

# About Pearson

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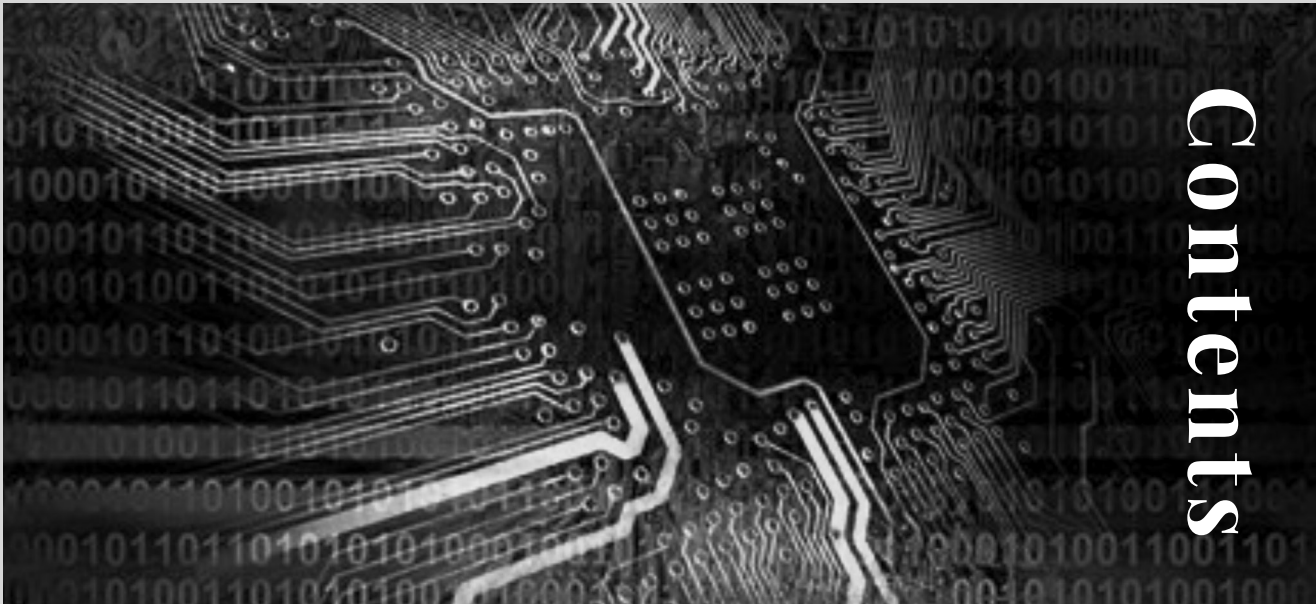
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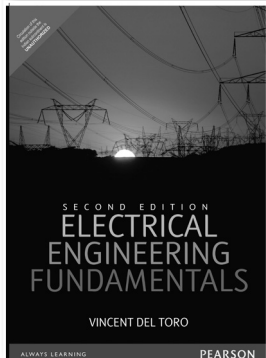
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# Electrical Engineering

## Electrical Engineering Fundamentals, 2/e



ISBN: 9789332551763

 Vincent Del Toro

 940 | © 2015

### ABOUT THE BOOK

Electrical Engineering Fundamentals focuses on the five principal zones within the discipline of electrical engineering. The author also develops new content that is more attuned to the needs of the students and uses new fundamental laws to clarify the concepts and ideas in a more structured manner.

The second edition of the book, Electrical Engineering Fundamentals is intended to be put in use where Del Toro's other text, Principles of Electrical Engineering is being used. As a text, although it is primarily designed for students of electrical engineering, non-majors can subscribe to the text easily because

of its accessible content. The student can use the Classical Method or the Laplace Transform Method to solve problems.

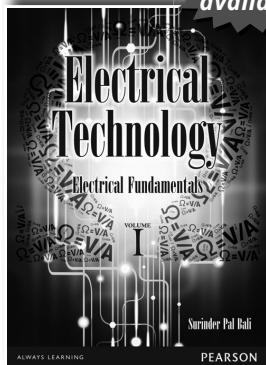
### CONTENTS

1. The Fundamental Laws of Electrical Engineering  
**Part One: Electric Circuit Theory**
  2. The Circuit Elements. Elementary Network Theory
  3. Circuit Differential Equations
  4. Forms and Solutions. Circuit Dynamics and Forced Responses
  5. The Laplace-Transform Method of Finding Circuit Solutions
  6. Sinusoidal Steady-State Response of Circuits  
**Part Two: Electronics**
  7. Electron Control Devices
  8. Semiconductor Types
  9. Semiconductor Electronic Circuits
  10. Special Topics and Applications  
**Part Three: Digital Systems**
  11. Binary Logic: Theory and Implementation
  12. Simplifying Logical Functions
  13. Components of Digital Systems
  14. Microprocessor Computer Systems  
**Part Four: Electromechanical Energy Conversion**
  15. Magnetic Theory and Circuits
  16. Transformers
  17. Electromechanical Energy Conversion
  18. The Three-Phase Induction Motor
  19. Three-Phase Synchronous Machines
  20. D-C Machines
  21. Single-Phase Induction Motors
  22. Stepper Motors  
**Part Five: Feedback Control Systems**
  23. Principles of Automatic Control
  24. Dynamic Behavior of Control Systems
- Appendices**

### ABOUT THE AUTHOR

**Vincent Del Toro** was an Emeritus Professor of City College of New York and an Electrical Engineer. His other books include Electric Machines and Power Systems, Principles of Control Systems Engineering and Electric Power Systems. He graduated from CCNY and Brooklyn Polytechnic University before turning to his enriching career in education and academics. He was a well-known educator and had garnered Educator of the Year awards for his contributions in the field. He wrote 10 books along with the best-selling books Electrical Engineering Fundamentals and Principles of Electrical Engineering. He died at the age of 82 on July 5, 2006 in New Jersey.

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E-Book  
available

## Electrical Technology, Vol-I: Electrical Fundamentals, 2/e

 **Surinder Pal Bali**

 **608** | © **2013**

**ISBN: 9788131785935**

### ABOUT THE BOOK

Electrical Technology, Vol. 1 is a well-written textbook that will serve the needs of undergraduate students of engineering. The 1st volume of the book consists of 30 chapters and introduces the fundamentals of the subject through a discussion on system of units and fundamentals of electrons and gradually moves to advanced topics such as Complex Algebra, Fourier Series, Circuits and Networks, which helps engineering students understand the subject better and build a concrete foundation of their concepts.

### FEATURES

- Presents a comprehensive coverage on the fundamentals of the subject, such as Dielectric Materials, Electrochemical Action, Inductors, and Hysterisis.
- Chapters focusing on magnetic materials, complex algebra, fourier series, first and second order systems
- Additional solved examples provided at the end of chapter for concrete understanding of topics
- Web Supplements includes animations, important formulae, periodic chart, key terminology, Diagrammatic Symbols etc.
- Excellent pedagogy
  - Learning Objectives
  - Chapter Summary
  - 900+ illustrations
  - 450+ solved questions
  - 450+ unsolved questions
  - 300+ MCQs with answers

### CONTENTS

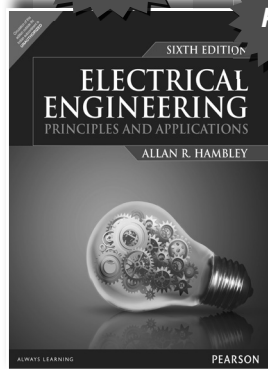
1. System of Units
2. Electrons in Action
3. Electric Circuits
4. Simple D.C. Circuits
5. Networks (D.C.)
6. Mesh Current and Node-Voltage Analysis
7. Electrochemical Action
8. Electromagnetism
9. Inductors and A.C. Transients
10. Hysteresis
11. Magnetic Materials
12. Electrostatics
13. Capacitors and D.C. Transients
14. Dielectric Materials
15. Field Theory
16. Single Phase Alternating Voltage and Current
17. Three-Phase Circuits and Systems
18. Complex Algebra
19. Work, Power and Energy
20. Power Factor Correction
21. LCR Circuits
22. Resonance
23. The Fourier Series
24. Networks (A.C.)
25. Delta Wye Transformations
26. Attenuators and Filters
27. Transmission Lines
28. First and Second Order Systems
29. Laplace Transforms
30. Coupled Circuits

### ABOUT THE AUTHOR

**S. P. Bali** has been associated with the field of electronics for over 45 years. With over 20 years of teaching experience, he has been teaching new entrants in the field of electronics and taken diploma-level courses in the Military College of Electronics and Mechanical Engineering (MCEME), Secunderabad. He has contributed articles to magazines and has authored several books.

E-Book  
available

POD



ISBN: 9789332563308

## Electrical Engineering: Principles & Applications, 6/e

 **Allan R. Hambley**

 **912** | © **2016**

### ABOUT THE BOOK

The revised edition of Electrical Engineering enhances the overall learning experience by using a wide variety of pedagogical features to present the applications of the theories in various fields. Important topics such as Circuit Analysis, Digital Systems, Electronics, and Electromechanics are thoroughly covered. The focus of the text is to stimulate student interest and increase awareness about the relevance of electrical engineering in their chosen professions.

### FEATURES

- Updated coverage of MATLAB and the Symbolic Toolbox for network analysis
- Explanation of how the Wheatstone bridge is used in strain measurements
- Discussion on Freescale Semiconductor HCS12/9S12 family as an example of microcontrollers
- Approximately 200 problems added, replacing some of the problems from the previous edition

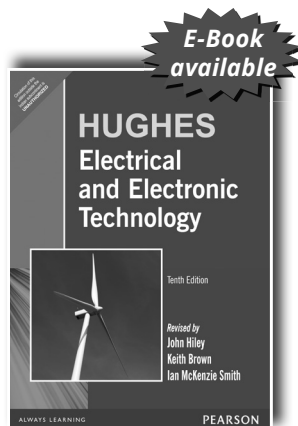
### CONTENTS

1. Introduction
2. Resistive Circuits
3. Inductance and Capacitance
4. Transients
5. Steady-State Sinusoidal Analysis
6. Frequency Response, Bode Plots, and Resonance
7. Logic Circuits
8. Computers and Microcontrollers
9. Computer-Based Instrumentation Systems
10. Diodes
11. Amplifiers: Specifications and External Characteristics
12. Field-Effect Transistors
13. Bipolar Junction Transistors
14. Operational Amplifiers
15. Magnetic Circuits and Transformers
16. DC Machines
17. AC Machines

### ABOUT THE AUTHOR

**Allan R. Hambley** received his B.S. degree from Michigan Technological University, his M.S. degree from Illinois Institute of Technology, and his Ph.D. from Worcester Polytechnic Institute. He has worked in industry for Hazeltine Research Inc., Warwick Electronics, and Harris Government Systems. He is currently Professor of Electrical Engineering at Michigan Tech.

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**E-Book  
available**

# Hughes Electrical and Electronic Technology, 10/e

 **Edward Hughes | Ian McKenzie Smith | Dr John Hiley | Keith Brown**

 **1008 | © 2010**



## FEATURES

- Brand new chapter on Electrical Energy Systems including a detailed examination of renewable energy sources
- Updated and extended coverage in key areas such as Op-Amps; Induction Motors; and Fibreoptics
- Even more exercises and examples added to enhance problem solving skills

**ISBN: 9788131733660**

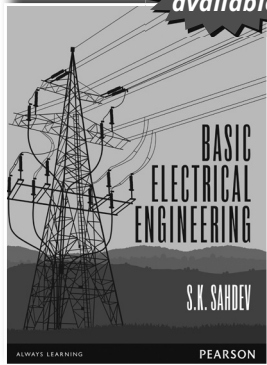
## CONTENTS

- Section 1: Electrical Principles**
1. International System of Measurement
  2. Introduction to Electrical Systems
  3. Simple DC Circuits
  4. Network Theorems
  5. Capacitance and Capacitors
  6. Electromagnetism
  7. Simple Magnetic Circuits
  8. Inductance in a DC Circuit
  9. Alternating Voltage and Current
  10. Single-phase Series Circuits
  11. Single-phase Parallel Networks
  12. Power in AC Circuits
  13. Complex Notation
  14. Resonance in AC Circuits
  15. Network Theorems Applied to AC Networks

- Section 2: Electronic Engineering**
16. Electronic Systems
  17. Passive Filters
  18. Amplifier Equivalent Networks
  19. Semiconductor Materials
  20. Rectifiers
  21. Junction Transistor Amplifiers
  22. FET Amplifiers
  23. Further Semiconductor Amplifiers
  24. Interfacing Digital and Analogue Systems

25. Digital Numbers
  26. Digital Systems
  27. Microprocessors and Programs
  28. Control Systems
  29. Signals
  30. Data Transmission and Signals
  31. Communications
  32. Fibreoptics
- Section 3: Power Engineering**
33. Multiphase Systems
  34. Transformers
  35. Introduction to Machine Theory
  36. AC Synchronous Machine Windings
  37. Characteristics of AC Synchronous Machines
  38. Induction Motors
  39. Electrical Energy Systems
  40. Power Systems
  41. Direct-current Machines
  42. Direct-current Motors
  43. Control System Motors
  44. Motor Selection and Efficiency
  45. Power Electronics
- Section 4: Measurements**
46. Electronic Measuring Instruments
  47. Analogue Measuring Instruments

**E-Book  
available**



**ISBN: 9789332542167**

## Basic Electrical Engineering

 **S. K. Sahdev**

 **656** | © **2015**



### ABOUT THE BOOK

Attuned to the needs of undergraduate students of engineering in their first year, Basic Electrical Engineering enables them to build a strong foundation in the subject. A large number of real-world examples illustrate the applications of complex theories. The book comprehensively covers all the areas taught in a one-semester course and serves as an ideal study material on the subject.

### FEATURES

- Detailed coverage on AC Circuits and DC Circuits
- Separate chapters on Domestic Wiring and Illumination and Earthing and Electrical Safety
- Step-by-step problem-solving methodology to hone problem-solving skills
- Extended coverage on electric machines and measurements
- In-depth discussion on renewable sources of energy
- Coverage on specialized motors like hysteresis motor, stepper motor, linear induction motor and universal motor
- Excellent pedagogy
- 600+ Figures and Illustrations
- 500+ Solved Questions
- 450+ Unsolved Questions
- 200+ MCQs

### CONTENTS

1. Concepts of Circuit Theory
2. DC Circuit Analysis and Network Theorems
3. Electrostatics and Capacitors
4. Batteries
5. Magnetic Circuits
6. AC Fundamentals
7. Single-phase AC Circuits
8. Three-phase AC Circuits
9. Measuring Instruments
10. Single-phase Transformers
11. DC Machines (Generators and Motors)
12. Three-Phase Induction Motors
13. Single-Phase Induction Motors
14. Three-Phase Synchronous Machines
15. Sources of Electrical Power . . . . . Online
16. Introduction to Power System . . . . . Online
17. Introduction to Earthing and Electrical Safety . . . Online
18. Domestic Wiring & Illumination . . . . . Online

### ABOUT THE AUTHOR

**SK Sahdev** is a Associate Dean in Lovely Professional University

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ISBN: 9789332586505

## Basic Electrical and Electronics Engineering, 2/e

 S. K. Bhattacharya

 936 | © 2017

Best Seller

### ABOUT THE BOOK

The second edition provides easy to comprehend learning material on the principles of basic electrical and electronics engineering. It offers an unparalleled exposure to the entire gamut of topics such as Electricity Fundamentals, Network Theory, Electro-magnetism, Electrical Machines, Transformers, Measuring Instruments, Power Systems, Semiconductor Devices, Digital Electronics and Integrated Circuits. Extensive use of illustrations, examples and exercises in accordance with the progressive development of the concepts covered within the chapter make the reading more exciting.

The text extensively includes number of illustrations, examples and exercises in accordance with the progressive development of the concept covered within the chapter to make the reading more exciting.

### FEATURES

- Extensively covers syllabus prescribed by all major technical universities
- Discussion on important topics such as electric safety and protection, digital instruments, common-emitter, common-base transistor configuration and characteristics.
- End- Chapter terminologies - List of important formulas, equations and points to remember.
- Step by Step tutorial Based approach
- Enhanced pedagogy
  - 600+ review questions
  - 250+ solved examples
  - 330+ multiple-choice questions
  - 740+ illustrations

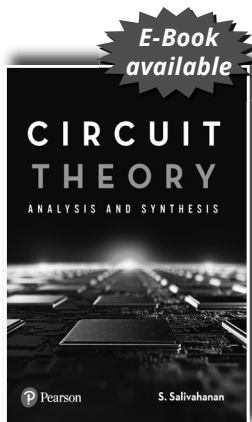
### CONTENTS

1. Basic Concepts, Laws, and Principles
2. DC Networks and Network Theorems
3. AC Fundamentals and Single-phase Circuits
4. Three-phase System
5. Electromagnetism and Magnetic Circuits
6. Transformers
7. DC Machines
8. Three-phase Induction Motors
9. Single-phase Motors
10. Synchronous Machines
11. Measurement and Measuring Instruments
12. Transducers
13. Power Systems
14. Semiconductor Devices
15. Rectifiers and Other Diode Circuits
16. Digital Electronics
17. Integrated Circuits
18. Communication Systems

### ABOUT THE AUTHOR

**S. K. Bhattacharya** is presently working as the Professor and Advisor in Sri Sukhmani Institute of Engineering & Technology, Dera Bassi, near Chandigarh, Punjab. Earlier, he worked as the Director, National Institute of Technical Teachers Training and Research (NITTTR) Chandigarh, Punjab; Director, NITTTR Kolkata, West Bengal; Director, Hindustan Institute of Technology, Greater Noida, Uttar Pradesh; Director SUS college of Engineering & Technology, Mohali, Punjab; Principal, SUS Women Engineering College, Mohali, Punjab; and Professor Emeritus, Sharda University, Greater Noida, Uttar Pradesh.”

