

Latest Edition Modern Digital Electronics Book By R P Jain 4th Edition Notes

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.

The book covers the complete syllabus of subject as suggested by most of the universities in India. Proper balance between mathematical details and qualitative discussion. Subject matter in each chapter develops systematically from inceptions. Large number of carefully selected worked examples in sufficient details. Each chapter of the book is saturated with much needed test supported by neat and self-explanatory diagrams to make the subject self-speaking to a great extent. No other reference is required. Ideally suited for self-study.

This book presents three aspects of digital circuits: digital principles, digital electronics, and digital design. The modern design methods of using electronic design automation (EDA) are also introduced, including the hardware description language (HDL), designs with programmable logic devices and large scale integrated circuit (LSI). The applications of digital devices and integrated circuits are discussed in detail as well.

This text is suitable for students with or without prior knowledge of probability theory. Only after laying a solid foundation in how communication systems work do the authors delve into analyses that require probability theory and random processes. Revised and updated throughout, the fifth edition features over 200 fully worked-through examples incorporating current technology, MATLAB codes throughout, and a full review of key signals and systems concepts.

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

This book provides a comprehensive coverage of the more important circuits and techniques used in modern digital electronic circuitry. The various logic families are discussed and their relative merits considered; the description of the digital circuits, such as counters, is illustrated by reference to the two most popular families, i.e.....

This graduate-level text explains the modern in-depth approaches to the calculation of electronic structure and the properties of molecules. Largely self-contained, it features more than 150 exercises. 1989 edition.

Today's diesel vehicles integrate electrical and electronic controls within all major systems, making a thorough understanding of current technology essential for success as a diesel technician. Bell's MODERN DIESEL TECHNOLOGY: ELECTRICITY AND ELECTRONICS, Second Edition, provides this understanding through clear explanations of fundamental principles, detailed coverage of the latest engines and equipment, abundant real-world examples, and the technical accuracy and depth of detail that professional technicians demand. An engaging writing style and highly visual layout make the material easier to master, while a strong focus on practical applications and problem-solving help readers readily use what they learn in the shop. Now updated with a visually appealing, two-color design and new material to reflect the latest technology and practices, this proven guide is an essential resource for aspiring and professional diesel technicians alike. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

The second edition of this book has been updated and enlarged, especially the chapters on digital electronics. In the analog part, several additions have been made wherever necessary. Also, optical devices and circuits have been introduced. Analog electronics spans semiconductors, diodes, transistors, small and large-signal amplifiers, OPAMPs and their applications. Both BJT and JFET, and MOSFET are treated parallelly so as to highlight their similarities and dissimilarities for thorough understanding of their parameters and specifications. The digital electronics covers logic gates, combinational circuits, IC families, number systems codes, adders/subtractors, flip-flops, registers and counters. Sequential circuits, memories and D/A and A/D convertor circuits are especially stressed. Fabrication technology of integrated devices and circuits have also been dealt with. Besides, many new examples and problems have been added section-wise. The text is written in simple yet rigorous manner with profusion of illustrative examples as an aid to clear understanding. The student can self-study several portions of the book with minimal guidance. A solution manual is available for the teachers.

With the advent of integrated circuit technology, the importance and usefulness of digital electronics has vastly increased. The size, cost and power dissipation 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.

Digital Electronics is specially designed as a textbook for the undergraduate students of Electronics, Communication, Computer Science, Electrical and Instrumentation Engineering for their introductory course on digital electronics or digital system and design.

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.

With over 30 years of experience in both industrial and university settings, the author covers the most widespread logic design practices while building a solid foundation of theoretical and engineering principles for students to use as they go forward in this fast moving field.

The present book has been thoroughly revised and lot of useful material has been added. Several photographs of electronic devices and their specifications sheets have been included. This will help the students to have a better understanding of the electronic devices and circuits from application point of view. The mistake and misprints, which have crept in, have been eliminated in this edition.

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

Provides comprehensive coverage of the basic principles and methods of electric power conversion and the latest developments in the field. This book constitutes a comprehensive overview of the modern power electronics. Various semiconductor power switches are described, complementary components and systems are presented, and power electronic converters that process power for a variety of applications are explained in detail. This third edition updates all chapters, including new concepts in modern power electronics. New to this edition is extended coverage of matrix converters, multilevel inverters, and applications of the Z-source in cascaded power converters. The book is accompanied by a website hosting an instructor's manual, a PowerPoint presentation, and a set of PSpice files for simulation of a variety of power electronic converters. Introduction to Modern Power Electronics, Third Edition: Discusses power conversion types: ac-to-dc, ac-to-ac, dc-to-dc, and dc-to-ac. Reviews advanced control methods used in today's power electronic converters. Includes an extensive body of examples, exercises, computer assignments, and simulations. Introduction to Modern Power Electronics, Third Edition is written for undergraduate and graduate engineering students interested in modern power electronics and renewable energy systems. The book can also serve as a reference tool for practicing electrical and industrial engineers.

