, this outstanding text encompasses all of the topics covered by a typical course in elementary abstract algebra. Its easy-to-read treatment offers an intuitive approach, featuring informal discussions followed by thematically arranged exercises. This second edition features additional exercises to improve student familiarity with applications. 1990 edition.

In the decade since the first edition of this book was published, the technologies of digital design have continued to evolve. The evolution has run along two related tracks: the underlying physical technology and the software tools that facilitate the application of new devices. The trends identified in the first edition have continued and promise to continue to do so. Programmable logic is virtually the norm for digital designers and the art of digital design now requires the software skills to deal with hardware description languages. Hardware designers now spend the majority of their time dealing with software. Specifically, the tools needed to efficiently map digital designs onto the emerging programmable devices that are growing more sophisticated. They capture their design specifications in software with language appropriate for describing the parallelism of hardware; they use software tools to simulate their designs and then to synthesize it into the implementation technology of choice. Design time is radically reduced, as market pressures require products to be introduced quickly at the right price and performance. Although the complexity of designs is necessitating ever more powerful abstractions, the fundamentals remain unchanged. The contemporary digital designer must have a much broader understanding of the discipline of computation, including both hardware and software. This broader perspective is present in this second edition.

This comprehensive text on switching theory and logic design is designed for the undergraduate students of electronics and communication engineering, electrical and electronics engineering, electronics and instrumentation engineering, telecommunication engineering, computer science and engineering, and information technology. It will also be useful to AMIE, IETE and diploma students. Written in a student-friendly style, this book, now in its Second Edition, provides an in-depth knowledge of switching theory and the design techniques of digital circuits. Striking a balance between theory and practice, it covers topics ranging from number systems, binary codes, logic gates and Boolean algebra to minimization using K-maps and tabular method, design of combinational logic circuits, synchronous and asynchronous sequential circuits, and algorithmic state machines. The book discusses threshold gates and programmable logic devices (PLDs). In addition, it elaborates on flip-flops and shift registers. Each chapter includes several fully worked-out examples so that the students get a thorough grounding in related design concepts. Short questions with answers, review questions, fill in the blanks, multiple choice questions and problems are provided at the end of each chapter. These help the students test their level of understanding of the subject and prepare for examinations confidently. NEW TO THIS EDITION • VHDL programs at the end of each chapter • Complete answers with figures • Several new problems with answers

This unified introduction provides the tools and techniques needed to analyze plasmas and connects plasma phenomena to other fields of study. Combining mathematical rigor with qualitative explanations, and linking theory to practice with example problems, this is a perfect textbook for senior undergraduate and graduate students taking one-semester introductory plasma physics courses. For the first time, material is presented in the context of unifying principles, illustrated using organizational charts, and structured in a successive progression from single particle motion, to kinetic theory and average values, through to collective phenomena of waves in plasma. This provides students with a stronger understanding of the topics covered, their interconnections, and when different types of plasma models are applicable. Furthermore, mathematical derivations are rigorous, yet concise, so physical understanding is not lost in lengthy mathematical treatments. Worked examples illustrate practical applications of theory and students can test their new knowledge with 90 end-of-chapter problems.

For sophomore courses on digital design in an Electrical Engineering, Computer Engineering, or Computer Science department. & Digital Design, fourth 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.

This is a collection of invited papers from the 1975 International Sym posium on Multiple-valued Logic. Also included is an extensive bib liography of works in the field of multiple-valued logic prior to 1975 - this supplements and extends an earlier bibliography of works prior to 1965, by Nicholas Rescher in his book Many-Valued Logic, McGraw-Hill, 1969. There are a number of possible reasons for interest in the present volume. First, the range of various uses covered in this collection of papers may be taken as indicative of a breadth which occurs in the field of multiple-valued logic as a whole - the papers here can do no more than cover a small sample: question-answering systems, analysis of computer hazards, algebraic structures relating to multiple-valued logic, algebra of computer programs, fuzzy sets. Second, a large part of the interest in such uses and applications has occurred in the last twenty, even ten years. It would be too much to expect this to be reflected in Rescher's 1969 book. Third, in the 1970's a series of annual symposia have been held on multiple-valued logic, which have brought much of this into a sharp focus. * The 1971 and 1972 symposia were held at the SUNY at Buffalo, the 1973 symposium at the Uni versity of Toronto, and the 1974 symposium at West Virginia Uni versity.

Papers from these symposia are included in the bibliography which may be found in an appendix of this book.