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ISBN: 9789353948184

## Circuit Theory Analysis and Synthesis

 S. Salivahanan

 1328 | © 2021

### ABOUT THE BOOK

Circuit Theory – Analysis and Synthesis is a lucidly written text which introduces the concepts of circuit theory. It is supported by strong pedagogy and content ideally designed for the students of the related field. The topics covered include basics of circuit theory, Graph Theory, Network Reduction and Theorems, Resonant Circuits, Coupled Circuits, Signal Analysis, Transient Circuit Analysis, Three-Phase Systems, Two Port Networks, Transfer Function Synthesis, Passive Filters, Attenuators, Impedance Matching Networks, Equalizers, Network Functions, Passive Network Synthesis, Active Network Synthesis, Fourier Analysis and State Variable Analysis. This text is an excellent book for anyone involved with Circuit Theory and its ap-

plications. The primary objective of this book is to provide ample space for theory and practice in the field of network analysis and synthesis.

### FEATURES

- Contents of the book are presented in a simple, precise, and systematic manner.
  - Enable the students understand and apply the content in both efficient as well as effective ways.
  - Numerous solved examples, self-explanatory sketches and many exercise problems with answers
- have been presented in each chapter to aid conceptual understanding of the subject.
  - The mode of presentation is set to enhance the interest of the readers towards self-directed learning.

### CONTENTS

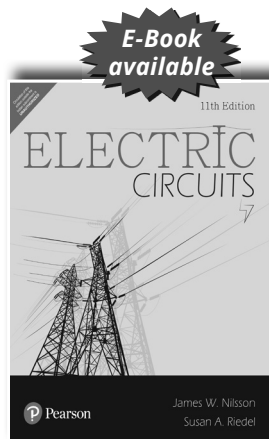
- Foreword
- Preface
- About the Authors
- 1. Basic Circuit Analysis
- 2. Graph Theory
- 3. Network Reduction and Theorems
- 4. Resonant Circuits
- 5. Coupled Circuits
- 6. Introduction to Signal Analysis
- 7. Transient Circuit Analysis Using Classical Method
- 8. Transient Circuit Analysis with Laplace Transforms
- 9. Three-Phase Systems
- 10. Two Port Networks
- 11. Transfer Function Synthesis
- 12. Passive Filters
- 13. Attenuators, Impedance Matching Networks and Equalizers
- 14. Network Functions
- 15. Passive Network Synthesis
- 16. Active Network Synthesis
- 17. Fourier Analysis
- 18. State Variable Analysis
- Index

### ABOUT THE AUTHOR

**Prof. S. Salivahanan** is the Vice Chancellor of Vel Tech Deemed to be University. Prior to this he was the Principal of SSN College of Engineering, Chennai for 17 years. He has more than 43 years of teaching, research, administration, and industrial experience both in India and abroad. He authored 65 popular engineering textbooks published by Internationally renowned publishers. He has published 116 papers in International Journals and Conferences.

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**ISBN: 9789353946623**

## Electric Circuits, 11/e

 **James W. Nilsson | Susan A. Riedel**

 **820 | © 2020**

### ABOUT THE BOOK

Electric Circuits, 11th Edition continues to motivate students to build new ideas based on concepts previously presented, to develop problem-solving skills that rely on a solid conceptual foundation, and to introduce realistic engineering experiences that challenge students to develop the insights of a practicing engineer. The 11th Edition represents the most extensive revision with improved clarity, readability, and pedagogy-without sacrificing the breadth and depth of coverage that Electric Circuits is known for. Dr. Susan Riedel draws on her classroom experience to introduce the Analysis Methods feature, which gives students a step-by-step problem-solving approach.

### FEATURES

- Practical Perspectives introduce chapters and provide real-world circuit examples.
- Expanded- Assessment Problems prompt students at key points in the chapter, asking them to stop and assess their mastery of a particular objective by solving one or more assessment problems.
- Expanded - Examples in every chapter illustrate the application of a particular concept and often employ an Analysis Method, and exemplify good problem-solving skills.
- Updated- Fundamental Equations and Concepts are set apart from the main text to help readers focus on the key principles and help navigate through the important topics.
- Integration of Computer Tools assists students in the learning process by providing a visual representation of a circuit's behavior, validating a calculated solution, reducing the computational burden of more complex circuits, and iterating toward a desired solution using parameter variation.
- Chapter problems suited for exploration with PSpice and Multisim are marked accordingly

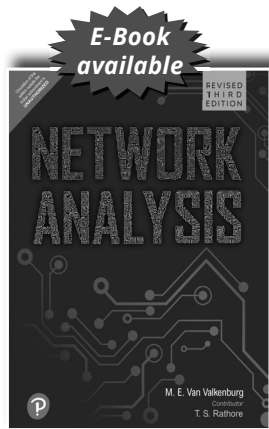
### CONTENTS

1. Circuit Variables
2. Circuit Elements
3. Simple Resistive Circuits
4. Techniques of Circuit Analysis
5. The Operational Amplifier
6. Inductance, Capacitance, and Mutual Inductance
7. Response of First-Order RL and RC Circuits
8. Natural and Step Responses of RLC Circuits
9. Sinusoidal Steady-State Analysis
10. Sinusoidal Steady-State Power Calculations
11. Balanced Three-Phase Circuits
12. Introduction to the Laplace Transform
13. The Laplace Transform in Circuit Analysis
14. Introduction to Frequency Selective Circuits
15. Active Filter Circuits
16. Fourier Series
17. The Fourier Transform
18. Two-Port Circuits

### ABOUT THE AUTHOR

**Susan Riedel**, (Emeritus) Iowa State University.

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ISBN: 9789353433123

## Network Analysis, Revised 3/e



M. E. Van Valkenburg | T.S. Rathore



724 | © 2019

### ABOUT THE BOOK

After almost four decades of waiting, Pearson presents the revised third edition of its best-selling title on Network Analysis. This book has been revamped to have a perfect blend of engineering and mathematical approach. Throughout the book, the discussion starts with the analysis of simplest circuit and gradually moves on to more complicated circuits, i.e., R to RL, RC and RLC circuits, single node to multiple nodes circuits, from circuit with independent voltage and current sources to circuits which also include dependent sources. It comprehensively covers diverse range of topics in the field of electric networks (or circuits) which is considered to be

the foundation of electrical engineering such as the Nyquist criterion, Tellegan's theorem, the Gauss elimination method, Thevenin's and Norton's theorems, the Routh Hurwitz criterion, and Fourier transforms. Problems and suggested digital computer exercises are provided at the end of each chapter.

### FEATURES

- ENRICHED CONTENT
  - Includes new types of source transformations, namely, voltage to current, current to voltage, voltage to voltage and current to current.
  - One-step and one-circuit analysis is given for obtaining Thevenin/Norton equivalent circuits.
  - Discusses detailed analysis of three phase circuits.
- ENHANCED PEDAGOGY
  - 100+ new solved examples added throughout the book
  - 100+ unsolved chapter-end problems added
  - 100+ multiple choice questions included at the end of the book.

### CONTENTS

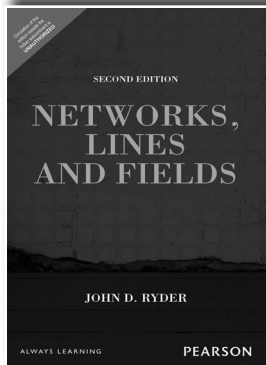
1. Development of the Circuit Concept
2. Conventions for Describing Circuits
3. Methods of Analysis
4. Response of First Order Circuits
5. Initial Conditions in Circuits
6. Response of Higher Order Circuits
7. Response of Circuits Through Laplace Transform
8. Response to Other Signals
9. Circuit Functions and Theorems
10. Circuit Functions; Poles and Zeros
11. Two-port Parameters
12. Sinusoidal Steady-state Analysis
13. Frequency Response Plots
14. Input Power, Power Transfer, and Insertion Loss
15. Fourier Series and Signal spectra
16. Fourier Integral and Continuous Spectra

### ABOUT THE AUTHOR

**M. E. Van Valkenburg** was a renowned electrical engineer in the United States, who had authored several textbooks in the respective field. Some of the books published by the author include Analog Filter Design, Introduction to Modern Network Synthesis, and Network Analysis: Solutions Manual. These books are extremely beneficial for students pursuing their degrees in the field of electrical engineering.

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## Networks, Lines and Fields, 2/e



**ISBN: 9789332559516**

 **John D. Ryder**

 **608** | © **2015**

### ABOUT THE BOOK

The book gives an introduction to the field of communication circuit engineering and electrical network theory, from the standpoint of both currents and small fields. It provides a basic coverage of the theory of transmission of electric energy in lumped constant circuits, on distributed-constant lines, through wave-guides and into space. The book covers specific circuit material, which is essential to an understanding of modern electronic circuits and operations. It also attempts to tie together the circuit and field viewpoint through extensive use of transmissions line analogy.

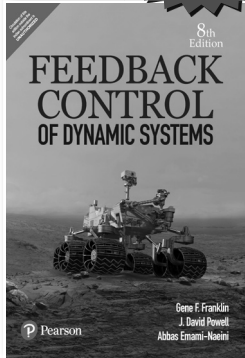
The use of exponential and the reflection factor, rather than the hyperbolic form emphasize practical concepts of energy transfer in fields so that the student has before him the expressions for the incident and the reflected waves.

### ABOUT THE AUTHOR

**John D. Ryder** joined Iowa State College as Assistant Professor in Electrical Engineering. He rose to Professor in 1944, and in 1947 he assumed the Assistant Directorship of the Iowa Engineering Experiment Station. In September 1949, he was named Head of the Department of Electrical Engineering at the University of Illinois. He left this post in July 1954 to take up his present position as Dean of the College of Engineering at Michigan State University, East Lansing, Michigan.

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**E-Book  
available**



**ISBN: 9789353949525**

## Feedback Control of Dynamic Systems, 8/e



**Gene F. Franklin / J. David Powell / Abbas Emami-Naeini**



**928 | © 2022**

### ABOUT THE BOOK

Feedback Control of Dynamic Systems, 8th Edition, covers the material that every engineer needs to know about feedback control—including concepts like stability, tracking, and robustness. Each chapter presents the fundamentals along with comprehensive, worked-out examples, all within a real-world context and with historical background provided. The text is devoted to supporting students equally in their need to grasp both traditional and more modern topics of digital control, and the author's focus on design as a theme early on, rather than focusing on analysis first and incorporating design much later. The 8th Edition has been revised with up-to-date information, along with brand-new sections, problems, and examples.

### FEATURES

- A comprehensive and easy-to-understand introduction is devoted to supporting students equally in their need to grasp both traditional and more modern topics of digital control.
- New material has been added based on user feedback and the text has been updated throughout to include the improved features of MATLAB®.
- An entire chapter devoted to case studies covers real problems in a variety of fields and draws on all the design methods covered in the book.
- New examples, updates, and additions keep the material relevant and up-to-date.
- Over 60 of the problems in this edition are either new or revised from the previous edition.

### CONTENTS

1. An Overview and Brief History of Feedback Control
  2. Dynamic Models
  3. Dynamic Response
  4. A First Analysis of Feedback
  5. The Root-Locus Design Method
  6. The Frequency-Response Design Method
  7. State-Space Design
  8. Digital Control
  9. Nonlinear Systems
  10. Control System Design: Principles and Case Studies
- Appendix A Laplace Transforms  
Appendix B Solutions to the Review Questions  
Appendix C Matlab Commands

### ABOUT THE AUTHORS

**Gene F. Franklin**, Stanford University

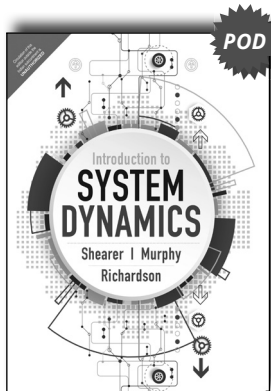
**J. David Powell**, Stanford University

**Abbas Emami-Naeini**, SC Solutions, Inc.

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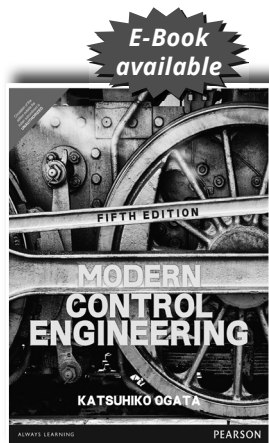


### Introduction to Systems Dynamics, 1/e

 Shearer

ISBN: 9789332578593

 432  2016



ISBN: 9789332550162

## Modern Control Engineering, 5/e

 Katsuhiko Ogata

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### ABOUT THE BOOK

Ogata's *Modern Control Engineering, 5/e*, offers the comprehensive coverage of continuous-time control systems that all senior students must have, including frequency response approach, root-locus approach, and state-space approach to analysis and design of control systems. The text provides a gradual development of control theory, shows how to solve all computational problems with MATLAB, and avoids highly mathematical arguments. A wealth of examples and worked problems are featured throughout the text. The new edition includes improved coverage of Root-Locus Analysis (Chapter 6) and Frequency-Response Analysis (Chapter 8). The

author has also updated and revised many of the worked examples and end-of-chapter problems.

### FEATURES

- Chapter 8 first discusses PID control in general and then presents two-degrees-of-freedom control systems — Presents a computational (MATLAB) method to determine system parameters so the system will have the desired transient characteristics.
- An improved chapter on the design of control systems in state space (Chapter 10) — This chapter treats pole placement and observer design and includes quadratic optimal control. MATLAB is extensively used in the design problems using pole placement and observer design.
- An in-depth treatment of topics emphasizes both the basic concepts and the design aspects of control systems.
- An accessible presentation that avoids highly mathematical arguments. The author introduces mathematical proofs only when they contribute to an understanding of the material.
- Over 150 chapter-end worked problems and 180 unsolved problems clarify students' understanding of the material at strategic points throughout the text.
- An introduction to the two-degrees-of-freedom control system and introduction to robust control. Presents a MATLAB approach to the design of high performance control systems.
- A comprehensive coverage of root-locus analyses not found in other texts.
- Detailed coverage of frequency response of control systems.

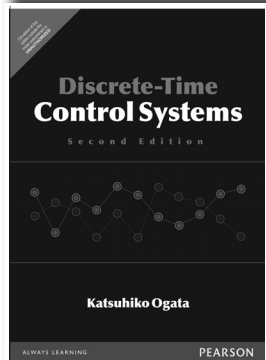
### CONTENTS

1. Introduction to Control Systems
2. Mathematical Modeling of Control Systems
3. Mathematical Modeling of Mechanical Systems and Electrical Systems
4. Mathematical Modeling of Fluid Systems and Thermal Systems
5. Transient and Steady-State Response Analyses
6. Control Systems Analysis and design by the Root-Locus Method
7. Control Systems Analysis and Design by the Frequency Response Method
8. PID Controllers and Modified PID Controllers
9. Control Systems Analysis in State Space
10. Control Systems Design of in State Space

### ABOUT THE AUTHOR

**Katsuhiko Ogata** is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata did his B.S. and M.S. in mechanical engineering from the University of Tokyo and the University of Illinois respectively. In 1956, he did his Doctorate in Engineering Science from the University of California at Berkeley. His research areas are discrete-time control systems and optimal control of complex plants.

## Discrete-Time Control Systems, 2/e



ISBN: 9789332549661

 Katsuhiko Ogata

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### ABOUT THE BOOK

Katsuhiko Ogata's *Discrete-Time Control Systems* presents a revised edition of the book that offers an ample treatment of discrete-time control systems. Designed for specific courses on the subject, for both undergraduate and postgraduate students, this book offers a gradual development of the subject. It emphasizes the fundamental concepts and avoids complex mathematical arguments. Ogata kept the text lucid and clear to make it easy-to-understand for the readers. It includes in-depth explanation of state observer design, quadratic optimal control, and pole placement. The book elucidates the treatment of the pole-placement design with minimum-order observer with the help of two main approaches. These are the state-space approach and the polynomial equations approach.

### FEATURES

- Includes detailed discussion of the theoretical background for designing control systems
- It highlights the importance of MATLAB for studying discrete-time control systems
- Use MATLAB optimally to get numerical solutions.
- Additional chapter on the polynomial equations approach to the control systems design.
- Offers numerous solved problems and instructive examples throughout.