Test Prep for Digital Electronics—GATE, PSUS AND ES Examination

Digital electronics is an interdisciplinary subject of electronics, electrical, information technology, computer science engineering and sciences domain. Digital Electronics has been written as per the syllabus of Digital Electronics, Digital Circuits and Logic Design of various universities like PTU, GNDU, PU, SLIET, DU, PEC, NITs and Thapar University. The book provides a comprehensive coverage of the fundamental aspects of digital electronics. It not only explores the theoretical and practical aspects of digital circuitry, but also gives a glimpse of experience and classroom interaction of the authors. Besides, the step-by-step methods to solve the digital system problems, it also includes the shortcut methods to digital approach for job interviews and competitive examinations. This book is invaluable for BE, B.Tech., B.Sc., M.Sc. (Computer Science/IT), M.Sc. (Physics), M.Sc. (Electronics), BCA, MCA, PGDCA and PGDIT students. The eighth edition of Digital Electronics: Principles and Applications provides a concise, modern approach to this fascinating subject. It has been written so that a student needs no prior knowledge of electrical theory and principles and at a level that allows students with limited math and reading skills can gain a clear understanding of concepts and application covered in a digital electronics course. The textbook has been noted for its easy-to-read style and colorful illustrations. It is ideal for a wide range of electronics courses, especially programs in which students must learn the essentials and quickly apply them to real job situations.

This book takes an authoritative introduction to basic principles of digital design and practical requirements in both board-level and VLSI systems. Digital Design covers the most widespread logic design practices while building a solid foundation of theoretical and engineering principles. This easy-to-follow book uses a practical writing style. Includes low voltage and LVCMOS/LVTTL. Coverage of Complex Programmable Logic Devices (CPLDs) and Field-Programmable Gate Arrays (FPGAs). Introduction of HDL-based digital design. Covers VHDL as well as ABEL. Including simulation and synthesis.

This new edition of Digital Electronics is up-to-date with current devices and includes many practical exercises whilst continuing to provide a comprehensive introduction to the principles of modern digital electronics.

What makes some computers slow? Why do some digital systems operate reliably for years while others fail mysteriously every few hours? How can some systems dissipate kilowatts while others operate off batteries? These questions of speed, reliability, and power are all determined by the system-level electrical design of a digital system. Digital Systems Engineering presents a comprehensive treatment of these topics. It combines a rigorous development of the fundamental principles in each area with real-world examples of circuits and methods. The book not only serves as an undergraduate textbook, filling the gap between circuit design and logic design, but can also help practising digital designers keep pace with the speed and power of modern integrated circuits. The techniques described in this book, once

used only in supercomputers, are essential to the correct and efficient operation of any type of digital system.

With exceptionally clear writing, Lathi takes students step by step through a history of communications systems from elementary signal analysis to advanced concepts in communications theory. The first four chapters of the text present basic principles, subsequent chapters offer ample material for flexibility in course content and level. All Topics are covered in detail, including a thorough treatment of frequency modulation and phase modulation. Numerous worked examples in each chapter and over 300 end-of-chapter problems and numerous illustrations and figures support the content.

For those with a basic understanding of digital design, this book teaches the essential skills to design digital integrated circuits using Verilog and the relevant extensions of SystemVerilog. In addition to covering the syntax of Verilog and SystemVerilog, the author provides an appreciation of design challenges and solutions for producing working circuits. The book covers not only the syntax and limitations of HDL coding, but deals extensively with design problems such as partitioning and synchronization, helping you to produce designs that are not only logically correct, but will actually work when turned into physical circuits. Throughout the book, many small examples are used to validate concepts and demonstrate how to apply design skills. This book takes readers who have already learned the fundamentals of digital design to the point where they can produce working circuits using modern design methodologies. It clearly explains what is useful for circuit design and what parts of the languages are only software, providing a non-theoretical, practical guide to robust, reliable and optimized hardware design and development. Produce working hardware: Covers not only syntax, but also provides design know-how, addressing problems such as synchronization and partitioning to produce working solutions Usable examples: Numerous small examples throughout the book demonstrate concepts in an easy-to-grasp manner Essential knowledge: Covers the vital design topics of synchronization, essential for producing working silicon; asynchronous interfacing techniques; and design techniques for circuit optimization, including partitioning

"This book has been designed to meet the needs of students of electronic engineering, computer science and physics. It will also be useful to engineers and scientists who did not have the opportunity to study digital techniques and microprocessors in their college days. The book can be used for self study, practice and as a guide to what can be expected in the examination. The book consists of 12 chapters and 8 appendices. Each chapter contains: Solved problems (300 in the book) Unsolved problems with answers (320 in the book) Questions with Answers (450 in the book) There is separate section containing 465 multiple choice questions (with answers) covering all the topics. Readers will find the exhaustive glossary of over 500 terms very useful.

