

# Modern Digital Electronics

Basic Digital Electronics Digital Electronics Demystified Introduction to Digital Electronics Introduction to Digital Electronics Digital Electronics Digital Electronics Modern Digital Electronics A Textbook of Digital Electronics Digital Electronics Demystified DIGITAL ELECTRONICS AND LOGIC DESIGN Basic Digital Electronics Digital Electronics Basic Digital Electronics DIGITAL ELECTRONICS: PRINCIPLES AND INTEGRATED CIRCUITS Principles and Applications of Digital Electronics Practical Digital Electronics Mastering Digital Electronics Introduction to Digital Electronics Digital Electronics Introduction to Digital Electronics, 1/e Ray Ryan Myke Predko J. Crowe Ken Reid Christopher E. Strangio Rishabh Anand R. P. Jain RS Sedha Myke Predko NAIR, B. SOMANATHAN Alvis J. Evans Roger L. Tokheim J.A. Strong Anil K. Maini Larry D. Jones Nigel P. Cook Hubert Henry Ward Stanley M. Hajek Anil K. Maini Betty Lincoln

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a guide to digital circuitry for students and hobbyists covering the latest memory chips and packages microprocessor basics alphanumeric codes demultiplexers and lcds it retains the best chapters from the first edition including examples of the application for digital circuitry

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

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

logic concepts boolean algebra combinational logic binary number operations flip flops counter analysis and design sequential circuits digital circuit fault analysis analog digital

conversion computers and microprocessors

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

while writing this treatise i have constantly kept in mind the requirments of all the students regarding the latest as well as changing trend of their examinations to make it really useful for the students latest examination questions of various indian universities as well as other examinations bodies have been included the book has been written in easy style with full details and illustrations

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designed as a textbook for undergraduate students in electrical engineering electronics computer science and information technology this up to date well organized study gives an exhaustive treatment of the basic principles of digital electronics and logic design it aims at bridging the gap between these two subjects the many years of teaching undergraduate and postgraduate students of engineering that professor somanathan nair has done is reflected in the in depth analysis and student friendly approach of this book concepts are illustrated with the help of a large number of diagrams so that students can comprehend the subject with ease worked out examples within the text illustrate the concepts discussed and questions at the end of each chapter drill the students in self study

basic digital electronics will teach you the difference between analog and digital systems the functions required to design digital systems circuits used to make decisions code conversions and data selections are discussed

this text covers updated contents such as optoisolators stepper motors electronic simulation software digital capacitance meters optical encoding leds logic probes and arithmetic logic units

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 under standing 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

market desc undergraduate and graduate level students of different universities special features each chapter in the book whether it is related to operational fundamentals or applications is amply illustrated with diagrams and design examples each chapter concludes in a comprehensive self evaluation exercise comprising multiple choice questions with answers and other type of objective type questions with answers unlike most of the books in print on the subject that are either too brief lacking in illustrated examples and examination oriented study material or too voluminous containing lot of redundant material the book has been written keeping in mind the topics taught in the subject and covers in entirety what is required by undergraduate and graduate level students of engineering in electrical electronics instrumentation and control computer science and information technology disciplines about the book digital electronics is a precise and yet complete book covering both digital electronics fundamentals and integrated circuits this book provides practical and comprehensive coverage of digital electronics bringing together information on fundamental theory operational aspects and potential applications each chapter in the book is amply illustrated with diagrams and design examples each chapter concludes in a comprehensive self evaluation exercise comprising multiple choice and objective type questions with answers the book has up to date coverage of recent application fields such as programmable logic devices microprocessors and microcontrollers this valuable reference book provides in depth information about multiplexers de multiplexers devices for arithmetic operations flip flops and related devices counters and registers and data conversion circuits

appropriate for digital electronics courses in high schools vocational technical schools and community colleges after 16 textbooks 26 editions and 19 years of front line education experience best selling author nigel cook s new text practical digital electronics completes the successful practical series trilogy practical electricity 14 dc ac chapters isbn 0 13 042047 6 practical electronics 14 devices chapters isbn 0 13 042082 4 practical digital electronics 14 digital chapters isbn 0 13 111060 8

discover the essential knowledge and practical skills to excel in the dynamic field of digital electronics with mastering digital electronics from the fundamentals of diode resistor logic to unraveling the intricacies of ttl and cmos logic gates this book takes you on a journey through the evolution of digital electronics starting with the humble sr latch and progressing to the revolutionary jk flip flop that powers today s computer technology you ll gain a solid foundation in binary arithmetic boolean algebra and the representation and optimization of digital circuits the book gives a firm understanding of digital electronics then moves on to using standard design methods such as state diagrams to design everyday logic circuits such as counters shift registers piso and sipo registers it delves into how to design some challenging digital circuits such as a crossroad set of traffic lights with a pelican crossing and how to use the 555 timer to control a variety of applications at every stage of the book you will be learning how to use tina version 12 an industry standard ecad and many of its functions moreover the book ventures into using the software to simulate and so confirm all the circuits you design for readers interested in advancing to the practical implementation of the circuits discussed the book provides opportunities to design pcb circuit boards for selected circuits using the software this book will suit any student of digital electronics at any level and provide them with essential reference material for them to start a career in digital electronics what you ll learn what logic gates are and the difference between sequential and combinational logic how to use binary numbers and how to perform all

arithmetic operations learn about the five basic logic gates and nand or nor and exor gates how to minimize logic circuits using boolean algebra and karnaugh maps how to state diagrams to design logic circuits how to design a range of logic circuits learn about combinational circuits and the half and full adder as well as a logic circuit to subtract binary numbers learn about the 555 timer and how to apply it to a range of logic circuits who this book is for students who are studying for an engineering qualification hobbyist who wants to design digital circuits engineers who need a go to reference book on digital electronics

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

designed to provide a comprehensive and practical insight to the basic concepts of digital electronics this book brings together information on theory operational aspects and practical applications of digital circuits in a succinct style that is suitable for undergraduate students spread across 16 chapters the book walks the student through the first principles and the karnaugh mapping reduction technique before proceeding to elaborate on the design and implementation of complex digital circuits with ample examples and exercises to reinforce theory and an exclusive chapter allotted for electronic experiments this textbook is an ideal classroom companion for students

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## Introduction

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