### CONTENTS

1. Introduction to Discrete-Time Control Systems.
2. The z Transform.
3. z-Plane Analysis of Discrete-Time Control Systems.
4. Design of Discrete-Time Control Systems by Conventional Methods.
5. State-Space Analysis.
6. Pole Placement and Observer Design.
7. Polynomial Equations Approach to Control Systems Design.
8. Quadratic Optimal Control Systems.

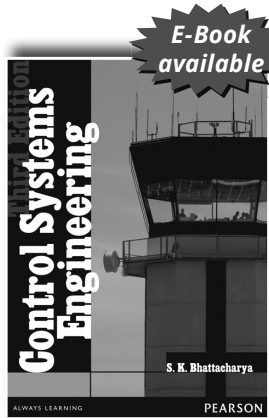
#### Appendixes

- A. Vector-Matrix Analysis.
- B. z Transform Theory.
- C. Pole Placement Design with Vector Control.

### ABOUT THE AUTHOR

**Katsuhiko Ogata** is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata did his B.S. and M.S. in mechanical engineering from the University of Tokyo and the University of Illinois respectively. In 1956, he did his Doctorate in Engineering Science from the University of California at Berkeley. His research areas are discrete-time control systems and optimal control of complex plants.

## Also Available

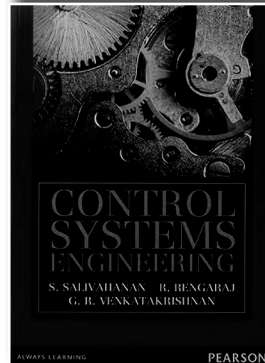


### Control Systems Engineering, 3/e


 S. K. Bhattacharya

ISBN: 9788131791653

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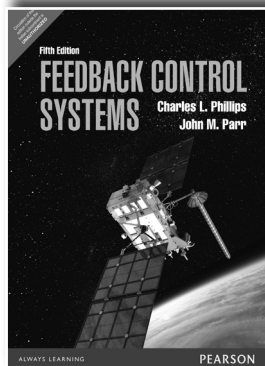


### Control Systems Engineering

 S. Sallvahanan |  
R Rengaraj |  
G. R. Venkatakrishnan

ISBN: 9789332534131

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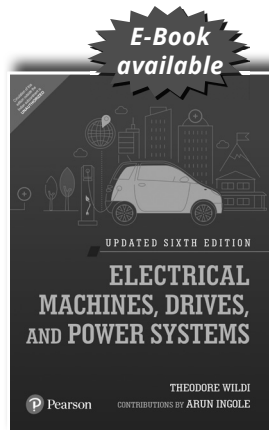
### Feedback Control Systems 5/e

 Phillips | Parr

ISBN: 9789332507609

 784 © 2013





ISBN: 9789357053297

## Electrical Machines, Drives and Power Systems, Updated 6/e

 **Theodore Wildi**

 **1000** | © **2023**



### ABOUT THE BOOK

For courses in Motor Controls, Electric Machines, Power Electronics, and Electric Power. This best-selling text employs a theoretical, practical, multidisciplinary approach to provide introductory students with a broad understanding of modern electric power. The scope of the book reflects the rapid changes that have occurred in power technology—allowing the entrance of power electronics into every facet of industrial drives and expanding the field to open more career opportunities.

### FEATURES

- All equipment and systems are illustrated by diagrams and pictures, showing them in various stages of construction or in actual use.
- Exercises at the end of each chapter are divided into four levels: practical, intermediate, advanced, and industrial application. Furthermore, to encourage the reader to solve the problems, answers are given at the end of the book.
- New sections on the following topics have been included in this edition.
- Introduction to Switchgear
- The Concept of Current Interruption
- Low Voltage Switchgear

### CONTENTS

#### Part I Fundamentals

1. Units
2. Fundamentals of Electricity, Magnetism, and Circuits
3. Fundamentals of Mechanics and Heat

#### Part II Electrical Machines and Transformers

4. Direct-Current Generators
5. Direct-Current Motors
6. Efficiency and Heating of Electrical Machines
7. Active, Reactive, and Apparent Power
8. Three-phase Circuits
9. The Ideal Transformer
10. Practical Transformers
11. Special Transformers
12. Three-phase Transformers
13. Three-phase Induction Machines
14. Selection and Application of Three-phase Induction Machines
15. Equivalent Circuit of the Induction Motor
16. Synchronous Generators
17. Synchronous Motors
18. Single-phase Motors
19. Stepper Motors

#### Part III Electrical and Electronic Drives

20. Basics of Industrial Motor Control
21. Fundamental Elements of Power Electronics
22. Electronic Control of Directcurrent Motors
23. Electronic Control of Alternating-current Motors

#### Part IV Electric Utility Power Systems

24. Generation of Electrical Energy
25. Transmission of Electrical Energy
26. Distribution of Electrical Energy
27. The Cost of Electricity
28. Direct-current Transmission
29. Transmission and Distribution Solid-state Controllers
30. Harmonics
31. Programmable Logic Controllers

#### References

#### Appendixes

#### Conversion Charts

#### Properties of Insulating Materials

#### Properties of Conductors and Insulators

#### Properties of Round Copper Conductors

#### Introduction to Switchgear

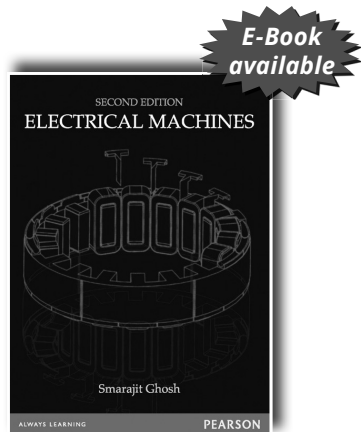
#### The Concept of Current

## ABOUT THE AUTHOR

**Theodore Wildi**, Professor Emeritus, Laval University

Contributions By Arun Ingole, Ex-General Manager, Siemens Ltd.

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**ISBN: 9788131760901**

## Electrical Machines, 2/e

 **Smarajit Ghosh**

 **848** | © **2012**



### ABOUT THE BOOK

This fully revised edition of the book is systematically organized as per the logical flow of the topics included in electrical machines courses in universities across India. It is written as a text-cum-guide so that the underlying principles can be readily understood, and is useful to both the novice as well as advanced readers. Emphasis has been laid on physical understanding and pedagogical aspects of the subject. In addition to conventional machines, the book's extensive coverage also includes rigorous treatment of transformers (current, potential and welding transformers), special machines, AC/DC servomotors, linear induction motors, permanent magnet

DC motors and application of thyristors in rotating machines.

### FEATURES

- Exhaustive coverage on rotating machines including AC, DC and Special Machines
- Construction, Winding and Operation of various machines discussed in detail
- Excellent coverage on Transformers: Instrument & welding Transformers, 3 - winding Transformers, Single and 3 - phase transformers
- Rigorous discussion on Synchronous Generators and

Motors in separate chapters

- New topic discussing latest developments in Motor Control using Solid State Devices
- A dedicated section, 'Significant Points' for revision and recapitulation of important concepts and points at the end of each chapter
- Multiple Choice Questions at the end of each chapter for quick revision of the concepts

### CONTENTS

1. Transformers
2. Three- Phase Transformers
3. Basic Concepts of Rotating Machines
4. DC Generators
5. DC Motors
6. Synchronous Generators
7. Synchronous Motors
8. Polyphase Induction Motors
9. Single phase Motors and Special Machines

**Appendix A:** Basic Definition, Hysteresis and Eddy Current Losses

**Appendix B:** Reluctance Motor

**Appendix C:** MMF of Distributed Winding

**Appendix D:** Torques in AC and DC Machine

**Appendix E:** Separation of No-load Losses of an Induction Motor

**Appendix F:** Separation of Losses of an Induction Motor

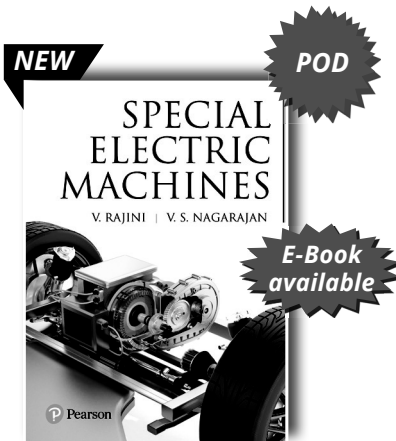
**Appendix G:** Tertiary Windings

**Appendix H:** Solid State Control of Drives

## ABOUT THE AUTHOR

**Smarajit Ghosh** is Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala, Punjab. He has contributed several research papers in international and national journals. His areas of research are Load Flow Study, Application of Fuzzy Logic, Artificial Neural Networks and Differential Evolution in Electric Power Distribution Systems. He is the recipient of Bharat Jyoti Award. He had also served BITS, Pilani and Sikkim Manipal University as an Assistant Professor and Professor respectively.

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ISBN: 9788119896141

## Special Electric Machines

 **V Rajini | V S Nagarajan**

 **340 | © 2024**



### ABOUT THE BOOK

In today's rapidly evolving technical landscape, special electric machines stand as pivotal components across diverse sectors. From powering household appliances to driving industrial machinery, from propelling naval vessels to fortifying defense systems, and from revolutionizing electric vehicles to advancing aircraft, these specialized machines are indispensable across myriad applications. As demands for efficiency soar, the future of these machines appears brighter than ever before. For budding electrical engineers, mastering the intricacies of these machines is paramount. This meticulously crafted textbook serves as a definitive resource, tailored for electrical engineering graduates eager to delve into the realm of special electric machines.

### FEATURES

- Detailed coverage of upcoming technologies, including special machines such as synchronous reluctance machines, magnet-based motors, and linear motors.
- Clear presentation of waveforms using simple, effective, and innovative techniques, along with step-by-step procedures and scaling for easier replication in exams and enhanced comprehension.
- Incorporates over 70 objective questions and 240 review questions to reinforce learning and aid in exam preparation.

### CONTENTS

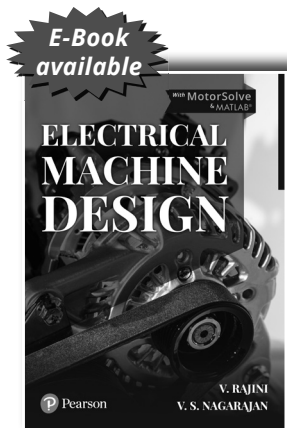
1. Introduction and Electronic Commutation with Rotor Position Sensing
2. Synchronous Reluctance Motor
3. Switched Reluctance Motor
4. Stepper Motor
5. Permanent Magnet Motors
6. Brushless DC Motor
7. Permanent Magnet Synchronous Motor
8. Axial Flux Motors
9. Linear Motors
10. Electric Drives for Traction, Electric Vehicle and Aeronautical Applications

### ABOUT THE AUTHOR

**Dr. V. Rajini** is Professor, HOD, Department of Electrical and Electronics Engineering, SSN College of Engineering, Chennai

**V.S.Nagarajan** Associate Professor, Department of Electrical and Electronics Engineering, SSN College of Engineering, Chennai

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ISBN: 9789332585577

## Electrical Machine Design

 V Rajini | V S Nagarajan

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### ABOUT THE BOOK

The text is conceived as a textbook for the undergraduate courses on Electrical machine design. It covers both traditional and modern concepts in the design of machines, including the design of special machines such as switched reluctance motor, permanent magnet synchronous machine, brushless DC machines and synchronous reluctance machines. It also includes a large number of solved examples and exercise problems in increasing order of difficulty.

### CONTENTS

1. Basic Design Considerations of Electrical Machines
2. Design of Magnetic circuits
3. Design of Transformer
4. Design of Three phase Induction Motor
5. Design of Single phase induction motor
6. Design of synchronous machine
7. Design of DC machine
8. Computer Aided Design and Analysis of Electric motors

#### Appendices

### FEATURES

- Over 200 MCQ's and 300 end of chapter exercises and review questions
- Flow chart based approach for problem solving in all chapters
- Detailed coverage of Design of special machines
- Illustrative Design Problems with MATLAB codes
- FE simulations to be provided with the text

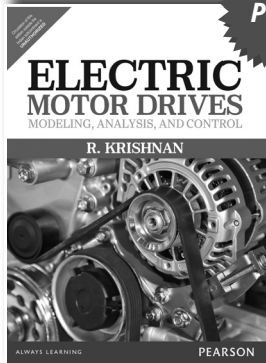
### ABOUT THE AUTHOR

**Dr. V. Rajini** is Professor and HOD, Department of EEE, SSN College of Engineering, Chennai.

**V.S. Nagarajan** is Associate Professor, Department of EEE, SSN College of Engineering, Chennai

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## Electric Motor Drives: Modeling, Analysis, and Control



POD

ISBN: 9789332549715

 R. Krishnan

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### ABOUT THE BOOK

The book develops a systematic approach to motor drives. While the emphasis is on practice extensive modeling, simulation and analysis is developed to assist readers in their understanding of the subject matter from fundamental principles. Also, each motor drive is illustrated with an industrial application in detail at the end of chapters to enable readers to relate theory to practice.

### FEATURES

- Prior knowledge of electrical machines, power converters and linear control systems—Required for optimum text usage.
- System level analysis, design and integration of the motor drives addressed.
- Modeling and analysis of electrical machines

and drive systems—Derived from first principles, while control algorithms are developed and their implementations with simulation results given whenever appropriate.

- Chapters include Discussion Questions and Exercise Problems, along with detailed introductions.

### CONTENTS

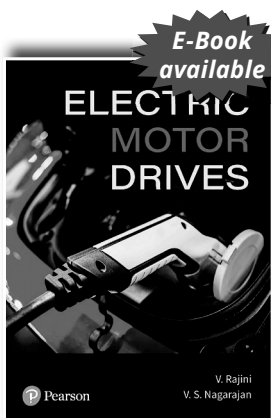
1. Introduction.
2. Modeling of DC Machines.
3. Phase Controlled DC Motor Drives.
4. Chopper Controlled DC Motor Drives.
5. Polyphase Induction Machines.
6. Phase Controlled Induction Motor Drives.
7. Frequency Controlled Induction Motor Drives.
8. Vector Controlled Induction Motor-Drives.
9. Permanent Magnet Synchronous and Brushless DC Motor Drives.

### ABOUT THE AUTHOR(S)

R. Krishnan, Virginia Tech

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## Also Available



E-Book  
available

Electric Motor Drives

 V Rajini | V S Nagarajan

ISBN: 9789389342666

 824 | © 2020



ISBN: 9789332560116

## Electrical Engineering Materials

 A. J. Dekker

 224 | © 2016

### ABOUT THE BOOK

A list of general references is given at the beginning of this book, whereas references to specialized topics can be at the end of each chapter. A set of problems has been given at the end of each chapter. In a number of cases, these problems are intended to supplement the text.

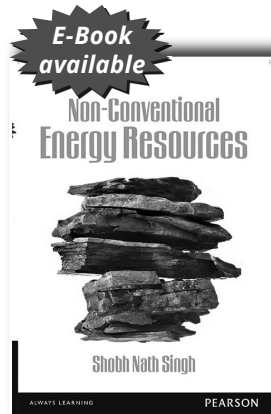
### CONTENTS

1. Atoms and Aggregates of Atoms
2. Dielectric Properties of Insulators in Static Fields
3. Behavior of Dielectrics in Alternating Fields
4. Magnetic Properties of Materials
5. The Conductivity of Metals
6. The Mechanism of Conduction in Semiconductors
7. Junction Rectifiers and Transistors

### ABOUT THE AUTHOR

Adrianus J. Dekker, Professor, Department of Electrical Engineering, Institute of Technology, University of Minnesota

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ISBN: 9789332543577

## Non Conventional Energy Resources

 **Shobh Nath Singh**

 456 | © 2015



### ABOUT THE BOOK

With energy sustainability at the forefront of public discussion worldwide, there is a vital requirement to foster an understanding of safe alternative sources of energy such as solar and wind power. Tailored to the requirements of undergraduate students of engineering, Non-conventional Energy Resources provides a comprehensive coverage of the basic principles, working and utilization of all key renewable power sources—solar, wind, hydel, biomass, hyower and fuel cells. The book also consists of several solved and unsolved questions for thorough practice and revision.

### FEATURES

- Extensive coverage on:
  - Energy Management and Conservation
  - Fuel Cells
  - Solar and Thermal Cells
  - Exclusive chapter on Solid Wastes and Agricultural Refuse
- Provides the latest statistics from the energy sector in India
- Excellent Pedagogy:
  - More than 60 solved questions
  - More than 300 unsolved questions
  - More than 200 multiple-choice questions

### CONTENTS

1. NCER-An Overview
  2. Energy from the Sun
  3. Solar Thermal Energy Collectors
  4. Solar Cells
  5. Hydrogen Energy
  6. Wind Energy
  7. Geothermal Energy
  8. Solid Waste and Agricultural Refuse
  9. Biomass Energy
  10. Biogas Energy
  11. Tidal Energy
  12. Sea Wave Energy
  13. Ocean Thermal Energy Conversion
  14. Fuel Cell
  15. Magnetohydrodynamic(MHD) Power Generation
  16. Thermoelectric converters
  17. Thermionic converters
  18. Concept of Energy conservation and Energy Management
  19. Energy Conservation and Management in different Energy Activity Sector
- Appendix:** MCQs chapter-wise  
**Appendix:** MCQs on Energy Systems  
**Appendix:** Terms and Definition

### ABOUT THE AUTHOR

Shobh Nath Singh, Department of Electrical Engineering, Indian Institute of Technology (B.H.U.) Varanasi.