Offers a complete grounding in the principles and techniques of modern electronics. Designed to provide even beginning students with the knowledge and skills necessary for building useful and interesting circuits either in a laboratory situation or on their own. Concentrates on techniques and devices currently used in modern equipment and special attention is paid to the basic ideas and techniques used with important types of circuits. A substantial portion of the book is devoted to explaining the vocabulary and information presented in data sheets for these circuits. By instructing students in these techniques and familiarizing them with the ins-and-outs of electronic literature, it provides a sound introduction to the field and a means of keeping up with its extremely rapid changes.

The revised edition of Modern Digital Electronics focuses on rigorous coverage of design and analysis of complex digital circuits and systems through enhanced elucidation of Sequential Logic Design, PLDs, Memories and VHDL implementation codes. Begins with the fundamental concepts of digital electronics, it covers digital design using VHDL supported by plethora of examples.

Modern Digital Electronics 4ETata McGraw-Hill EducationModern Digital ElectronicsTata McGraw-Hill EducationModern Digital ElectronicsMcGraw-Hill Science/Engineering/Math

Provides a comprehensive coverage of the basic techniques and circuits employed in modern digital electronics. The text discusses everything from the various logic technologies used and the terms employed in data sheets to the design of synchronous counters and sequential systems.

The fourth edition of this text provides comprehensive coverage of the basic techniques used in modern digital electronics. The book covers the digital part of the Electronics NII unit and the level three unit Digital Electronic NIII of the BTEC course

Focused on the field of knowledge lying between digital and analog circuit theory, this new text will help engineers working with digital systems shorten their product development cycles and help fix their latest design problems. The scope of the material covered includes signal reflection, crosstalk, and noise problems which occur in high speed digital machines (above 10 megahertz). This volume will be of practical use to digital logic designers, staff and senior communications scientists, and all those interested in digital design.

The field of teaching digital electronics has not changed significantly in the past 20 years. Many of the same books that first became available in the late 1970s and early 1980s are still being used as basic texts. In the 20+ years since these were written, the basic rules have not changed, but they do not provide strong links to modern electronics including CMOS logic, Programmable Logic Devices and microprocessor/microcontroller interfacing. Courses teaching introductory digital electronics will fill in the missing areas of information for students, but neither the instructors nor students have resources to explain modern technology and interfaces. One assumption made by all the standard texts is that experimenting with digital electronics cannot be done easily - in the proposed book, "digital guru" Myke Predko will show how readers can set up their own apparatus for experimenting with digital electronics for less than \$10.

Modern Digital Design and Switching Theory is an important text that focuses on promoting an understanding of digital logic and the computer programs used in the minimization of logic expressions. Several computer approaches are explained at an elementary level, including the Quine-McCluskey method as applied to single and multiple output functions, the Shannon expansion approach to multilevel logic, the Directed Search Algorithm, and the method of Consensus. Chapters 9 and 10 offer an introduction to current research in field programmable devices and multilevel logic synthesis. Chapter 9 covers more advanced topics in programmed logic devices, including techniques for input decoding and Field-Programmable Gate Arrays (FPGAs). Chapter 10 includes a discussion of boolean division, kernels and factoring, boolean tree structures, rectangle covering, binary decision diagrams, and if-then-else operators. Computer algorithms covered in these two chapters include weak division, iterative weak division, and kernel extraction by tabular methods and by rectangle covering theory. Modern Digital Design and Switching Theory is an excellent textbook for electrical and computer engineering students, in addition to a worthwhile reference for professionals working with integrated circuits.

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.

Part of the McGraw-Hill Core Concepts Series, Modern Digital Electronics is an ideal textbook for a course on digital electronics at the undergraduate level. The text introduces digital systems and techniques through a bottom-up approach that allows users to start out with the basics of integrated circuits/circuit design and delve into topics such as digital design, flip flops, A/D and D/A. The book then moves on to explore elements of complex digital circuits with material like FPGAs, PLDs, PLAs, and more. Rich pedagogical features include review questions with answers, a glossary of key terms, a large number of solved examples, and numerous practice problems. This is a concise, less expensive alternative to other digital logic designs. This series is edited by Dick Dorf.

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