Digital Systems Tocci 11th Edition

Of Boolean Operations3-6 Describing Logic Circuits Algebraically; Operator Precedence; Circuits Containing INVERTERs; 3-7 Evaluating Logic-Circuit Outputs; Analysis Using a Table; 3-8 Implementing Circuits from Boolean Expressions; 3-9 NOR Gates and NAND Gates; NOR Gate; NAND Gate; 3-10 Boolean Theorems; Multivariable Theorems; 3-11 DeMorganâ€™s Theorems; Implications of DeMorganâ€™s Theorems; 3-12 Universality of NAND Gates and NOR Gates; 3-13 Alternate Logic-Gate Representations; Logic-Symbol Interpretation; Summary; 3-14 Which Gate Representation to Use.

For all courses in digital electronics, from introductory through advanced. Like previous editions, this text will be used widely in technology classes ranging from high schools and two-year programs to four-year engineering, engineering technology, and computer science programs. Digital Systems, 11/E presents a comprehensive and modern approach to digital electronics, plus thorough preparation for advanced study of digital systems and computer and microcontroller hardware. It first introduces the basic building blocks of digital systems, and the easy AHDL hardware description language. Then, step by step, it covers increasingly challenging topics, including a detailed introduction to VHDL. For each topic, clear explanations of purpose and fundamentals are provided, followed by technical description methods such as truth tables, algebraic expressions, timing diagrams, and logic symbols. This edition adds more focus on megafunctions; a complete systems project management case study; updated memory coverage; more worked examples and figures; new terminology, and much more.

This book serves a dual purpose: firstly to combine the treatment of circuits and digital electronics, and secondly, to establish a strong connection with the contemporary world of digital systems. The need for this approach arises from the observation that introducing digital electronics through a course in traditional circuit analysis is fast becoming obsolete. Our world has gone digital. Automata theory helps with the design of digital circuits such as parts of computers, telephone systems and control systems. A complete perspective is emphasized, because even the most elegant computer architecture will not function without adequate supporting circuits. The focus is on explaining the real-world implementation of complete digital systems. In doing so, the reader is prepared to immediately begin design and implementation work. This work serves as a bridge to take readers from the theoretical world to the everyday design world where solutions must be complete to be successful.

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.

A world list of books in the English language.

Digital Systems Design with FPGAs and CPLDs explains how to design and develop digital electronic systems using programmable logic devices (PLDs). Totally practical in nature, the book features numerous (quantify when known) case study designs using a variety of Field Programmable Gate Array (FPGA) and Complex Programmable Logic Devices (CPLD), for a range of applications from control and instrumentation to semiconductor automatic test equipment. Key features include: * Case studies that provide a walk through of the design process, highlighting the trade-offs involved. * Discussion of real world issues such as choice of device, pin-out, power supply, power supply decoupling, signal integrity- for embedding FPGAs within a PCB based design. With this book engineers will be able to: * Use PLD technology to develop digital and mixed signal electronic systems * Develop PLD based designs using both schematic capture and VHDL synthesis techniques * Interface a PLD to digital and mixed-signal systems * Undertake complete design exercises from design concept through to the build and test of PLD based electronic hardware This book will be ideal for electronic and computer engineering students taking a practical or Lab based course on digital systems development using PLDs and for engineers in industry looking for concrete advice on developing a digital system using a FPGA or CPLD as its core. Case studies that provide a walk through of the design process, highlighting the trade-offs involved. Discussion of real world issues such as choice of device, pin-out, power supply, power supply decoupling, signal integrity- for embedding FPGAs within a PCB based design.

The methodology described in this book is the result of many years of research experience in the field of synthesizable VHDL design targeting FPGA based platforms. VHDL was first conceived as a documentation language for ASIC designs. Afterwards, the language was used for the behavioral simulation of ASICs, and also as a design input for synthesis tools. VHDL is a rich language, but just a small subset of it can be used to write synthesizable code, from which a physical circuit can be obtained. Usually VHDL books describe both, synthesis and simulation aspects of the language, but in this book the reader is conducted just through the features acceptable by synthesis tools. The book introduces the subjects in a gradual and concise way, providing just enough information for the reader to develop their synthesizable digital systems in VHDL. The examples in the book were planned targeting an FPGA platform widely used around the world.