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# NON LINEAR SYSTEMS



ISBN: 9789352866465

## Nonlinear Control

 Hassan K. Khalil

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### ABOUT THE BOOK

This book emerges from the award-winning book, *Nonlinear Systems*, but has a distinctly different mission and organization. While *Nonlinear Systems* was intended as a reference and a text on nonlinear system analysis and its application to control, this streamlined book is intended as a text for a first course on nonlinear control. In *Nonlinear Control*, author Hassan K. Khalil employs a writing style that is intended to make the book accessible to a wider audience without compromising the rigor of the presentation.

### FEATURES

Provide an Accessible Approach to Nonlinear Control

- A New Approach from an Award-winning Author
- Designed for the First Course on Nonlinear Control
- Accessible Writing that Resonates with Students
- Streamlined Material for a One-semester Course

Support Learning

- End-of-chapter Exercises
- Instructor Solution Manual
- Companion Website

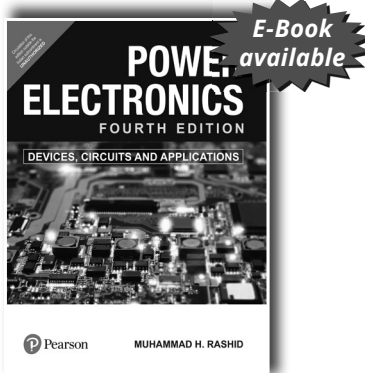
### CONTENTS

1. Introduction
2. Two-Dimensional Systems
3. Stability of Equilibrium Points
4. Time-Varying and Perturbed Systems
5. Passivity
6. Input-Output Stability
7. Stability of Feedback Systems
8. Special Nonlinear Forms
9. State Feedback Stabilization
10. Robust State Feedback Stabilization
11. Nonlinear Observers
12. Output Feedback Stabilization
13. Tracking and Regulation

### ABOUT THE AUTHOR

Hassan K. Khalil, Michigan State University, East Lansing

# POWER ELECTRONICS



ISBN: 9789332584587

## Power Electronics : Devices, Circuits and Applications, 4/e

 Muhammad H. Rashid

 768 | © 2018



### ABOUT THE BOOK

This book on Power Electronics is one of the most reputed and revered texts for more than three decades. Exemplary writing style, precise descriptions and supreme attention to detail in the quality of the schematics makes this text one of the most sought after and inspiring books on Power Electronics. This new edition beautifully upgrades the earlier work, with substantial updates to detail, without compromising on the style, content, or technical quality.



## FEATURES

- Features bottom-up approach rather than top-down approach - that is, after covering the devices, the converter specifications are introduced before covering the conversion techniques
- Coverage of the development of silicon-carbide (SiC) devices and averaging models of dc-dc converters

## CONTENTS

1. Introduction

### PART I Power Diodes and Rectifiers

2. Power Diodes and Switched RLC Circuits
3. Diode Rectifiers

### PART II Power Transistors and DC-DC Converters

4. Power Transistors
5. DC-DC Converters

### PART III Inverters

6. DC-AC Converters
7. Resonant Pulse Inverters
8. Multilevel Inverters

### PART IV Thyristors and Thyristorized Converters

9. Thyristors
10. Controlled Rectifiers

- Expanded state-of-the-art Space Vector Modulation technique
- Addition of a new chapter on Introduction to Renewable Energy, and covers the state-of-the-art techniques

11. AC Voltage Controllers

### PART V Power Electronics Applications and Protections

12. Flexible AC Transmission Systems

13. Power Supplies

14. Dc Drives

15. Ac Drives

16. Introduction to Renewable Energy

17. Protections of Devices and Circuits

Appendix A Three-Phase Circuits

Appendix B Magnetic Circuits

Appendix C Switching Functions of Converters

Appendix D Dc Transient Analysis

Appendix E Fourier Analysis

Appendix F Reference Frame Transformation

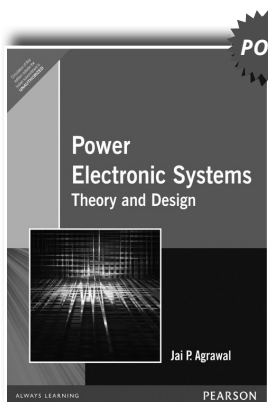
## ABOUT THE AUTHOR

Muhammad H. Rashid is employed by the University of West Florida as Professor of Electrical and Computer Engineering. Previously, he was employed by the University of Florida as Professor and Director of UF/UWF Joint Program. Dr. Rashid is actively involved in teaching, researching, and lecturing in electronics, power electronics, and professional ethics. He has published 17 books listed in the U.S. Library of Congress and more than 160 technical papers.

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## POWER SYSTEMS

### Also Available



POD

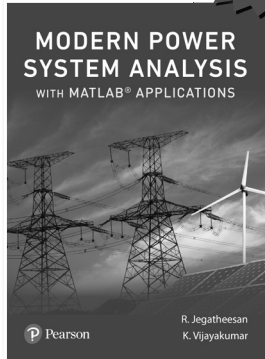
### Power Electronic Systems: Theory & Design

Jai P. Agrawal

ISBN: 9788177588859

544 © 2006

E-Book  
available



ISBN: 9789353944377

## Modern Power System Analysis with MATLAB® Applications

R Jegatheesan | K Vijayakumar

544 | © 2020

### ABOUT THE BOOK

Modern Power System Analysis with MATLAB® Applications aims to cater to the curriculum requirements of the undergraduate students and faculties of Electrical and Electronics Engineering for the course on Power System Analysis. Spread across ten chapters, the book aims to provide an in-depth understanding of the necessary theories. Special care has been taken to explain the development of mathematical models required for the power system analysis problems. Wherever required, MATLAB® programs and the corresponding solutions are presented to motivate the students to use the MATLAB® programs for small, medium and large size power system problems.

### FEATURES

- An entire chapter devoted to Smart Grid—the future technology in power system engineering.
- Includes over 80 example problems, solved using a stepwise approach.
- Comprises over 100 multiple-choice questions and 180 end-of-chapter review questions and exercises, to help readers in preparing for semester exams and enhance the understanding of the subject.
- Provides chapter summaries for quick revision.

### CONTENTS

Preface

About the Authors

1. Present Day Power System and Modelling of Power System Components
  2. Per-unit System Representation
  3. Bus Admittance and Bus Impedance Matrices
  4. Power Flow Analysis
  5. Symmetrical Fault Analysis
  6. Unsymmetrical Fault Analysis
  7. Transient Stability Analysis
  8. Power System State Estimation and Optimal PMU Placement
  9. Deregulation of Power Systems
  10. Smart Grid
- Appendix  
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### ABOUT THE AUTHOR

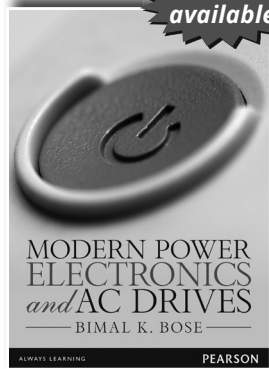
**Dr. R. Jegatheesan** received B.E. (Hons.) degree in Electrical and Electrical Engineering from Madras University in the year 1963. Specialising in power system engineering, he obtained his M.Sc. (Engg.) degree from Madras University in the year 1969. He was awarded Ph.D. degree from Indian Institute of Technology, Kanpur, in the year 1975. He worked in Anna University, Chennai for more than three decades. He became Professor in 1985. During the period 1996–1999, he served as Registrar, Anna University. He worked as the Principal of Engineering colleges for 5 years. He was working as a Professor, in Malaysia for 5 years. Since January, 2010, Dr Jegatheesan has been working as a Professor in SRM Institute of Science and Technology, Chennai. His research interest includes analysis and optimisation problems on large scale power system, power system operation, power system state estimation and congestion management in deregulated power system. He has published 46 technical papers in international journals. Till now, six scholars have completed Ph.D. under his guidance. He has authored a book titled Analysis of Electric Circuits, published in the year 2015. Dr R. Jegatheesan has received 'ITEX 2008 Gold Medal'. He is the recipient of World Intellectual Property Organization's (WIPO) 'Best Invention Award'. He has also received gold medal in 'The Belgian and International Trade Fair' for 'Technological Innovation 2008'.

**Dr. K. Vijayakumar** received his B.E. and M.E. degrees from Annamalai University and obtained his Ph.D. at SRM Institute of Science and Technology. At present, he is working as a Professor and the Head of the Department of Electrical and Electronics Engineering of SRM Institute of Science and Technology. His research interests include power system modelling, power electronics converters for grid connected PV system, computational intelligence applications in power systems, FACTS and power quality. He has been awarded the 'Best Teacher Award' in the department for the academic years 2004–2005 and 2005–2006. He is a member of various professional bodies like IEEE, IET, FIE, ISTE and ISCA.

# Modern Power Electronics and AC Drives

 **Bimal K. Bose**

 **744** | © **2015**



**ISBN: 9789332557550**

## ABOUT THE BOOK

A clear understanding of power electronics and AC drives is critical in a wide range of modern systems, from household appliances to automated factories. Modern Power Electronics and AC Drives covers every aspect of the topic, including crucial innovations such as artificial intelligence, advanced estimation and sensorless control. It is an advanced, authoritative, and practical guide for state-of-the-art power electronics and AC drive technology

## FEATURES

- Modern power semiconductor devices, converter circuits, and electrical machines
- High-performance control of induction and synchronous motor drives
- Energy saving control
- Estimation, identification and sensorless control of drives
- Artificial intelligence techniques such as expert system, fuzzy logic and neural network applied to power electronics and drives
- Use of MATLAB-based toolboxes in simulation and design

## CONTENTS

1. Power Semiconductor Devices
2. AC Machines for Drives
3. Diodes and Phase-Controlled Converters
4. Cycloconverters
5. Voltage-Fed Converters
6. Current-Fed Converters
7. Induction Motor Slip-Power Recovery Drives
8. Control and Estimation of Induction Motor Drives
9. Control and Estimation of Synchronous Motor Drives
10. Expert System Principles and Applications
11. Fuzzy Logic Principles and Applications
12. Neural Network Principles and Applications

## ABOUT THE AUTHOR

**Bimal K. Bose** is recognized worldwide as an authority and pioneer in the field of power electronics and drive technology. He has over 40 years of professional experience in R&D, design, and teaching. A seven-time IEEE Award winner, he holds 21 U.S. patents. He is currently at the University of Tennessee, where he holds the Condra Chair of Excellence in Power Electronics.

---

## Power System Analysis

 **N. V. Ramana**

 **456** | © **2010**

### ABOUT THE BOOK

*Power System Analysis* is a comprehensive text designed for an undergraduate course in electrical engineering. Written in a simple and easy-to-understand manner, the book introduces the reader to power system network matrices and power system steady-state stability analysis.

### FEATURES

- In-depth coverage of Symmetrical fault analysis and unbalanced fault analysis
- Exclusive chapters on power flow studies
- A comprehensive chapter on transient stability
- Precise explanation supported by suitable examples
- The book is replete with objective questions and review questions

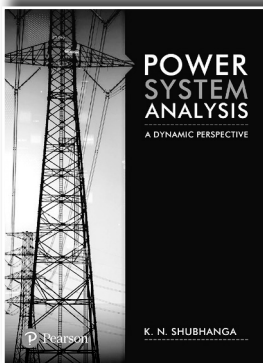
### CONTENTS

1. Introduction
2. Power System Network
3. Matrices-1
4. Power System Network
5. Matrices-2
6. Power Flow Studies-1
7. Power Flow Studies-2
8. Short Circuit Analysis 1 (Symmetrical Fault Analysis)
9. Short Circuit Analysis 2 (Unbalanced Fault Analysis)
10. Power System Steady-State stability Analysis
11. Transient Stability

### ABOUT THE AUTHOR

**N.V. Ramana** is Professor and Head, Department of Electrical and Electronics Engineering, JNTU College of Engineering, Jagityal, Karimnagar (D), Andhra Pradesh

## Also Available



### Power System Analysis: A Dynamic Perspective

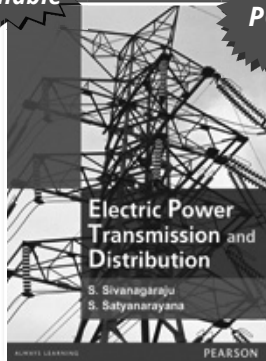
 **Shubhanga**

**ISBN: 9789332584662**

 **808** | © **2018**

E-Book  
available

POD



ISBN: 9788131707913

## Electric Power Transmission and Distribution

 S. Sivanagaraju | S. Satyanarayana

 632 | © 2008



### ABOUT THE BOOK

***Electric Power Transmission and Distribution*** is a comprehensive text, designed for undergraduate courses in power systems and transmission and distribution. A part of the electrical engineering curriculum, this book is designed to meet the requirements of students taking elementary courses in electric power transmission and distribution. Written in a simple, easy-to-understand manner, this book introduces the reader to electrical, mechanical and economic aspects of the design and construction of electric power transmission and distribution systems.

### FEATURES

- A comprehensive chapter on voltage control
- In-depth coverage on transmission-line parameters, performance of short, medium and long transmission lines
- Exclusive chapters on substations and economical design of power- and distribution systems
- Precise explanations, supported by examples
- Photographs that enable students to visualize the components of transmission systems
- Solved problems using MATLAB
- 'Chapter at a Glance' at the end of every chapter to strengthen the learning process

### CONTENTS

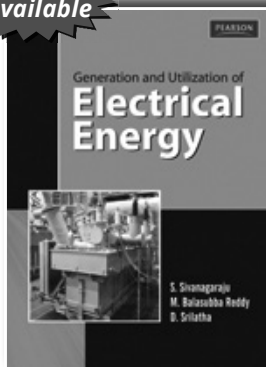
1. Introduction
2. Transmission Line Parameters
3. Performance of Short and Medium Transmission Lines
4. Performance of Long Transmission Lines
5. Power System Transients
6. Corona
7. Mechanical Design of Transmission Line
8. Overhead Line Insulators
9. Underground Cables
10. Power Factor Improvement
11. Voltage Control
12. Economical Design of Power System
13. Substations
14. Distribution Systems
15. EHV and HVDC Transmission Systems
16. Flexible AC Transmission Systems

### ABOUT THE AUTHORS

**S. Sivanagaraju** is Professor, Department of Electrical Engineering, JNTU College of Engineering, Andhra Pradesh.

**S. Satyanarayana** is Professor and Head, Department of Electrical Engineering, St. Ann's College of Engineering, Andhra Pradesh

E-Book  
available



ISBN: 9788131733325

## Generation and Utilization of Electrical Energy

 **S. Sivanagaraju | M. Balasubba Reddy | D. Srilatha**

 **588 | © 2010**



### ABOUT THE BOOK

**Generation and Utilization of Electrical Energy** is a comprehensive text designed for undergraduate courses in electrical engineering. The text introduces the reader to the generation of electrical energy and then goes on to explain how this energy can be effectively utilized for various applications like welding, electric traction, illumination, and electrolysis. The detailed explanations of practical applications make this an ideal reference book both inside and outside the classroom.

### FEATURES

- Elucidates the need for energy conservation methods, power factor improvement, various tariff methods, and power quality
- It also deals with the concept of distributed generation and deregulation
- Exclusive chapter on refrigeration and air-conditioning with applications supported by practical examples
- The book is replete with objective questions, short questions and answers, exercise problems, and review questions to fulfill the reader's requirements

### CONTENTS

1. Conventional Power Generation
2. Non-Conventional Power Generation
3. Conservation
4. Electric Heating
5. Electric Welding
6. Fundamentals of Illumination
7. Various Illumination methods
8. Electric Drives
9. Electric Traction I
10. Electric Traction II
11. Electrolysis
12. Refrigeration and Air-conditioning

### ABOUT THE AUTHORS

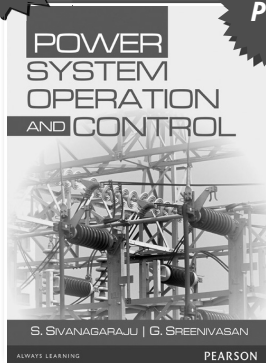
**S. Sivanagaraju**, Department of Electrical Engineering, University College of Engineering, JNTU, Andhra Pradesh.

**M. Balasubba Reddy** Head, Department of Electrical Engineering, Prakasam Engineering College, Kandukur, Andhra Pradesh.

