

# Digital Logic Circuits By P S Manoharan

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Electronic Logic Circuits Digital Logic Circuits The Essence of Logic Circuits Digital Electronics: A Primer - Introductory Logic Circuit Design Digital Logic Circuits Handbook of Logic Circuits An Introduction to Logic Circuit Testing Computer-Aided Design Techniques for Low Power Sequential Logic Circuits Micropower Logic Circuits Fundamentals and Applications of Digital Logic Circuits Digital Electronics 1 Design of Testable Logic Circuits Digital Logic Circuits (As Per Anna University) Digital Logic Design Principles Logic Circuit Design Digital Circuits Logic Circuits Design of Logic Systems Digital Electronic Circuits The Electrical Engineering Handbook, Second Edition J. Gibson Dr. P. Kannan Stephen H. Unger Mark S Nixon Atul P. Godse John D. Lenk Parag K. Lala José Monteiro John C. Sturman Sol Libes Tertulien Ndjountche R. G. Bennetts A.K. Singh Norman Balabanian Shimon P. Vingron Emery Noel Malcolm Morris DAVID PROTHEROE DOUGLAS LEWIN Shuqin Lou Richard C. Dorf

Electronic Logic Circuits Digital Logic Circuits The Essence of Logic Circuits Digital Electronics: A Primer - Introductory Logic Circuit Design Digital Logic Circuits Handbook of Logic Circuits An Introduction to Logic Circuit Testing Computer-Aided Design Techniques for Low Power Sequential Logic Circuits Micropower Logic Circuits Fundamentals and Applications of Digital Logic Circuits Digital Electronics 1 Design of Testable Logic Circuits Digital Logic Circuits (As Per Anna University) Digital Logic Design Principles Logic Circuit Design Digital Circuits Logic Circuits Design of Logic Systems Digital Electronic Circuits The Electrical Engineering Handbook, Second Edition J. Gibson Dr. P. Kannan Stephen H. Unger Mark S Nixon Atul P. Godse John D. Lenk Parag K. Lala José Monteiro John C. Sturman Sol Libes Tertulien Ndjountche R. G. Bennetts A.K. Singh Norman Balabanian Shimon P. Vingron Emery Noel Malcolm Morris DAVID PROTHEROE DOUGLAS LEWIN Shuqin Lou Richard C. Dorf

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preface of the book this book is extensively designed for the third semester eee eie students as per anna university syllabus r

2013 the following chapters constitute the following units chapter 1 9 covers unit 1 chapter 2 and 3 covers unit 2 chapter 4 and 5 covers unit 3 chapter 6 and 7 covers unit 4 chapter 8 vhdl unit 5 chapter 1 introduces the number system binary arithmetic and codes chapter 2 deals with boolean algebra simplification using boolean theorems k map method quine mccluskey method logic gates implementation of switching function using basic logical gates and universal gates chapter 3 describes the combinational circuits like adder subtractor multiplier divider magnitude comparator encoder decoder code converters multiplexer and demultiplexer chapter 4 describes with latches flip flops registers and counters chapter 5 concentrates on the analysis as well as design of synchronous sequential circuits design of synchronous counters sequence generator and sequence detector chapter 6 concentrates the design as well as analysis of fundamental mode circuits pulse mode circuits hazard free circuits asm chart and design of asynchronous counters chapter 7 discussion on memory devices which includes rom ram pla pal sequential logic devices and asic chapter 8 the chapter concentrates on the design fundamental building blocks data types operates subprograms packages compilation process used for vhdl it discusses on finite state machine as an important tool for designing logic level state machines the chapter also discusses register transform level designing and test benches usage in stimulation of the state logic machines chapter 9 concentrate on the comparison operation and characteristics of rtl dtl ttl ecl and mos families we have taken enough care to present the definitions and statements of basic laws and theorems problems with simple steps to make the students familiar with the fundamentals of digital design

today designing a state of the art circuit means knowing how to pack more and more logic on a chip featuring an extensive introductory material this complete carefully organized guide brings you valuable information on designing modern logic circuits from gates switches and other basic elements to meet the rising demands on modern circuit technology the essence of logic circuits allows computer scientists and students to start from scratch and gain a comprehensive understanding of most important topics in the field

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

an introduction to logic circuit testing provides a detailed coverage of techniques for test generation and testable design of digital electronic circuits systems the material covered in the book should be sufficient for a course or part of a course in digital circuit testing for senior level undergraduate and first year graduate students in electrical engineering and computer science the book will also be a valuable resource for engineers working in the industry this book has four chapters chapter 1 deals with various types of faults that may occur in very large scale integration vlsi based digital circuits chapter 2 introduces the major concepts of all test generation techniques such as redundancy fault coverage sensitization and backtracking chapter 3 introduces the key concepts of testability followed by some ad hoc design for testability rules that can be used to enhance testability of combinational circuits chapter 4 deals with test generation and response evaluation techniques used in bist built in self test schemes for vlsi chips table of contents introduction fault detection in logic circuits design for testability built in self test references

rapid increases in chip complexity increasingly faster clocks and the proliferation of portable devices have combined to make power dissipation an important design parameter the power consumption of a digital system determines its heat dissipation as well as battery life for some systems power has become the most critical design constraint computer aided design techniques for low power sequential logic circuits presents a methodology for low power design the authors first present a survey of techniques for estimating the average power dissipation of a logic circuit at the logic level power dissipation is directly related to average switching activity a symbolic simulation method that accurately computes the average switching activity in logic circuits is then described this method is extended to handle sequential logic circuits by modeling correlation in time and by calculating the probabilities of present state lines computer aided design techniques for low power sequential logic circuits then presents a survey of methods to optimize logic circuits for low power dissipation which target reduced switching activity a method to retime a sequential logic circuit where registers are repositioned such that the overall glitching in the circuit is minimized is also described the authors then detail a powerful optimization method that is based on selectively precomputing the output logic values of a circuit one clock cycle before they are required and using the precomputed value to reduce internal switching activity

in the succeeding clock cycle presented next is a survey of methods that reduce switching activity in circuits described at the register transfer and behavioral levels also described is a scheduling algorithm that reduces power dissipation by maximising the inactivity period of the modules in a given circuit computer aided design techniques for low power sequential logic circuits concludes with a summary and directions for future research

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 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

this book is an introduction on the principles of digital logic circuits while providing coverage to the usual topics in combinational and sequential circuit principles it also includes a chapter on the use of the hardware description language abel in the design of circuits using plds and a chapter on computer organization

in three main divisions the book covers combinational circuits latches and asynchronous sequential circuits combinational circuits have no memorising ability while sequential circuits have such an ability to various degrees latches are the simplest sequential circuits ones with the shortest memory the presentation is decidedly non standard the design of combinational circuits is discussed in an orthodox manner using normal forms and in an unorthodox manner using set theoretical evaluation formulas relying heavily on karnaugh maps the latter approach allows for a new design technique called composition latches are covered very extensively their memory functions are expressed mathematically in a time independent manner allowing the use of normal non temporal boolean logic in their calculation the theory of latches is then used as the basis for calculating asynchronous circuits asynchronous circuits are specified in a tree representation each internal node of the tree representing an internal latch of the circuit the latches specified by the tree itself the tree specification allows solutions of formidable problems such as algorithmic state assignment finding equivalent states non recursively and verifying asynchronous circuits

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

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

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 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

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