The Use Of Digital Circuits Is Increasing In All Disciplines Of Engineering. Consequently Students Need To Have An In-Depth Knowledge On Them. Digital Circuits And Design Is A Textbook Dealing With The Basics Of Digital Technology Including The Design Asp

I see it all the time: Businesses implement the latest Agile and DevOps practices from thesoftware industry, hoping that simply doing so will provide the required improvements.But months and evenyears later, they're still struggling. Similarly, I watch the softwareindustry trying to learn and implement wholesale what the manufacturing industry didyears ago.As it turns out, we can't just copy what others have done. Businesses need to understandthe unique challenges of their company. And digital assets like software are very differentfrom physical assets that are manufactured. Every business is different, and softwaredevelopment is different from manufacturing.Engineering the Digital Transformation provides systematic approaches to improvinghow software is developed for a broad range of applications. This book focuses on high-level principles for engineering improvements, leveraging as much as possible frommanufacturing, and modifies them toaddress the unique characteristics and capabilitiesof software.

Computer Science and Multiple-Valued Logic: Theory and Applications focuses on the processes, methodologies, and approaches involved in multiple-valued logic and its relationship to computer science. The selection first tackles an introduction to multiple-valued logic, lattice theory of post algebras, multiple-valued logic design and applications in binary computers, smallest many-valued logic for the treatment of complemented and uncomplemented error signals, and chain based lattices. Discussions focus on formulation, representation theory, theory and circuit design, logical tables, and unary operations. The text then examines multiple-valued signal processing with limiting, development of multiple-valued logic as related to computer science, p-algebras, and an algorithm for axiomatizing every finite logic. The book takes a look at completeness properties of multiple-valued logic algebras, computer simplification of multi-valued switching functions, and minimization of multivalued functions. Topics include generation of prime implicants, realizations, minimization algorithms, decomposition algorithm for multi-valued switching functions, and relation between the sum-of-products form and array of cubes. The selection is aimed at computer engineers, computer scientists, applied mathematicians, and physicists interested in multiple-valued logic as the discipline relates to computer engineering and computer science.

Digital Principles and DesignPalgrave MacmillanBasic Electric Circuit TheoryA One-Semester TextAcademic Press

In two editions spanning more than a decade, The Electrical Engineering Handbook stands as the definitive reference to the multidisciplinary field of electrical engineering. Our knowledge continues to grow, and so does the Handbook. For the third edition, it has expanded into a set of six books carefully focused on a specialized area or field of study. Each book represents a concise yet definitive collection of key concepts, models, and equations in its respective domain, thoughtfully gathered for convenient access. Computers, Software Engineering, and Digital Devices examines digital and logical devices, displays, testing, software, and computers, presenting the fundamental concepts needed to ensure a thorough understanding of each field. It treats the emerging fields of programmable logic, hardware description languages, and parallel computing in detail. Each article includes defining terms, references, and sources of further information. Encompassing the work of the world's foremost experts in their respective specialties, Computers, Software Engineering, and Digital Devices features the latest developments, the broadest scope of coverage, and new material on secure electronic commerce and parallel computing.

DIGITAL LOGIC offers the right balance of classical and up-to-date treatment of combinational and sequential logic design for a first digital logic design class. The author provides a thorough explanation of the design process, including completely worked examples beginning with simple examples and going on to problems of increasing complexity. This text contains PLD (Programmable Logic Design) coverage. Chapter 9 develops complete, worked EPROM, PLA, and EPLD design examples. The problems are developed in Chapter 7 as standard designs using SSI and MSI devices so that your students can see the difference between the two approaches.

The Fourth edition of this well-received text continues to provide coherent and comprehensive coverage of digital 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, Medical Electronics, Computer Science and Engineering, Electronics, and Computers and Information Technology. It is also useful as a text for MCA, M.Sc. (Electronics) and M.Sc. (Computer Science) students. Appropriate for self study, the book is useful even for AMIE and grad IETE students. Written in a student-friendly style, the book provides an excellent introduction to digital concepts and basic design techniques of digital circuits. It discusses Boolean algebra concepts and their application to digital circuitry, and elaborates on both combinational and sequential circuits. It provides numerous fully worked-out, laboratory tested examples to give students a solid grounding in the related design concepts. It includes a number of short questions with answers, review questions, fill in the blanks with answers, multiple choice questions with answers and exercise problems at the end of each chapter.