**D. Srilatha**, Department of Electrical Engineering, Prakasam Engineering College, Andhra Pradesh.

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**E-Book  
available**



**POD**

**ISBN: 9788131726624**

### FEATURES

- In-depth coverage of economical load dispatch problems and load frequency control of power systems
- Exclusive chapters on reactive-power compensation with modern control techniques
- A comprehensive chapter on voltage control
- In-depth coverage of modelling of LFC components
- Precise explanations supported by various examples
- A large number of examples such as multiple-choice questions, short questions and answers, review questions, and practice problems

### CONTENTS

1. Economic Aspects
2. Economic Load Dispatch-I
3. Economic Load Dispatch-II
4. Optimal Unit Commitment
5. Optimal Power-Flow Problem—Solution Technique
6. Hydro-Thermal Scheduling
7. Load Frequency Control-I
8. Load Frequency Control-II
9. Reactive Power Compensation
10. Voltage Control
11. Modeling of Prime Movers and Generators
12. Modeling of Speed Governing and
13. Excitation Systems
14. Power System Security and State Estimation

### ABOUT THE AUTHORS

**S. Sivanagaraju**, Department of Electrical and Electronics Engineering, University College of Engineering, JNTU Kakinada, Andhra Pradesh

**G. Sreenivasan**, Department of Electrical and Electronics Engineering, INTELL Engineering College, Andhra Pradesh

## Power System Operation and Control

 **S. Sivanagaraju | G. Sreenivasan**

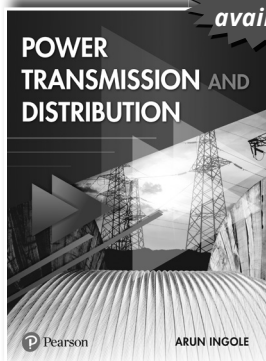
 **612 | © 2009**



### ABOUT THE BOOK

Power System Operation and Control is a comprehensive text designed for undergraduate and postgraduate courses in electrical engineering. This book aims to meet the requirements of electrical engineering students of universities all over India. This text is written in a simple and easy-to-understand manner and is valuable both as a textbook as well as a reference book for engineering students and practicing engineers.

**E-Book  
available**



**ISBN: 9789332585553**

## Power Transmission and Distribution

 **Arun Ingole**

 **824 | © 2018**

### ABOUT THE BOOK

The text is conceived as a textbook for the undergraduate course on Power transmission and distribution. The book includes theoretical explanation, accurate description & systematic presentation of each & every concept with emphasis on complete understanding of the subject matter by every reader. It also includes actual models of various renowned manufacturers for each product along with vivid illustrations, guidelines and best engineering practices followed in the industry. This will be of immense use to the students, teachers, consultants and industry professionals.

## FEATURES

- Step-by-step methodology provided for solved examples
- Over 250 illustrations and photographs

## CONTENTS

### Section I Analysis of Power Systems

1. Electrical Power Systems & Their Faults
2. Representation of Power Systems
3. Symmetrical Faults
4. Symmetrical Components
5. Unsymmetrical Faults

### Section II Transmission & Distribution Lines

6. Transmission & Distribution Lines Parameters
7. Basics of Power Lines
8. Design & Construction of Power Lines
9. Operation & Stability of AC Transmission Lines
10. HVDC Transmission Systems

### Section III Transformers

11. Basic Concepts of Transformers
12. Design & Construction of Power Transformers
13. Power Transformer Connections
14. Power Transformer Testing
15. Control, Operation & Monitoring of Power Transformers

- 150+ solved examples and 50+ case studies to be provided in the book

### Section IV T&D Equipments & Materials (Except Switchgear)

16. Power Capacitors
17. Power Reactors
18. Insulators, Fittings & Hardwares
19. Station Auxiliaries & Services
20. Cables, Accessories & Their Installation

### Section V Substations

21. Busbar Systems & Connection Schemes
22. Distribution Substations
23. Transmission & Switching Substations
24. HVDC Substations
25. Large Electrical Installations
26. Steel Structures, Civil Works & Security
27. Earthing & Neutral Grounding

### Section VIII Establishing & Operating T&D Systems

28. Design, Engineering, Planning & Implementation of T&D Systems
29. Insulation Co-ordination of T&D System
30. Installation & Commissioning of T&D Systems
31. Operation & Maintenance of T&D Systems
32. Interconnected Power Systems

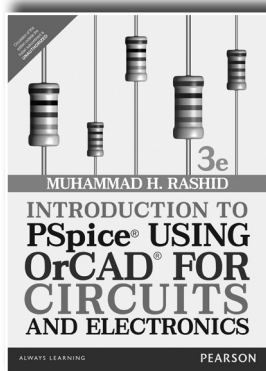
## ABOUT THE AUTHOR

Arun Ingole, Ex-General Manager, Siemens Ltd.


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## PSPICE

### Also Available



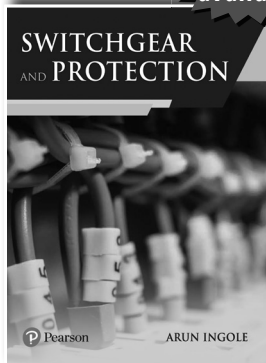
**Introduction to PSpice  
Using OrCAD for Circuits  
and Electronics 3/e (with  
CD)**

 **M. H. Rashid**

**ISBN: 9789332555174**

 480    © 2015





**E-Book  
available**

**ISBN: 9789386873439**

## Switchgear and Protection

 **Arun Ingole**

 **584** | © **2018**



### ABOUT THE BOOK

Switchgear and Protection is designed for students of electrical engineering as well as professionals. With his rich industry experience, the author has strived to provide a balanced coverage of both the theoretical and practical aspects of Switchgear and Protection systems. The book covers a wide range of topics such as system faults; current interruption; working principles of various switchgears; theory of 'relay protection' as well as various protection schemes for electrical equipment and systems. Topics ranging from the humble LV fuse, circuit breakers, switchboards, control-boards, CTs, PTs, LAs to modern electrical technology such as SF6 filled

switchgear (GIS) are also dealt in detail. The systematic presentation of topics supported by ample diagrams, layouts, sketches and photographs of real-life equipment utilized in industry make this text ideal for learners to comprehend the subject.

### FEATURES

- Step-by-step methodology provided for solved examples
- Over 250 illustrations and photographs
- 150+ solved examples and 50+ case studies to be provided in the book

### CONTENTS

#### Section I Analysis of Power Systems

1. Power Systems & Their Representation
2. Power System Faults & System Earthing
3. Introduction to Switchgear
4. The Concept of Current Interruption

#### Section II Low Voltage Switchgear

5. Low Voltage Switches & Fuses
6. Low Voltage Circuit Breakers
7. Low Voltage Contactors, Relays & Motor Protection
8. Low Voltage Enclosed Switchgear & Switchboards
9. Control & Monitoring Boards

#### Section III Medium & High Voltage Breakers

10. MV & HV Switches, Isolators & Earthing Switches
11. MV & HV Oil Circuit Breakers
12. MV & HV Air Blast Circuit Breakers
13. MV & HV SF6 Gas Circuit Breakers
14. MV & HV Vacuum Circuit Breakers
15. Operating Mechanisms of Circuit Breakers

16. Selection of Circuit Breakers

#### Section IV Other Switchgear Components & Systems

17. MV Air Insulated Enclosed Switchgear
18. MV & HV SF6 Gas filled Switchgear
19. Instrument Transformers
20. Lightning Arresters & Surge Limiters
21. Testing of Switchgear Equipments

#### Section V Protection Equipment & Systems

22. Principles of Protection
23. Basics of Protective Relays
24. Practical Protection Relays
25. Protection of Transmission Lines & feeders
26. Distance Protection for Transmission Lines
27. Protection of Generators & Motors
28. Protection of Non-rotating Equipments
29. Over Voltage & Surge Protection

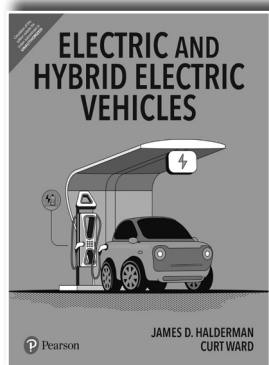
### ABOUT THE AUTHOR

Arun Ingole, Ex-General Manager, Siemens Ltd.

## Electric and Hybrid Electric Vehicles

 James D. Halderman | Curt Ward

 336 | © 2023



ISBN: 9789356066281

### ABOUT THE BOOK

Electric and Hybrid Electric Vehicles meets the needs of the course in electrical systems and hybrid and electric vehicles. It is also designed as a standalone text for a special topic or certificate course in electric and hybrid electric vehicles or for an intro course in connected and autonomous vehicles. The text covers the advanced technology of onboard diagnosis as well as up-to-date electrified vehicles technology. Students gain the skills and knowledge needed to understand and service electric and hybrid electric vehicles.

### FEATURES

- Concise, easy-to-read chapters present content in manageable sections, making it more digestible and easily understood by students.
- Learning outcomes and objectives are aligned with ASE standards and chapter content.
- Case studies in technical chapters cover the three C's (complaint, cause and correction) of handling real-world customer issues.
- Students learn each system: Its purpose and function, parts and operations, and diagnosis and service criteria.
- Step-by-step photo sequences detail best-practice approaches for procedures such as diagnosing and troubleshooting faults.
- A chapter-ending summary, review questions, key term flashcards and chapter quiz provide ample practice.

### CONTENTS

1. Hybrid and Electric Vehicle Safety
2. Introduction to Electric and Hybrid Electric Vehicles
3. Health and Environmental Concerns
4. Hybrid Engine Systems
5. Hybrid and Electric Vehicle Preventative Maintenance
6. Digital Storage Oscilloscope Testing
7. Energy and Power
8. Advanced Electricity and Electronics
9. Low Voltage Batteries and Stop-Start Systems
10. High Voltage Batteries
11. EV and HEV Motors, Converters, and Inverters
12. EV and PHEV Charging
13. Electric Vehicle Charging Equipment
14. Regenerative Brakes
15. Electric Power Steering
16. EV and HEV HVAC
17. EV and HEV Transmissions
18. EV and HEV ADAS
19. Fuel Cells and Advanced Technologies
20. First Responder and Vehicle Dismantle Procedures

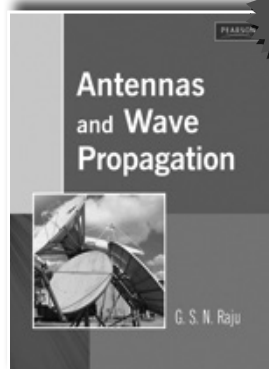
### ABOUT THE AUTHOR

**Jim Halderman** brings a world of experience, knowledge and talent to his work. His automotive service experience includes working as a flat-rate technician, a business owner and a professor of automotive technology at a leading US community college for over 20 years. Curt Ward is an automotive professor at Joliet Junior College. Before his work at the college, Curt worked as a technical training instructor for the Chrysler Corporation for 15 years. Prior to his years at Chrysler, he worked as a technician, shop foreman and service manager in the retail sector of the automotive industry for 13 years.

# **Electronics & Communication Engineering**

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POD

ISBN: 9788131701843

## Antennas and Wave Propagation

 **G. S. N. Raju**

 **512** | © **2006**



### ABOUT THE BOOK

The book is written for the first course on Antennas and Wave Propagation. The book begins with an Introduction that discusses the fundamental concepts, notations, representation and principles that govern the field of antennas. A separate chapter on Mathematical Preliminaries is discussed followed by chapters on every aspect of antennas from Maxwell's equations to antenna array analysis, antenna array synthesis, antenna measurements and wave propagation.

### FEATURES

- Concepts, analysis, design and measurements — all four aspects given equal emphasis
- Balanced presentation of theory and applications
- Unique Introduction that discuss the fundamental concepts, notations, representation and principles that govern the field of antennas
- Contains a chapter on Mathematical Preliminaries

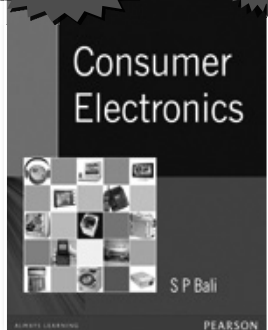
### CONTENTS

1. Introduction
2. Mathematical Preliminaries
3. Maxwell's Equations and Electromagnetic waves
4. Radiation and Antennas
5. Analysis of Linear Arrays
6. Array Synthesis
7. HF, VHF and UHF Antennas
8. Microwave Antennas
9. Antenna Measurements
10. Wave Propagation
11. MCQ

## Also Available

E-Book  
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POD



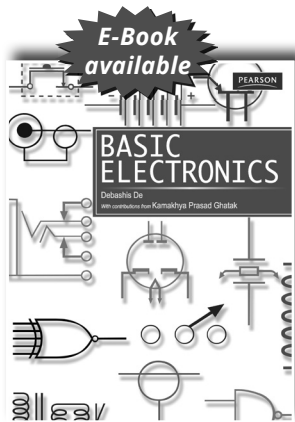
**Consumer Electronics**

 **S. P. Bali**

ISBN: 9788131717592

 **752** | © **2007**

## Basic Electronics



ISBN: 9788131710685

## Basic Electronics

 **Debashis De**

 **628** | © **2010**



### ABOUT THE BOOK

Basic Electronics, meant for the core science and technology courses in engineering colleges and universities, has been designed with the key objective of enhancing the students' knowledge in the field of electronics. Solid state electronics being a rapidly-evolving field of study, each topic has been extensively researched for the latest updates, and the authors have supplemented the chapters with customized pedagogical features. The required knowledge in mathematics has been developed throughout the book and no prior grasp of physical electronics has been assumed as an essential requirement for understanding the

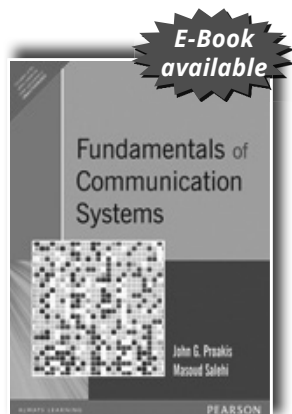
subject. Detailed mathematical derivations illustrated by solved examples enhance the understanding of the theoretical concepts. With its simple language and clear-cut style of presentation, this book presents an intelligent understanding of a complex subject like electronics.

### FEATURES

- Outline and Objectives provide a brief look at the chapter, and help the students and the instructors prepare for class.
- Figures and Tables illustrate the major concepts providing a perspective into the real-life applications.
- Solved Examples after every key topic and mathematical derivation help the students develop a strong foundation in analysis.
- For Advanced Readers identify and analyse the vital concepts to support advanced learning.
- Points to Remember recreate the chapter for fast recapitulation.
- Objective Questions, Review Questions and Practice Problems allow the students to evaluate themselves on a chapter-by-chapter basis.

### CONTENTS

1. Semiconductor Fundamentals
2. Diode Fundamentals
3. Diode Circuits
4. BJT Fundamentals
5. BJT Circuits
6. Field-Effect Transistor
7. FET Circuits
8. Special Semiconductor Devices
9. Feedback Amplifier
10. Fundamentals of Integrated Circuit Fabrication
11. Operational Amplifier
12. Oscillators
13. Digital Electronic Principles
14. Electronic Instruments



**ISBN: 9788131705735**

## Fundamentals of Communication Systems

 **John G. Proakis | Masoud Salehi**

 **876 | © 2006**



### ABOUT THE BOOK

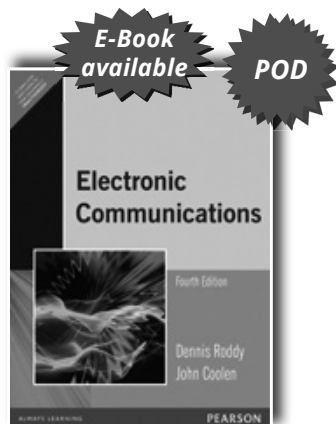
This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite communications, and data transmission networks. A background in calculus, linear algebra, basic electronic circuits, linear system theory, and probability and random variables is assumed.

### FEATURES

- Emphasis on digital communications—Prepares students for state-of-the-art communication systems.
- Computer problems in each chapter that require MATLAB to solve—Gives students experience in simulating communication systems and comparing results with theory.
- A large number of problems in varying levels of difficulty—At the end of each chapter.
- Two separate chapters on Information Theory and Coding—Provides sufficient emphasis on these key topics.

### CONTENTS

1. Introduction
2. Signals and Linear Systems
3. Amplitude Modulation
4. Angle Modulation
5. Probability and Random Processes
6. Effect of Noise on Analog Communications
7. Analog to Digital Conversion
8. Digital Modulation in AWGN Baseband Channels
9. Transmission through Bandlimited AWGN Channels
10. Transmission of Digital Information via Carrier Modulation
11. Selected Topics in Digital Communications
12. An Introduction to Information Theory
13. Coding for Reliable Communications



**ISBN: 9788177585582**

## Electronic Communications, 4/e

 **Dennis Roddy | John Coolen**

 **736 | © 2008**

### ABOUT THE BOOK

This comprehensive introduction to Electronic Communications explores fundamental concepts and their state-of-the-art application in radio, telephone, facsimile transmission, television, satellite, and fiber optic communications. It provides an explanatory as well as descriptive approach, avoids lengthy mathematical derivations, and introduces the use of Mathcad for problem-solving in select areas.

## FEATURES

- Comprehensive coverage that allows instructors a range of material from which to choose
- Avoids lengthy mathematical derivations, but gives important mathematical results and their physical interpretation
- Makes use of Mathcad for problem-solving in select areas to alleviate tedious mathematical manipulation of formulas
- Features new chapters on digital signals and digital communications.