"This book covers a wide range of digital product management issues and offers some insight into real-world practice and research findings on the technical, operational, and strategic challenges that face digital product managers and researchers now and in the next several decades"--Provided by publisher.

"This book provides original research on the theoretical and applied aspects of artificial life, as well as addresses scientific, psychological, and social issues of synthetic life-like behavior and abilities"--Provided by publisher.

Using the book and the software provided with it, the reader can build his/her own tester arrangement to investigate key aspects of analog-, digital- and mixed system circuits Plan of attack based on traditional testing, circuit design and circuit manufacture allows the reader to appreciate a testing regime from the point of view of all the participating interests Worked examples based on theoretical bookwork, practical experimentation and simulation exercises teach the reader how to test circuits thoroughly and effectively

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This book offers up-to-date, readily understandable guidance on the materials and equipment employed in digital restorative dentistry and on the specific clinical procedures that may be performed using the new technologies. The key components of digital restorative dentistry – image acquisition, prosthetic/restorative design, and fabrication – are fully addressed. Readers will find helpful information on scanners, the software for prosthetic design, and the materials and technologies for prosthesis fabrication, including laser sintering, 3D printing, CAD/CAM, and laser ablation. The section on clinical procedures explains all aspects of the use of digital technologies in the treatment of patients requiring removable partial dentures, complete dentures, fixed partial prostheses, crowns, endodontics, and implant surgery and prosthodontics. The field of restorative and prosthetic dentistry is undergoing rapid transition as these new technologies come to play an increasingly central role in everyday dental practice. In bridging the knowledge gap that this technological revolution has created in the field of dentistry, the book will satisfy the needs of both dentists and dental students.
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Models that include a notion of time are ubiquitous in disciplines such as the natural sciences, engineering, philosophy, and linguistics, but in computing the abstractions provided by the traditional models are problematic and the discipline has spawned many novel models. This book is a systematic thorough presentation of the results of several decades of research on developing, analyzing, and applying time models to computing and engineering. After an opening motivation introducing the topics, structure and goals, the authors introduce the notions of formalism and model in general terms along with some of their fundamental classification criteria. In doing so they present the fundamentals of propositional and predicate logic, and essential issues that arise when modeling time across all types of system. Part I is a summary of the models that are traditional in engineering and the natural sciences, including fundamental computer science: dynamical systems and control theory; hardware design; and software algorithmic and complexity analysis. Part II covers advanced and specialized formalisms dealing with time modeling in heterogeneous software-intensive systems: formalisms that share finite state machines as common "ancestors"; Petri nets in many variants; notations based on mathematical logic, such as temporal logic; process algebras; and "dual-language approaches" combining two notations with different characteristics to model and verify complex systems, e.g., model-checking frameworks. Finally, the book concludes with summarizing remarks and hints towards future developments and open challenges. The presentation uses a rigorous, yet not overly technical, style, appropriate for readers with heterogeneous backgrounds, and each chapter is supplemented with detailed bibliographic remarks and carefully chosen exercises of varying difficulty and scope. The book is aimed at graduate students and researchers in computer science, while researchers and practitioners in other scientific and engineering disciplines interested in time modeling with a computational flavor will also find the book of value, and the comparative and conceptual approach makes this a valuable introduction for non-experts. The authors assume a basic knowledge of calculus, probability theory, algorithms, and programming, while a more advanced knowledge of automata, formal languages, and mathematical logic is useful.
This book comprises selected papers of the International Conferences, CA and CES3 2011, held as Part of the Future Generation Information Technology Conference, FGIT 2011, in Conjunction with GDC 2011, Jeju Island, Korea, in December 2011. The papers presented were carefully reviewed and selected from numerous submissions and focus on the various aspects of control and automation, and circuits, control, communication, electricity, electronics, energy, system, signal and simulation.
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Vibrations and Acoustics: Measurement and Signal Analysis is the culmination of the author's more than two decades of teaching and research experience in these areas. It will serve as a source of reference for postgraduate students, researchers, academicians, practicing engineers and professionals in the field of vibration and acoustics.
Architectural stress is the inability of a system design to respond to new market demands. It is an important yet often concealed issue in high tech systems. In From scientific instrument to industrial machine, we look at the phenomenon of architectural stress in embedded systems in the context of a transmission electron microscope system built by FEI Company. Traditionally, transmission electron microscopes are manually operated scientific instruments, but they also have enormous potential for use in industrial applications. However, this new market has quite different characteristics. There are strong demands for cost-effective analysis, accurate and precise measurements, and ease-of-use. These demands can be translated into new system qualities, e.g. reliability, predictability and high throughput, as well as new functions, e.g. automation of electron microscopic analyses, automated focusing and positioning functions. From scientific instrument to industrial machine takes a pragmatic approach to the problem of architectural stress. In particular, it describes the outcomes of the Condor project, a joint endeavour by a consortium of industrial and academic partners. In this collaboration an integrated approach was essential to successfully combine various scientific results and show the first steps towards a new direction. System modelling and prototyping were the key techniques to develop better understanding and innovative solutions to the problems associated with architectural stress. From scientific instruments to industrial machine is targeted mainly at industrial practitioners, in particular system architects and engineers working on high tech systems. It can therefore be read without particular knowledge of electron microscope systems or microscopic applications. The book forms a bridge between academic and applied science, and high tech industrial practice. By showing the approaches and solutions developed for the electron microscope, it is hoped that system designers will gain some insights in how to deal with architectural stress in similar challenges in the high tech industry.
This book constitutes the refereed proceedings of the 8th Mexican International Conference on Artificial Intelligence, MICAI 2009, held in Guanajuato, Mexico, in November 2009. The 63 revised full papers presented together with one invited talk were carefully reviewed and selected from 215 submissions. The papers are organized in topical sections on logic and reasoning, ontologies, knowledge management and knowledge-based systems, uncertainty and probabilistic reasoning, natural language processing, data mining, machine learning, pattern recognition, computer vision and image processing, robotics, planning and scheduling, fuzzy logic, neural networks, intelligent tutoring systems,

