

Digital Logic Design By Tocci 10th Edition

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.

Modern electronics is the most visible result of research in solid state physics. Transistors and integrated circuits are used everywhere in ever increasing numbers. The microprocessor controlled coffee-pot exists. Most experimental physicists, and, indeed, experimental scientists in most disciplines, study their subject with the aid of apparatus containing significant amounts of electronics and much of that electronics is digital. In

order to design experiments and apparatus or simply to understand how a piece of equipment works, an understanding of electronics has become increasingly important. In recognition that electronics has pervaded so many areas, courses in digital electronics are now a recommended part of physics and many other science degree courses. At the introductory level, digital electronics is, primarily, a practical subject with relatively few basic concepts and any complexity arises from the coupling together of many simple circuits and the extensive use of feedback. Designing an electronic circuit and then getting it to work correctly provides an experience, and a sense of achievement, which is significantly different from most undergraduate work as it more closely resembles project work than standard laboratory practicals.

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

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essential reading for any electronic or electrical engineering student new to digital electronics and requiring a succinct yet comprehensive introduction. 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

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

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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. 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, demultiplexers, 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

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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.

Learn FileMaker® Pro 10 provides an excellent reference to FileMaker Inc.'s award-winning database program for both beginners and advanced developers. From converting files created with previous versions of FileMaker Pro and sharing data on the web to creating reports and sorting data, this book offers a hands-on approach to getting the most out of your FileMaker Pro databases. Learn how to use the completely redesigned Status area, now known as the Status toolbar; send e-mail right from FileMaker with the SMTP-based Send Mail option; build reports quickly and easily with the Saved Finds feature; automate your database with scripts and activate those scripts with the new script trigger feature; integrate your Bento data into your FileMaker files; work with the enhanced Web viewer. Microprocessor Engineering provides an insight in the structures and operating techniques of a small computer. The book is comprised of 10 chapters that deal with the various aspects of computing. The first two chapters tackle the basic arithmetic and logic processes. The third chapter covers the various memory devices, both ROM and RWM. Next, the book deals with the general architecture of microprocessor. The succeeding three chapters discuss the software aspects of machine operation, while the last remaining three chapters talk about the relationship of the microprocessor with the outside world. The text will be of great use to

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undergraduate students of various disciplines. Practitioners of computer-related fields with no previous digital experience will find this book useful. Digital Logic with an Introduction to Verilog and FPGA-Based Design provides basic knowledge of field programmable gate array (FPGA) design and implementation using Verilog, a hardware description language (HDL) commonly used in the design and verification of digital circuits. Emphasizing fundamental principles, this student-friendly textbook is an ideal resource for introductory digital logic courses. Chapters offer clear explanations of key concepts and step-by-step procedures that illustrate the real-world application of FPGA-based design. Designed for beginning students familiar with DC circuits and the C programming language, the text begins by describing of basic terminologies and essential concepts of digital integrated circuits using transistors. Subsequent chapters cover device level and logic level design in detail, including combinational and sequential circuits used in the design of microcontrollers and microprocessors. Topics include Boolean algebra and functions, analysis and design of sequential circuits using logic gates, FPGA-based implementation using CAD software tools, and combinational logic design using various HDLs with focus on Verilog.

Tocci and Widmer use a block diagram approach to basic logic operations, enabling readers to have a firm understanding of logic principles before they study the electrical characteristics of the logic ICs. **KEY TOPICS** For each new device or circuit, the authors describe the

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principle of the operation, give thorough examples, and then show its actual application. An excellent reference on modern digital systems.

"Engineering Digital Design" provides the most extensive coverage of any available textbook in digital logic and design. Modern notation combines with a 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. Software programs, including a logic minimizer and a logic simulator, are provided on a CD-ROM and include detailed instructions for use.

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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

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* 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.

This third volume in the comprehensive Digital Electronics series, which explores the basic principles and concepts of digital circuits, focuses on finite state machines. These machines are characterized by a behavior that is determined by a limited and defined number of states, the holding conditions for each state, and the branching conditions from one state to another. They only allow one transition at a time and can be divided into two components: a combinational logic circuit and a sequential logic circuit. The approach is gradual and relatively independent of each other chapters. To facilitate the assimilation and practical implementation of various concepts, the book is complemented by a selection of practical exercises. With the advent of integrated circuit technology, the importance and usefulness of digital electronics has vastly increased. The size, cost and power dissipation

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have been reduced in the ratio of 2,000:1 and the performance, reliability and efficiency of equipment increased tremendously. This book gives a basic concept of digital techniques and then introduces simple function to complex functions. It uses SSI and MSI, TTL ICs of the most commonly available 54/74 series. The book will be useful to students of electronics and computer technology, as well as to practicing engineers and technicians.

In 1993, the first edition of The Electrical Engineering Handbook set a new standard for breadth and depth of coverage in an engineering reference work. Now, this classic has been substantially revised and updated to include the latest information on all the important topics in electrical engineering today. Every electrical engineer should have an opportunity to expand his expertise with this definitive guide. In a single volume, this handbook provides a complete reference to answer the questions encountered by practicing engineers in industry, government, or academia. This well-organized book is divided into 12 major sections that encompass the entire field of electrical engineering, including circuits, signal processing, electronics, electromagnetics, electrical effects and devices, and energy, and the emerging trends in the fields of communications, digital devices, computer engineering, systems, and biomedical engineering. A compendium of physical, chemical, material, and mathematical data completes this comprehensive resource. Every major topic is thoroughly covered and every important concept is defined, described, and illustrated. Conceptually challenging but

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Carefully explained articles are equally valuable to the practicing engineer, researchers, and students. A distinguished advisory board and contributors including many of the leading authors, professors, and researchers in the field today assist noted author and professor Richard Dorf in offering complete coverage of this rapidly expanding field. No other single volume available today offers this combination of broad coverage and depth of exploration of the topics. The Electrical Engineering Handbook will be an invaluable resource for electrical engineers for years to come.

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.

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

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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.

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

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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.

This textbook is intended to introduce the student of electronics to the fundamentals of digital circuits, both combinational and sequential, in a reasonable and systematic manner. It proceeds from basic logic concepts to circuits and designs.

The lab manual by Greg Moss (A Design Approach) features digital logic design using complex programmable logic devices (CPLDs) or field programmable gate arrays (FPGAs). In other words, this lab manual uses Quartus software rather than the old-school hands-on lab equipment. ISBN-10: 0132153815
ISBN-13: 9780132153812

This text categorises questions & problems at the end of each chapter into one of four types: C (Challenging), D (Design), N (New) introducing new concepts/techniques,

& T (Troubleshooting).

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

The Newnes Know It All Series takes the best of what our authors have written to create hard-working desk references that will be an engineer's first port of call for key information, design techniques and rules of thumb. Guaranteed not to gather dust on a shelf! Electronics Engineers need to master a wide area of topics to excel. The Circuit Design Know It All covers every angle including semiconductors, IC Design and Fabrication, Computer-Aided Design, as well as Programmable Logic Design. • A 360-degree view from our best-selling authors • Topics include fundamentals, Analog, Linear, and Digital circuits • The ultimate hard-working desk reference; all the essential information, techniques and tricks of the trade in one volume

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

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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. The book covers the complete syllabus of subject as suggested by most of the universities in India. Generic VHDL code is taught and used through out the book so that different companies. VHDL tools can be used if desired. Moving from the unknown in a logical manner. Subject matter in each chapter develops systematically from inceptions. Large number of carefully selected worked examples in sufficient details. No other reference is required. Ideally suited for self-study.

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

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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.

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