## CONTENTS

1. Passive Circuits
2. Waveform Spectra
3. Digital Line Waveforms
4. Noise
5. Tuned Small Signal Amplifiers, Mixers and Active Filters
6. Oscillators
7. Receivers
8. Amplitude Modulation
9. Single-Sideband Modulation
10. Angle Modulation
11. Pulse Modulation
12. Digital Communication
13. Transmission Lines and Cables
14. Wave guides
15. Radio wave Propagation
16. Antennas
17. Telephone Systems
18. Facsimile and Television
19. Satellite Communications
20. Fiber Optic Communications



ISBN: 9788131719534

## Electronic Communications System : Fundamentals Through Advanced, 5/e

 **Wayne Tomasi**

 **1184** | © **2008**

### ABOUT THE BOOK

Comprehensive in scope and contemporary in coverage, this text introduces basic electronic and data communications fundamentals, and explores their application in modern digital and data communications systems. Students with previous knowledge in basic electronic principles and fundamental calculus concepts will gain a complete understanding of the topics presented here. Tomasi's Advanced Electronic Communications Systems 6/e is the last 10 chapters of this text.

## FEATURES

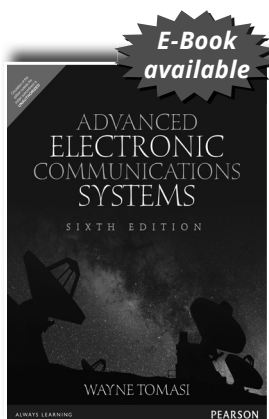
- **Rewritten material on satellites**—Includes their history; orbits; elevation categories; orbital patterns; and antenna look angles.
- **Materials in the Fundamentals chapters on AM envelopes**—Produced by complex nonsinusoidal signals, Quadrature Amplitude Modulation, noise limiters and blankers, alternate signal-to-noise measurements, single-sideband suppressed carrier, frequency division multiplexing, double-sideband suppressed carrier, quadrature multiplexing, microstrip, and stripline.
- **Material in the Advanced chapters**—On trellis encoding, CCITT modem recommendations, PCM line speed, extended superframe format, wavelength division multiplexing, Kepler's laws, Clark orbits, limits of visibility, Satellite Radio Navigation and Navstar GPS.
- **Optical fiber communications has been moved from Chapter 20 to Chapter 11**—Includes new sections on light sources, optical power, optical sources and link budget.



## CONTENTS

1. Introduction to Electronic Communications
2. Signal Analysis and Mixing
3. Oscillators, Phase-Locked Loops, and Frequency Synthesizers
4. Amplitude Modulation Transmission
5. Amplitude Modulation Reception
6. Single-Sideband Communications Systems
7. Angle Modulation Transmission
8. Angle Modulation Reception and FM Stereo
9. Digital Modulation
10. Digital Transmission
11. Digital T-Carriers and Multiplexing
12. Metallic Cable Transmission Media
13. Optical Fiber Transmission Media
14. Electromagnetic Wave Propagation
15. Antennas and Waveguides
16. Telephone Instruments and Signals
17. The Telephone Circuit
18. The Public Telephone Network
19. Cellular Telephone Concepts
20. Cellular Telephone Systems
21. Introduction to Data Communications and Networkin
22. Fundamental Concepts of Data Communications
23. Data-Link Protocols and Data Communications Networks
24. Microwave Radio Communications and System Gain
25. Satellite Communications
26. Satellite Multiple Accessing Arrangements

## Also Available




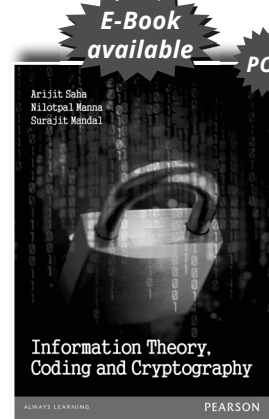
**E-Book available**

**Advanced Electronic Communications System, 6/e**

 **Wayne Tomasi**

**ISBN: 9789332549685**

 624    © 2015



**E-Book available**

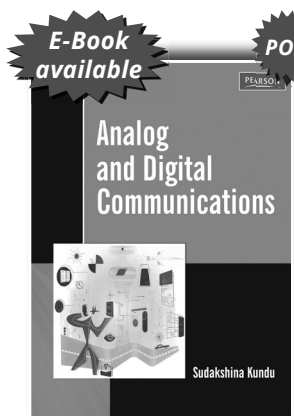
**POD**

**Information Theory, Coding & Cryptography**

 **Arijit Saha**

**ISBN: 9788131797495**

 456    © 2013



**E-Book available**

**POD**

**Analog and Digital Communications**

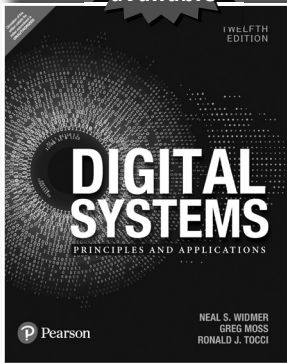
 **Sudakshina Kundu**

**ISBN: 9788131731871**

 384    © 2010



E-Book  
available



ISBN: 9789356062054

## Digital Systems, 12e

 **Ron Tocci | Neal Widmer | Greg Moss**

 **1028** | © **2022**

Pearson presents revised edition of Digital Systems which thoroughly prepares students for the study of digital systems and computer and microcontroller hardware. The text is comprehensive yet highly readable, clearly introducing the purpose and fundamentals of each topic before delving into more technical descriptions. It is also definition-focused, with new terms listed in each chapter and defined in a glossary. This Twelfth Edition has been thoroughly revised and updated with new material on section-level learning outcomes, Quadrature Shaft Encoders used to obtain absolute shaft positions, troubleshooting prototype circuits using systematic fault isolation techniques, Time Division Multiplexing, expanded discussion of VHDL data objects and more!

### FEATURES

- Clearly explains digital principles over the evolution of the telecommunications systems, from telegraphs and telephones through advanced digital cell phones.
- Emphasizes the use of megafunctions as the fundamental building blocks for new digital systems.
- Includes a full system project, showing all the steps of project management through the example of building a microwave oven controller from start to finish
- Includes expanded coverage of analog interfacing, including pipelined ADC and diverse systems applications.
- Includes extensive coverage of memory systems

### CONTENTS

1. Introductory Concepts
2. Number Systems and Codes
3. Describing Logic Circuits
4. Combinational Logic Circuits
5. Flip-Flops and Related Devices
6. Digital Arithmetic: Operations and Circuits
7. Counters and Registers
8. Integrated-Circuit Logic Families
9. MSI Logic Circuits
10. Digital System Projects Using HDL
11. Interfacing with the Analog World
12. Memory Devices
13. Programmable Logic Device Architectures

### ABOUT THE AUTHOR

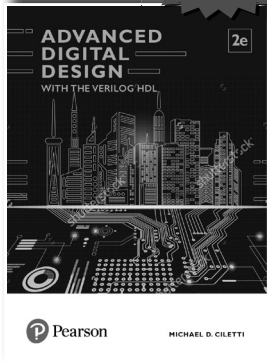
**Ron Tocci** is a retired Professor Emeritus of Electrical Engineering Technology from Monroe Community College in Rochester, New York, where he served on the faculty and as department chair for many years.

**Neal Widmer** has been teaching digital electronics for over 30 years. He holds a Bachelor's Degree in Electrical Engineering Technology and a Master's Degree in Industrial Engineering, both from Purdue University. Prior to teaching, his professional practice was in clinical engineering departments of two Midwest hospitals. Currently, he is a Full Professor and Associate Department Head in the School of Engineering Technology at Purdue University

**Greg Moss** is a retired Professor Emeritus of Electrical Engineering Technology from Purdue University, where he taught digital electronics for over thirty years.

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**E-Book  
available**



**ISBN: 9789332584464**

## Advanced Digital Design with the Verilog HDL, 2/e

 **Michael D. Ciletti**

 **992** |  **2017**

### ABOUT THE BOOK

For an advanced course in digital design for seniors and first-year graduate students in electrical engineering, computer engineering, and computer science. This book builds on the student's background from a first course in logic design and focuses on developing, verifying, and synthesizing designs of digital circuits. The Verilog language is introduced in an integrated, but iverve manner, only as needed to support design examples (includes appendices for additional language details). It addresses the design of several important circuits used in computer systems, digital signal processing, image processing, and other applications."

### FEATURES

- Provides a brief review of basic principles in combinational and sequential logic
- Focuses on modern digital design methodology
- Demonstrates the utility of ASM and ASMD charts for behavioral modeling
- Clearly distinguishes between synthesizable and nonsynthesizable loops
- Provides several problems with a wide range of difficulty after each chapter
- Combines a solution manual with an on-line repository of additional worked exercises

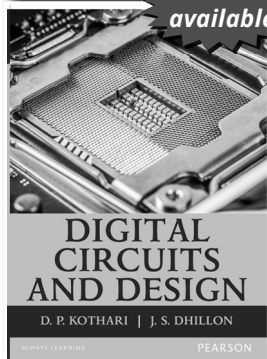
### CONTENTS

1. Introduction to Digital Design Methodology
2. Review of Combinational Logic Design
3. Fundamentals of Sequential Logic Design
4. Introduction to Logic Design with Verilog
5. Logic Design with Behavioral Models of Combinational and Sequential Logic
6. Synthesis of Combinational and Sequential Logic
7. Design and Synthesis of Datapath Controllers
8. Programmable Logic and Storage Devices
9. Algorithms and Architectures for Digital Processors
10. Architectures for Arithmetic Processors
11. Postsynthesis Design Tasks

### ABOUT THE AUTHOR

**Michael Ciletti** is Professor Emeritus in the Department of Electrical and Computer Engineering at the University of Colorado, Colorado Springs. His areas of interest include Modeling, synthesis and verification of digital systems with hardware description languages, system-level design languages, and embedded systems with FPGAs.

**E-Book  
available**



**ISBN: 9789332543539**

## Digital Circuits & Design

 **D.P Kothari | J.S Dhillon**

 **656** |  **2015**

### ABOUT THE BOOK

This student friendly, practical and example-driven book gives students a solid foundation in the basics of digital circuits and design. The fundamental concepts of digital electronics such as analog/digital signals and waveforms, digital information and digital integrated circuits are discussed in detail using relevant pedagogy

## FEATURES

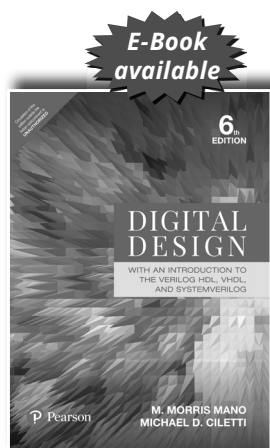
- Extensive coverage on:
  - Counters such as Hybrid, Decade and Presetable
  - Edge Triggered Flip Flops
  - Hardware Description Languages
  - Design of Arithmetic Logic Unit
- Exclusive chapter on Logic Description Using VHDL
- Includes topics such as synchronous/asynchronous mode circuits, pulse mode, sequential circuits, VHDL 7 segment decoder, VHDL code converters, etc
- Additional solve the examples and reading material available online

## ABOUT THE AUTHOR

**D P Kothari** Director Research, GPGI, Nagpur Director-In-Charge, Indian Institute of Technology Delhi Former Vice Chancellor, VIT, Vellore and Former Principal, VNIT, Nagpur

**JS Dhillon** Professor, Department of Electrical and Instrumentation Engineering Sant Longowal Institute of Engineering and Technology, Punjab.

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**ISBN: 9789353062019**

## Digital Design : With an Introduction to the Verilog HDL, VHDL, and SystemVerilog, 6/e



**M. Morris Mano | Michael D Cileti**



**768 | © 2018**

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## ABOUT THE BOOK

**Digital Design**, Sixth 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.

## FEATURES

- Closely reflects the content of a foundation course in digital design, and the mainstream technology of today's digital systems—CMOS circuits
- Presents a clear development of a design methodology using the Verilog HDL
- Contains a smart sequence of topics to cater to different courses that adhere to traditional, manual-based, treatments of digital design; courses that treat design using an HDL; and courses that are in transition between or blend the two approaches.

### New To This Edition

- Addition of Web Search Topics at the end of each chapter to point students to additional subject matter available on the Web
- Revision of approximately one-third of the problems at the end of the chapters
- Streamlining of the discussion of Karnaugh-maps
- Inclusion of an appendix introducing semiconductor technology

## CONTENTS

1. Digital Systems and Binary Numbers
2. Boolean Algebra and Logic Gates
3. Gate-Level Minimization
4. Combinational Logic
5. Synchronous Sequential Logic
6. Registers and Counters
7. Memory and Programmable Logic
8. Design at the Register Transfer Level
9. Asynchronous Sequential Logic
10. Digital Integrated Circuits
11. Laboratory Experiments with Standard ICs and FPGAs
12. Standard Graphic Symbols

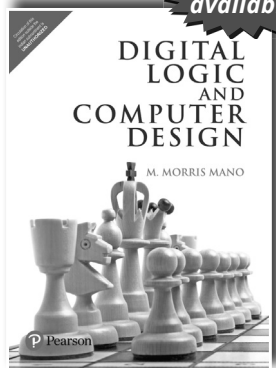
## ABOUT THE AUTHORS

**M. Morris Mano**, California State University, Los Angeles

**Micheal D. Ciletti**, University of Colorado, Colorado Springs

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**E-Book  
available**



**ISBN: 9789332542525**

## Digital Logic and Computer Design

**M. Morris Mano**

**560** | © **2016**

### ABOUT THE BOOK

This book presents the basic concepts used in the design and analysis of digital systems and introduces the principles of digital computer organization and design. It discusses various methods and techniques suitable for a variety of digital system design applications and covers all aspects of digital systems. It also includes applications of Read Only Memory (ROM) and Programmable Logic Array (PLA). The flexible organization of the book permits it to be used in a variety of ways to suit the needs of courses in digital systems taught in electrical, electronics, computer science and engineering departments.

### FEATURES

- Covers all aspects of digital systems from electronic gate circuits to the complex structure of microprocessor systems
- Facilitates a thorough understanding of the register-transfer method used for the analysis and design of processor units and control units

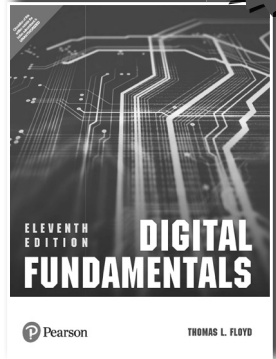
### CONTENTS

1. Binary Systems
2. Boolean Algebra and Logic Gates
3. Simplification of Boolean Functions
4. Combinational Logic
5. Combinational Logic with MSI and LSI
6. Sequential Logic
7. Registers, Counters, and the Memory Unit
8. Register-Transfer Logic
9. Processor Logic Design
10. Control Logic Design
11. Computer Design
12. Microcomputer System Design
13. Digital Integrated Circuits

### ABOUT THE AUTHORS

**M. Morris Mano**, California State University, Los Angeles

**E-Book  
available**



**ISBN: 9789332584600**

## Digital Fundamentals, 11/e

**Thomas L Floyd**

**672** | © **2017**

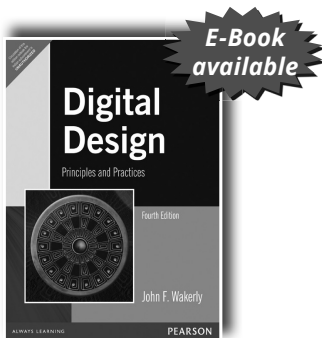
### ABOUT THE BOOK

Digital Fundamentals, Eleventh Edition, continues its long and respected tradition of offering students a strong foundation in the core fundamentals of digital technology, providing basic concepts reinforced by plentiful illustrations, examples, exercises, and applications. The text's teaching and learning resources include an Instructor's Manual, PowerPoint lecture slides, and Test Bank, as well as study resources for students.

### FEATURES

- A new boxed feature, Implementation, shows how various logic functions can be implemented using fixed-function devices or by writing a VHDL program for PLD implementation.
- A new chapter on data transmission has been added and includes extensive coverage of standard busses.
- A new page layout and design provides better visual appearance and ease of use.