bioinformatics and medical applications, hybrid intelligent systems and evolutionary algorithms.

Effective Surveillance for Homeland Security: Balancing Technology and Social Issues provides a comprehensive survey of state-of-the-art methods and tools for the surveillance and protection of citizens and critical infrastructures against natural and deliberate threats. Focusing on current technological challenges involving multi-disciplinary problem analysis and systems engineering approaches, it provides an overview of the most relevant aspects of surveillance systems in the framework of homeland security. Addressing both advanced surveillance technologies and the related socio-ethical issues, the book consists of 21 chapters written by international experts from the various sectors of homeland security. Part I, Surveillance and Society, focuses on the societal dimension of surveillance—stressing the importance of societal acceptability as a precondition to any surveillance system. Part II, Physical and Cyber Surveillance, presents advanced technologies for surveillance. It considers developing technologies that are part of a framework whose aim is to move from a simple collection and storage of information toward proactive systems that are able to fuse several information sources to detect relevant events in their early incipient phase. Part III, Technologies for Homeland Security, considers relevant applications of surveillance systems in the framework of homeland security. It presents real-world case studies of how innovative technologies can be used to effectively improve the security of sensitive areas without violating the rights of the people involved. Examining cutting-edge research topics, the book provides you with a comprehensive understanding of the technological, legislative, organizational, and management issues related to surveillance. With a specific focus on privacy, it presents innovative solutions to many of the issues that remain in the quest to balance security with the preservation of privacy that society demands.

The books in this trilogy capture the foundational core of advanced informatics. The authors make the foundations accessible, enabling students to become effective problem solvers. This first volume establishes the inductive approach as a fundamental principle for system and domain analysis. After a brief introduction to the elementary mathematical structures, such as sets, propositional logic, relations, and functions, the authors focus on the separation between syntax (representation) and semantics (meaning), and on the advantages of the consistent and persistent use of inductive definitions. They identify compositionality as a feature that not only acts as a foundation for algebraic proofs but also as a key for more general scalability of modeling and analysis. A core principle throughout is invariance, which the authors consider a key for the mastery of change, whether in the form of extensions, transformations, or abstractions. This textbook is suitable for undergraduate and graduate courses in computer science and for self-study. Most chapters contain exercises and the content has been class-tested over many years in various universities.