This is the second edition of an established textbook on nuclear physics for senior undergraduates and postgraduate students. Professor Heyde has taken the opportunity to make the book more useful for students and teachers by adding an extensive set of problems. To bring the book up to date, he has revised several chapters and added a new chapter on nuclei at the extremes of stability. The book has evolved from a course taught by the author and gives a balanced account of both theoretical and experimental nuclear physics. It is also ideal for researchers wanting an accessible introduction to the subject. Emphasis is given to depth of treatment rather than skimming over topics and there are many diagrams as well as box inserts illustrating particular topics.

This book is evolved from the experience of the author who taught all lab courses in his three decades of teaching in various universities in India. The objective of this lab manual is to provide information to undergraduate students to practice experiments in electronics laboratories. This book covers 118 experiments for linear/analog integrated circuits lab, communication engineering lab, power electronics lab, microwave lab and optical communication lab. The experiments described in this book enable the students to learn: • Various analog integrated circuits and their functions • Analog and digital communication techniques • Power electronics circuits and their functions • Microwave equipment and components • Optical communication devices

This book is intended for the B.Tech students of Electronics and Communication Engineering, Electrical and Electronics Engineering, Biomedical Electronics, Instrumentation and Control,

Computer Science, and Applied Electronics. It is designed not only for engineering students, but can also be used by BSc/MSc (Physics) and Diploma students. KEY FEATURES • Contains aim, components and equipment required, theory, circuit diagram, pin-outs of active devices, design, tables, graphs, alternate circuits, and troubleshooting techniques for each experiment • Includes viva voce and examination questions with their answers • Provides exposure on various devices TARGET AUDIENCE • B.Tech (Electronics and Communication Engineering, Electrical and Electronics Engineering, Biomedical Electronics, Instrumentation and Control, Computer Science, and Applied Electronics) • BSc/MSc (Physics) • Diploma (Engineering)

This is the only book on the market that has been conceived and deliberately written as a one-semester text on basic electric circuit theory. As such, this book employs a novel approach to the exposition of the material in which phasors and ac steady-state analysis are introduced at the beginning. This allows one to use phasors in the discussion of transients excited by ac sources, which makes the presentation of transients more comprehensive and meaningful. Furthermore, the machinery of phasors paves the road to the introduction of transfer functions, which are then used in the analysis of transients and the discussion of Bode plots and filters. Another salient feature of the text is the consolidation into one chapter of the material concerned with dependent sources and operational amplifiers. Dependent sources are introduced as linear models for transistors on the basis of small signal analysis. In the text, PSpice simulations are prominently featured to reinforce the basic material and understanding of circuit analysis. Key Features * Designed as a comprehensive one-semester text in basic circuit theory * Features early introduction of phasors and ac steady-state analysis * Covers the application of phasors and ac steady-state analysis * Consolidates the material on dependent sources and operational amplifiers * Places emphasis on connections between circuit theory and other areas in electrical engineering * Includes PSpice tutorials and examples * Introduces the design of active filters * Includes problems at the end of every chapter * Priced well below similar books designed for year-long courses

Interactions/Mosaic, 6th edition prepares students for college life through modern content, intensive vocabulary development, and online homework. Mosaic Level 1 Listening/Speaking Student Book, 6th edition includes 10 chapters (3 brand new for this edition) and teaches the skills and vocabulary that students need for success in university courses.

Designed for the first digital course for four-year electrical engineering majors and for the second course (following basic logic) for four-year electrical and electronic engineering technology majors. Features a classical approach to the subject. Provides a thorough explanation of the design process. Includes real-world examples with real-world parts. Extensive problem sets. PLD coverage.

The fundamentals and implementation of digital electronics are essential to understanding the design and working of consumer/industrial electronics, communications, embedded systems, computers, security and military equipment. Devices used in applications such as these are constantly decreasing in size and 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.

mental improvements during the same period. What is clearly needed in verification techniques and technology is the equivalent of a synthesis productivity breakthrough. In the second edition of Writing Testbenches, Bergeron raises the verification level of abstraction by introducing coverage-driven constrained-random transaction-level self-checking testbenches all made possible through the introduction of hardware verification languages (HVLs), such as e from Verisity and OpenVera from Synopsys. The state-of-art methodologies described in Writing Test benches will contribute greatly to the much-needed equivalent of a synthesis breakthrough in verification productivity. I not only highly recommend this book, but also I think it should be required reading by anyone involved in design and verification of today's ASIC, SoCs and systems. Harry Foster Chief Architect Verplex Systems, Inc. xviii Writing Testbenches: Functional Verification of HDL Models PREFACE If you survey hardware design groups, you will learn that between 60% and 80% of their effort is now dedicated to verification.

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