## Also Available



**Digital Design: Principles and Practices, 4/e**

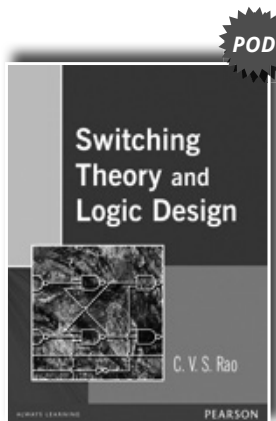
**Wakerly**

ISBN: 9788131713662

852 2008



## Also Available

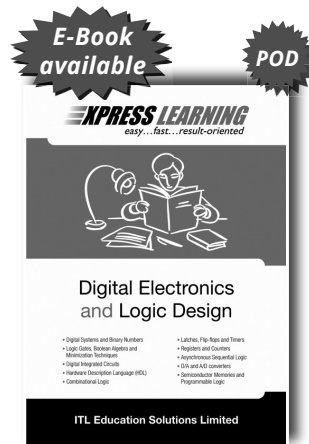


**Switching Theory and Logic Design**

**C. V. S. Rao**

ISBN: 9788131701836

336 2006

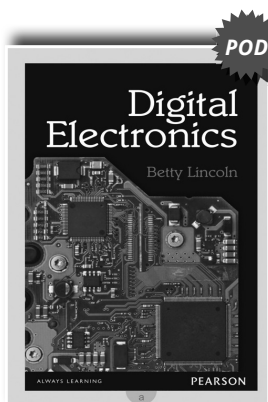


**Express Learning Series - Digital Electronics and Logic Design**

**ITL ESL**

ISBN: 9788131787045

336 2013



**Digital Electronics**

**Betty Lincoln**

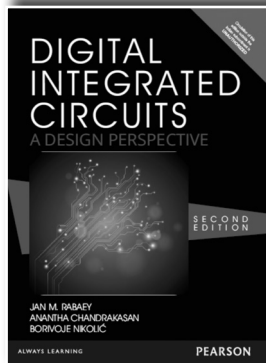
ISBN: 9789332522299

412 2014

## Digital Integrated Circuits: A design perspective, 2/e

 **Jan M. Rabaey | Anantha Chandrakasan | Borivoje Nikolic**

 **784 | © 2016**



**ISBN: 9789332573925**

### ABOUT THE BOOK

Progressive in content and form, this text successfully bridges the gap between the circuit perspective and system perspective of digital integrated circuit design. Beginning with solid discussions on the operation of electronic devices and in-depth analysis of the nucleus of digital design, the text maintains a consistent, logical flow of subject matter throughout. The revision addresses today's most significant and compelling industry topics, including: the impact of interconnect, design for low power, issues in timing and clocking, design methodologies, and the tremendous effect of design automation on the digital design perspective. The revision reflects

the ongoing evolution in digital integrated circuit design, especially with respect to the impact of moving into the deep-ubmicron realm.

### FEATURES

- **NEW** - Updating of technology of the deep-submicron realm—The piece makes sure that updates to most of the numeric values with respect to advancing processes can be accomplished easily.
- Interconnect material takes a more predominant position and is moved forward in the presentation.
- A number of the circuit techniques have been removed or updated or newer approaches have been introduced—Reflects the changes in design approaches over the last decade.
- A chapter on manufacturing technology has been introduced—Design methodologies are introduced throughout the text in synchronicity with the circuit content.
- Design methodology inserts—Discuss design automation.

### CONTENTS

#### Part 1 The Fabrics

1. Introduction
2. The Manufacturing Process
3. The Devices
4. The Wire

#### Part 2 A Circuit Perspective

5. The CMOS Inverter
6. Designing Combinational Logic Gates in CMOS

7. Designing Sequential Logic Circuits

#### Part 3 A System Perspective

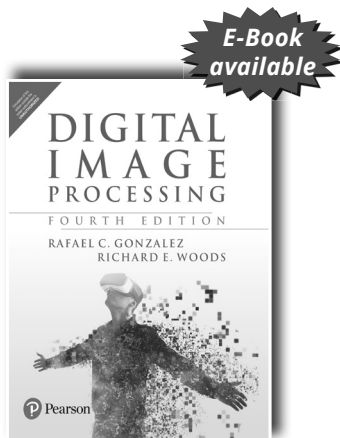
8. Implementation Strategies for Digital IC
9. Coping with Interconnect
10. Timing Issues in Digital Circuits
11. Designing Arithmetic Building Blocks
12. Designing Memory and Array Structures

### ABOUT THE AUTHORS

**Jan M. Rabaey**, University of California, Berkeley

**Anantha Chandrakasan**, Massachusetts Institute of Technology, Cambridge

**Borivoje Nikolic**, University of California, Berkeley



ISBN: 9789353062989

## Digital Image Processing, 4/e

 **Rafael C. Gonzalez | Richard E. Woods**

 **1026 | © 2018**

### ABOUT THE BOOK

The fourth edition of Digital Image Processing, which celebrates the book's 40th anniversary, continues its cutting-edge focus on contemporary developments in all mainstream areas of image processing. It focuses on material that is fundamental and has a broad scope of application.

### FEATURES

- Coverage of graph cuts and their application to segmentation.
- A discussion of superpixels and their use in region segmentation.
- 425 new images, 135 new drawings, 220 new exercises and 120 MATLAB projects.
- Two new chapters:
  - A chapter dealing with active contours for image segmentation, including snakes and level sets.
  - A chapter that brings together wavelets, several new transforms, and many of the image transforms that were scattered throughout the book.
- A complete update of the image pattern recognition chapter to incorporate new material on deep neural networks, backpropagation, deep learning, and especially, deep convolutional neural networks.
- Coverage of feature extraction, including the Scale Invariant Feature Transform (SIFT, maximally stable extremal regions (MSERs), and corner detection.
- Coverage of the fundamentals of spatial filtering, image transforms, and finite differences with a focus on edge detection.

### CONTENTS

1. Introduction
2. Digital Image Fundamentals
3. Intensity Transformations and Spatial Filtering
4. Filtering in the Frequency Domain
5. Image Restoration and Reconstruction
6. Wavelet and Other Image Transforms
7. Color Image Processing
8. Image Compression and Watermarking
9. Morphological Image Processing
10. Image Segmentation I: Edge Detection,
11. Image Segmentation II: Active Contours: Snakes and Level Sets
12. Feature Extraction
13. Image Pattern Classification

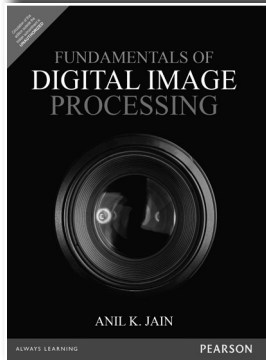
### ABOUT THE AUTHOR

**Rafael C. Gonzalez** received the B.S.E.E. degree from the University of Miami in 1965 and the M.E. and Ph.D. degrees in electrical engineering from the University of Florida, Gainesville, in 1967 and 1970, respectively. He joined the Electrical and Computer Engineering Department at University of Tennessee, Knoxville (UTK) in 1970, where he became Associate Professor in 1973, Professor in 1978, and Distinguished Service Professor in 1984. He is currently a Professor Emeritus at UTK. Gonzalez is the founder of the Image & Pattern Analysis Laboratory and the Robotics & Computer Vision Laboratory at the University of Tennessee.

**Richard E. Woods** earned his B.S., M.S., and Ph.D. degrees in Electrical Engineering from the University of Tennessee, Knoxville. His professional experiences range from entrepreneurial to the more traditional academic, consulting; governmental, and industrial pursuits. Most recently, he founded MedData Interactive, a high technology company specializing in the development of hand-held computer systems for medical applications. He was also a founder and Vice President of Perceptics Corporation.



## Fundamentals of Digital Image Processing



**ISBN: 9789332551916**

 **Anil K. Jain**

 **592** | © **2015**

### ABOUT THE BOOK

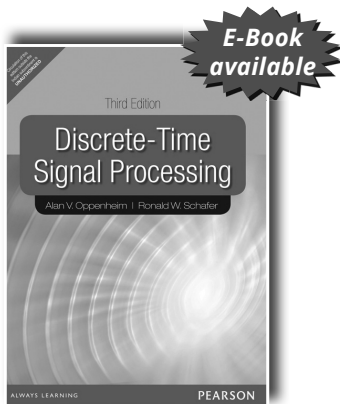
A thorough overview of the major topics in digital image processing — representation, processing techniques, and communication.

### FEATURES

- covers aspects of image representation including luminance, color, spatial and temporal properties of vision, and digitization.
- explores various image processing techniques.
- discusses algorithm development (software/firmware) for image transforms, enhancement, reconstruction, and image coding.

### CONTENTS

1. Introduction
2. Two Dimensional Systems and Mathematical Preliminaries
3. Image Perception
4. Image Sampling and Quantization
5. Image Transforms
6. Image Representation by Stochastic Models
7. Image Enhancement
8. Image Filtering and Restoration
9. Image Analysis and Computer Vision
10. Image Reconstruction From Projections
11. Image Data Compression



ISBN: 9789332535039

## Discrete-Time Signal Processing, 3/e

 Alan V. Oppenheim | Ronald W. Schaffer

 1064 | © 2014

### ABOUT THE BOOK

The definitive, authoritative text on DSP — ideal for those with an introductory-level knowledge of signals and systems. Written by prominent DSP pioneers, it provides thorough treatment of the fundamental theorems and properties of discrete-time linear systems, filtering, sampling, and discrete-time Fourier Analysis. By focusing on the general and universal concepts in discrete-time signal processing, it remains vital and relevant to the new challenges arising in the field.

### FEATURES

- Chapter organization is self-contained — A background of advanced calculus and exposure to linear system theory for continuous-time signals is inferred
- Material on
  - Multi-rate filtering banks
  - The discrete cosine transform
  - Noise-shaping sampling strategies
- Includes several dozen problem-solving examples that not only illustrate key points, but demonstrate approaches to typical problems related to the material
- Contains a wealth of class-tested problems which are the best produced over decades of undergraduate

### CONTENTS

1. Introduction
2. Discrete Time-Signals and Systems
3. The z-Transform
4. Sampling of Continuous-Time Signals
5. Transform Analysis of Linear Time-Invariant Systems
6. Structures for Discrete-Time Systems
7. Filter Design Techniques
8. The Discrete Fourier Transform

and graduate signal processing classes at MIT and Georgia Tech

- Problems are organized by level of difficulty into separate categories
- Basic Problems with Answers to allow students to check their results, but not solutions (20 per chapter)
- Basic Problems - without answers
- Advanced Problems - provide an opportunity for students to understand
- Extension Problems - start from the discussion in the text and lead students beyond to glimpse some advanced areas of signal processing
- Offers a wealth of problems and examples

9. Computation of the Discrete Fourier Transform
  10. Fourier Analysis of Signals Using the Discrete Fourier Transform
  11. Parametric Signal Modeling
  12. Discrete Hilbert Transforms
- Appendix A:** Random Signals  
**Appendix B:** Continuous-Time Filters  
**Appendix C:** Answers to Selected Basic Problems

### ABOUT THE AUTHOR(S)

**Alan V. Oppenheim**, Massachusetts Institute of Technology

**Ronald W. Schaffer**, Georgia Institute of Technology

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**ISBN: 9788131710005**

## Digital Signal Processing: Principles, Algorithms, and Applications, 4/e

 **John G. Proakis | Dimitris G Manolakis**

 **1156 | © 2007**



### ABOUT THE BOOK

This fourth edition covers the fundamentals of discrete-time signals, systems, and modern digital signal processing. Appropriate for students of electrical engineering, computer engineering, and computer science, the book is suitable for undergraduate and graduate courses and provides balanced coverage of both theory and practical applications.

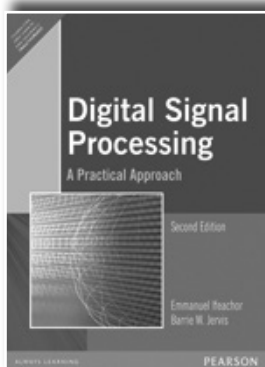
### FEATURES

- Newly written and updated chapter on sampling and reconstruction of signals
- New addition on the discrete cosine transform
- Updated chapter on multirate digital signal processing.

### CONTENTS

1. Introduction
2. Discrete-Time Signals And Systems
3. The Z-Transform And Its Application To The Analysis Of Lti Systems
4. Frequency Analysis Of Signals And Systems
5. Frequency Domain Analysis Of Lti Systems
6. Sampling And Reconstruction Of Signals
7. The Discrete Fourier Transform: Its Properties And Applications
8. Efficient Computaiton Of The Dft: Fast Fourier Transform Algorithms
9. Implementation Of Discrete-Time Systems
10. Design Of Digital Filers
11. Multirate Digital Signal Processing
12. Linear Prediction And Optimum Linear Filters
13. Adaptive Filters
14. Power Spectrum Estimation

## Also Available



### Digital Signal Processing 2/e

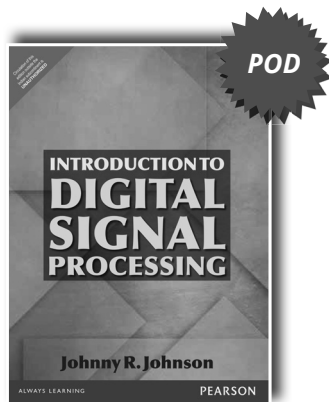
 **Ifeakor Emmanuel**

**ISBN: 9788131708248**

 **960 | © 2006**



# DIGITAL SIGNAL PROCESSORS



ISBN: 9789332560130

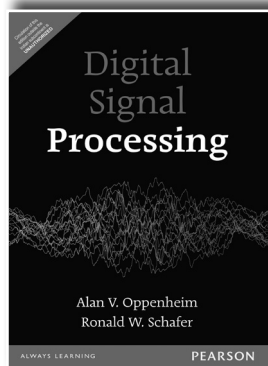
## Introduction to Digital Signal Processing

 Johnny R. Johnson

 432 | © 2015

### ABOUT THE BOOK

This introductory book on digital filtering and digital signal processing is pedagogically sound and self-contained: the student is assumed to have only a background in calculus and an exposure to continuous-time linear systems theory.



ISBN: 9789332550339

## Digital Signal Processing

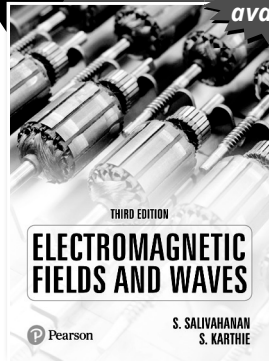
 Alan V. Oppenheim | Ronald W. Schafer

 608 | © 2015

### ABOUT THE BOOK

An up-to-date and detailed introduction to the fundamentals of processing signals by digital techniques and their applications to practical problems.

NEW

E-Book  
available

ISBN: 9788119896677

## Electromagnetic Fields and Waves, 3/e

 S. Salivahanan | S. Karthie

 796 | © 2024


### ABOUT THE BOOK

Electromagnetic fields and waves elucidates the fundamentals of electromagnetic fields for B.E/B. Tech courses in Electrical and Electronics Engineering, Electronics and Communication Engineering, Electronics and Telecommunication Engineering, M.Sc. (Electronics), B.Sc. (Physics), AMIE, Grade IETE degree programs and competitive examinations. The book comprises ten chapters arranged sequentially and presented in simple reader-friendly language. To aid understanding, numerous numerical problems with step-by-step solutions are provided. Each chapter concludes with a set of review questions to help readers to test their understanding of the subject.

### FEATURES

- Presents the concepts in a simple and lucid manner providing clear explanations ideal for beginner readers.
- Detailed coverage of topics like static and dynamic fields, and their applications in electromagnetics.
- Encourages self-learning through numerous step-by-step solved examples
- Offers excellent pedagogy with 300 illustrations, 575 solved examples and 930 review questions

### CONTENTS

- |                                  |  |
|----------------------------------|--|
| 1. Vector Analysis               | 6. Time-Varying Fields and Maxwell's Equations |
| 2. Static Electric Fields        | 7. Electromagnetic Waves                       |
| 3. Conductors and Dielectrics    | 8. Transmission Lines-I                        |
| 4. Static Magnetic Fields        | 9. Transmission lines-II                       |
| 5. Magnetic Forces and Materials | 10. Waveguides                                 |

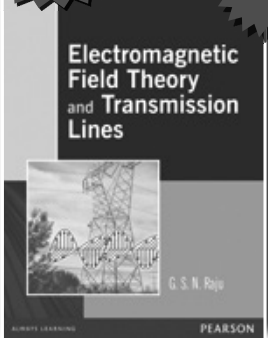
### ABOUT THE AUTHOR

**S. Salivahanan**, Vice Chancellor, Vel Tech Rangarajan Dr. Sagunthala R&D Institute of Science and Technology, Chennai.

**S. Karthie**, Associate Professor, ECE, SSN College of Engineering, Chennai.

**E-Book available**

**POD**



**ISBN: 9788131701713**

# Electromagnetic Field Theory and Transmission Lines

 **G. S. N. Raju**

 **584** | © **2006**



## ABOUT THE BOOK

*Electromagnetic Field Theory and Transmission Lines* is an ideal textbook for a single semester, first course on Electromagnetic Field Theory (EMFT) at the undergraduate level. This book uses plain and simple English, diagrammatic representations and real life examples to explain the fundamental concepts, notations, representation and principles that govern the field of EMFT. The chapters cover every aspect of EMFT from electrostatics to advanced topics dealing with Electromagnetic Interference (EMI)/Electromagnetic Compatibility (EMC), EMC standards and design methods for EMC. Careful and detailed explanation of challenging concepts will help students understand better.