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 highlig

MATLAB is an indispensable asset for scientists, researchers, and engineers. The richness of the MATLAB computational environment combined with an integrated development environment (IDE) and straightforward interface, toolkits, and simulation and modeling capabilities, creates a research and development tool that has no equal. From quick code prototyping to full blown deployable applications, MATLAB stands as a de facto development language and environment serving the technical needs of a wide range of users. As a collection of diverse applications, each book chapter presents a novel application and use of MATLAB for a specific result.

"This book offers a comprehensive and integrated approach to telemedicine by collecting E-health experiences and applications from around the world and by exploring new developments and trends in medical informatics"--

This volume on Advanced Electronic Technologies and Systems based on Low Dimensional Quantum Devices closes a three years series of NATO -AS!' s. The first year was focused on the fundamental properties and applications. The second year was devoted to Devices Based on Low-Dimensional Semiconductor Structures. The third year is covering Systems Based on Low-Dimensional Quantum Semiconductor Devices. The three volumes containing the lectures given at the three successive NATO -ASI's constitute a complete review on the latest advances in semiconductor Science and Technology from the methods of fabrication of the quantum structures through the fundamental physics am basic knowledge of properties and projection of performances to the technology of devices and systems. In the first volume: " Fabrication, Properties and Application of Low Dimensional Semiconductors" are described the practical ways in which quantum structures are produced, the present status of the technology, difficulties encountered, and advances to be expected. The basic theory of Quantum Wells, Double Quantum Wells and Superlattices is introduced and the fundamental aspects of their optical properties are presented. The effect of reduction of dimensionality on lattice dynamics of quantum structures is also discussed. In the second volume: " Devices Based on Low Dimensional Structures" the fundamentals of quantum structures and devices in the two major fields: Electro-Optical Devices and Pseudomorphic High Eectron Mobility Transistors are extensively discussed.

Receivers systems are considered the core of electronic warfare (EW) intercept systems. Without them, the fundamental purpose of such systems is null and void. This book considers the major elements that make up receiver systems and the receivers that go in them. This resource provides system design engineers with techniques for design and development of EW receivers for modern modulations (spread spectrum) in addition to receivers for older, common modulation formats. Each major module in these receivers is considered in detail. Design information is included as well as performance tradeoffs of various components. Major factors that influence the functioning of the modules are identified and discussed. Key performance parameters are identified as well, and approaches to achieving design goals are considered.

Intelligent engineering systems try to replicate fundamental abilities of humans and nature in order to achieve sufficient progress in solving complex problems. In an ideal case multi-disciplinary applications of different modern engineering fields can result in synergistic effects. Information technology and computer modeling are the underlying tools that play a major role at any stages of developing intelligent systems. Chapters in the present volume have been written by eminent scientists from different parts of the world, dealing with challenging problems for efficient modeling of intelligent systems. The reader can find different characteristics and methodologies of computational intelligence with real life applications. Various facets of intelligent engineering and information technology are addressed. Starting with

theoretical issues from pseudo-analysis to parametric classes of digital fuzzy conjunctions for hardware implementation of fuzzy systems, diverse aspects of control including quantum as well as fuzzy control and hybrid approaches, intelligent robotics dealing with mobile and autonomous robots and new trends, approaches and results on information technology, machines, materials and manufacturing, and issues of intelligent systems and complex processes are covered.

This volume presents the proceedings of Medicon 2016, held in Paphos, Cyprus. Medicon 2016 is the XIV in the series of regional meetings of the International Federation of Medical and Biological Engineering (IFMBE) in the Mediterranean. The goal of Medicon 2016 is to provide updated information on the state of the art on Medical and Biological Engineering and Computing under the main theme "Systems Medicine for the Delivery of Better Healthcare Services". Medical and Biological Engineering and Computing cover complementary disciplines that hold great promise for the advancement of research and development in complex medical and biological systems. Research and development in these areas are impacting the science and technology by advancing fundamental concepts in translational medicine, by helping us understand human physiology and function at multiple levels, by improving tools and techniques for the detection, prevention and treatment of disease. Medicon 2016 provides a common platform for the cross fertilization of ideas, and to help shape knowledge and scientific achievements by bridging complementary disciplines into an interactive and attractive forum under the special theme of the conference that is Systems Medicine for the Delivery of Better Healthcare Services. The programme consists of some 290 invited and submitted papers on new developments around the Conference theme, presented in 3 plenary sessions, 29 parallel scientific sessions and 12 special sessions.

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