## FEATURES

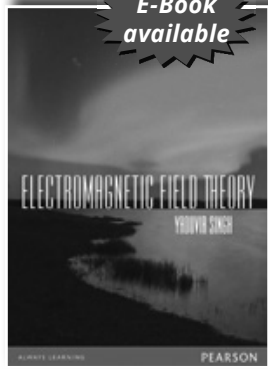
- Simple, clear and concise presentation
- Balanced exposition to both theory and application
- Unique introduction that discusses the fundamental concepts, notations, representation and principles that govern the field of EMFT
- Includes an exclusive chapter on basic mathematics required for problem solving

## CONTENTS

- |                                     |                           |
|-------------------------------------|---------------------------|
| 1. Mathematical Preliminaries       | 6. Guided Waves           |
| 2. Electrostatic Fields             | 7. Transmission Lines     |
| 3. Steady Magnetic Fields           | 8. Radiation and Antennas |
| 4. Maxwell's Equations              | 9. Advanced Topics        |
| 5. Electromagnetic Fields and Waves |                           |

## Also Available

**E-Book available**



**Electro Magnetic Field Theory**

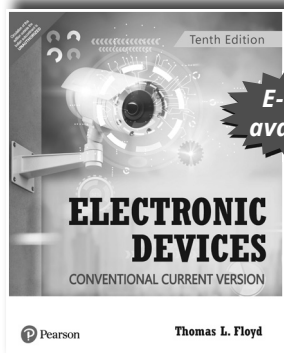
 **Yaduvir Singh**

**ISBN: 9788131760611**

 **504** | © **2011**



## Electronic Devices: Conventional Current Version, 10e



**E-Book  
available**

 **Thomas L Floyd**

 **940** | © **2021**

**ISBN: 9789354493935**

### ABOUT THE BOOK

Electronic Devices (Conventional Current Version), 10/e, provides a solid foundation in basic analog electronics and a thorough introduction to analog integrated circuits and programmable devices. The text identifies the circuits and components within a system, helping students see how the circuit relates to the overall system function. Photos and illustrations and easy-to-follow worked examples support the text's strong emphasis on real-world application and troubleshooting.

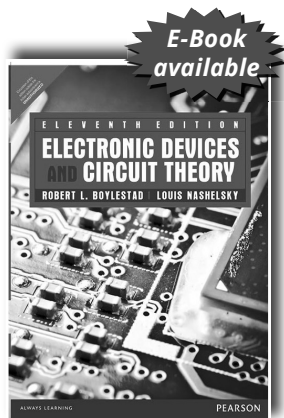
Updated throughout, the Tenth Edition features selected circuits keyed to Multisim V14 and LT Spice files so that students learn how to simulate, analyze, and troubleshoot using the latest circuit simulation software.

### FEATURES

- Provides a solid foundation in basic principles and then moves into practical applications of those principles
- Teaches students practical troubleshooting techniques. Throughout the text, troubleshooting sections present methods and procedures for identifying, isolating, and correcting faulty devices and circuits.
- UPDATED: Diversified problem sets—including basic, advanced, troubleshooting, datasheet, and Multisim troubleshooting problems—offer a chance to practice applying theorems and formulas, encouraging students to think through a solution in a logical manner. Many new problems are included in the Tenth Edition.
- UPDATED: Offers expanded coverage of key topics, such as:
  - FETs, including JFET limiting parameters, FINFET, UMOSFET, Current source biasing, Cascode dual-gate MOSFET, and tunneling MOSFET
  - Thyristors, including SSRs using SCRs, and motor speed control
  - Switching circuits, including interfacing with logic circuits
  - PLL

### CONTENTS

1. Introduction to Semiconductors
2. Diodes and Applications
3. 3 Special-Purpose Diodes
4. Bipolar Junction Transistors
5. Transistor Bias Circuits
6. BJT Amplifiers
7. BJT Power Amplifiers
8. Field-Effect Transistors (FETs)
9. FET Amplifiers and Switching Circuits
10. Amplifier Frequency Response
11. Thyristors
12. The Operational Amplifier
13. Basic Op-Amp Circuits
14. Special-Purpose Integrated Circuits
15. Active Filters
16. Oscillators
17. Voltage Regulators



**ISBN: 9789332542600**

## Electronic Devices and Circuit Theory, 11/e



**Robert L. Boylestad | Louis Nashelsky**



**952 | © 2015**

The eleventh edition of *Electronic Devices and Circuit Theory* offers students a complete, comprehensive coverage of the subject, focusing on all the essentials they will need to succeed on the job. Setting the standard for nearly 30 years, this highly accurate text is supported by strong pedagogy and content that is ideal for new students of this rapidly changing field. This text is an excellent reference work for anyone involved with electronic devices and other circuitry applications, such as electrical and technical engineers.

### FEATURES

- Using a systems approach, this edition represents an exhaustive effort to enhance the material that introduces the concept of systems engineering
- Ample photographs and examples enhances students' understanding of important topics
- Practical applications in every chapter that cover the latest examples from the industry

### CONTENTS

1. Semiconductor Diodes
  2. Diode Applications
  3. Bipolar Junction Transistors
  4. DC Biasing—BJTs
  5. BJT AC Analysis
  6. Field-Effect Transistors
  7. FET Biasing
  8. FET Amplifiers
  9. BJT and JFET Frequency Response
  10. Operational Amplifiers
  11. Op-Amp Applications
  12. Power Amplifiers
  13. Linear-Digital ICs
  14. Feedback and Oscillator Circuits
  15. Power Supplies (Voltage Regulators)
  16. Other Two-Terminal Devices
  17. pnpn and Other Devices
- Appendix A:** Hybrid Parameters—Graphical Determinations and Conversion Equations (Exact and Approximate)
- Appendix B:** Ripple Factor and Voltage Calculations
- Appendix C:** Charts and Tables
- Appendix D:** Solutions to Selected Problems

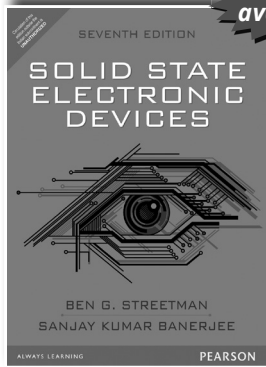
### ABOUT THE AUTHOR

**Robert L. Boylestad**, Queensborough Community College

**Louis Nashelsky**, Queensborough Community College



## Solid State Electronic Devices, 7/e



**E-Book  
available**

 **Ben G. Streetman | Sanjay Kumar Banerjee**

 **624 | © 2015**

**ISBN: 9789332555082**

### ABOUT THE BOOK

One of the most widely used introductory books on semiconductor materials, physics, devices and technology, *Solid State Electronic Devices* aims to develop basic semiconductor physics concepts, so students can better understand current and future devices and provide a sound understanding of current semiconductor devices and technology, so that their applications to electronic and optoelectronic circuits and systems can be appreciated. Students are brought to a level of understanding that will enable them to read much of the current literature on new devices and applications.

### FEATURES

- The basics of semiconductor materials and conduction processes in solids are incorporated to understand p-n junctions, bipolar and metal oxide semiconductor transistors, optoelectronic and other devices.
- A discussion of device fabrication processes and CMOS integrated circuit technology, along with data in the Appendices, provide a useful understanding of how semiconductor devices are made.
- The extensive discussion of circuit and other application examples provides students with feedback about the practical relevance of the theory.
- The discussion of MOS devices is updated, both in the underlying theory of ballistic FETs as well as discussion of advanced MOSFETs such as FinFETs, strained Si devices, metal gate/high-k devices, III-V high channel mobility devices.
- The treatment of optoelectronic devices is updated, including high bandgap nitride semiconductors and quantum cascade lasers
- A brand new section on nanoelectronics introduces students to exciting concepts such as 2D materials including graphene and topological insulators, 1D nanowires and nanotubes, and 0D quantum dots.
- A new discussion highlights spintronics and novel resistive and phase change memories

### CONTENTS

1. Crystal Properties and Growth of Semiconductors
2. Atoms And Electrons
3. Energy Bands And Charge Carriers In Semiconductors
4. Excess Carriers In Semiconductors
5. Junctions
6. Field-Effect Transistors
7. Bipolar Junction Transistors
8. Optoelectronic Devices
9. Integrated Circuits
10. High-frequency, high-power and Nanoelectronic devices
11. Municipal Solid Waste
12. Hazardous Waste Management
13. Air Pollution and Control
14. Noise Pollution and Control

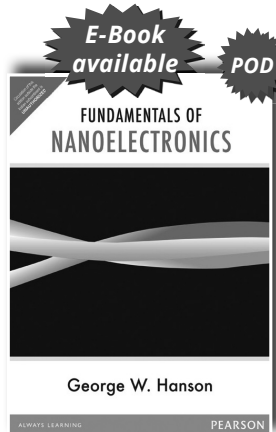
### ABOUT THE AUTHOR

**Ben G. Streetman** is Dean Emeritus of the College of Engineering at The University of Texas at Austin.

**Sanjay Kumar Banerjee** is the Cockrell Chair Professor of Electrical and Computer Engineering, and Director of the Microelectronics Research Center at The University of Texas at Austin.

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## Also Available

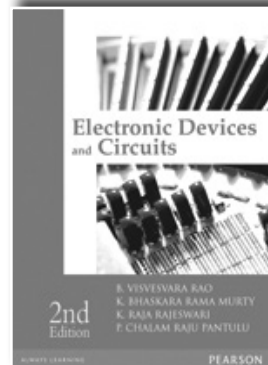


### Fundamentals of Nanoelectronics

 **George W. Hanson**

**ISBN:** 9788131726792

 400  2009

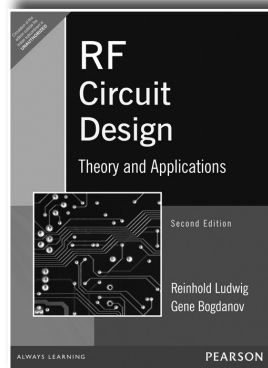


### Electronic Devices and Circuits

 **B. Visvesvara Rao**

**ISBN:** 9788131705858

 424  2006



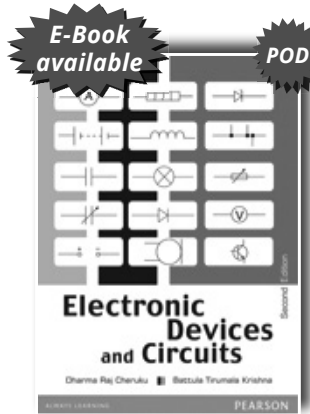
### RF Circuit Design: Theory and Applications

 **Reinhold Ludwig**

**ISBN:** 9788131762189

 720  2011



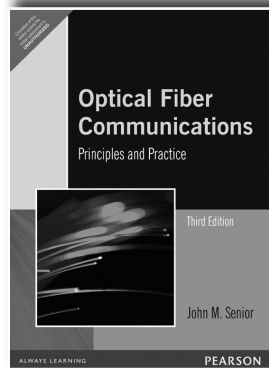


## Electronic Devices and Circuits, 2/e

**Cheruku**

**ISBN:** 9788131700983

664 2008



**ISBN: 9788131732663**

## Optical Fiber Communications: Principles and Practice, 3/e

**John M. Senior**

**1128** | **2010**



### ABOUT THE BOOK

*Optical Fiber Communications* is an established core text in a field that is growing fast, and in which technology is constantly evolving. The text succeeds in giving a practical introduction to the fundamentals, problems and techniques of design and utilisation of optical fiber systems. It is respected as the most comprehensive and practical book in the market. This new edition will retain all core features, while incorporating recent improvements and developments in the field. Optical fiber systems have now become more sophisticated and, as a result, are now the communication method of choice for many systems. New/additional material will include optical amplifiers,

soliton systems and optical networks.

### FEATURES

- SI units used throughout
- Includes all major developments in single-mode fibers
- Contains a wealth of worked examples, problems and exercises
- Has broadest coverage of optical amplifiers and optic devices
- Coverage of advanced systems and techniques
- Extensive references throughout the text
- Worked examples illustrate applications
- Coverage of op amps and soliton systems
- Updated and expanded coverage of optical networks

### CONTENTS

1. Introduction
2. Optical fiber waveguides
3. Transmission characteristics of optical fibers
4. Optical fibers and cables
5. Optical fiber connection: joints and couplers
6. Optical sources 1: the laser
7. Optical sources 2: the light emitting diode
8. Optical detectors
9. Direct detection receiver performance considerations
10. Optical amplification and integrated optics
11. Integrated Optics and Photonics
12. Optical fiber systems 1: intensity modulation/direct detection
13. Optical Fiber Systems 2: coherent and phase modulated
14. Optical fiber measurements
15. Optical Networks

# BIOMEDICAL INSTRUMENTATION

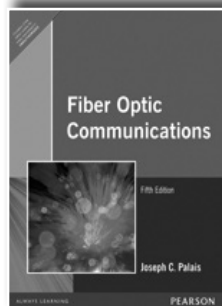
## ABOUT THE AUTHOR

**John Senior** is Pro Vice-Chancellor for Research and Dean of the Faculty of Engineering and Information Sciences at the University of Hertfordshire, UK.

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## Also Available

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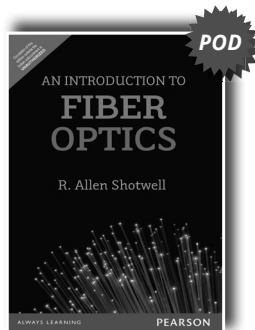


### Fiber Optic Communications, 5/e

 Palais

ISBN: 9788131717912

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### An Introduction to Fiber Optics

 Shotwell

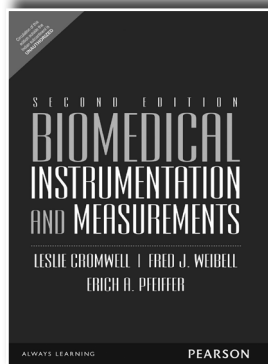
ISBN: 9789332550544

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## Biomedical Instrumentation and Measurements, 2/e

 Leslie Cromwell | Fred J. Weibell | Erich A. Pfeiffer

 526 | © 2015



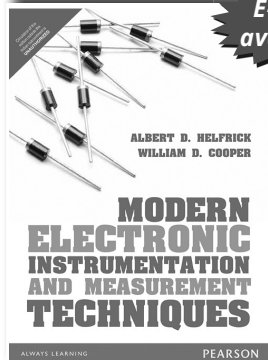
ISBN: 9789332556911

## ABOUT THE BOOK

This well illustrated book provides a broad and highly practical introduction to all aspects of biomedical instrumentation from design and use to maintenance. Readers having an elementary technical background in electronics or engineering and a casual familiarity with physiology should find this book quite beneficial. Besides, students of life sciences and other allied fields with some knowledge of instrumentation should also find this text useful. Furthermore, it should prove to be an excellent reference book for medical/paramedical personnel.

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## Modern Electronic Instrumentation and Measurement Techniques



E-Book available

 Albert D. Helfrick | William D. Cooper

 424 | © 2015

ISBN: 9789332556065

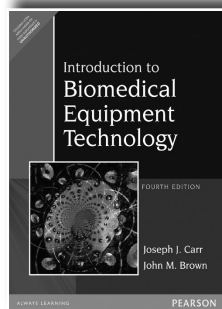
### ABOUT THE BOOK

Modern Electronic Instrumentation and Measurement Techniques caters to the requirements of undergraduate students of Electronics and Communication Engineering and other courses in electronics. The book features a balanced coverage of basic measurement techniques such as accuracy, precision, standards, etc. with some clarity and modernization to include new standards.

### FEATURES

- Lucid coverage of standards of measurement, bridge measurements, signal generation, signal analysis, and computer-controlled test systems
- Supplemented by numerous illustrations, examples, and exercises to help understand the concepts better
- Essential for engineering students preparing for competitive examinations such as GATE and IES
- Lucid coverage of standards of measurement, bridge measurements, signal generation, signal analysis, and computer-controlled test systems
- Supplemented by numerous illustrations, examples, and exercises to help understand the concepts better
- Essential for engineering students preparing for competitive examinations such as GATE and IES

## Also Available



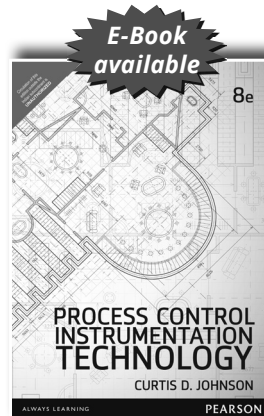
Introduction to Biomedical Equipment Technology, 4/e

 Carr

ISBN: 9788177588835

 768

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E-Book available

Process Control Instrumentation Technology, 8/e

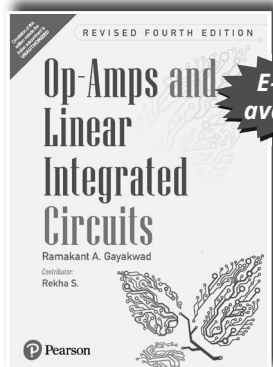
 Curtis D. Johnson

ISBN: 9789332549456

 684

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## Op-Amps and Linear Integrated Circuits, Revised 4e



**E-Book  
available**

**ISBN: 9789353949037**



**Ramakant A. Gayakwad**



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### ABOUT THE BOOK

Op-Amps and Linear Integrated Circuits, revised fourth edition combines the right blend of theory and practice to present a simplified and methodical way to design, and develop students' understanding of the differences between theoretical, practical, and simulated results in the analysis of op-amps circuits. The book discusses various op-amps characteristics, circuit analysis and design considerations and provides students with a firm grasp of basic principles enabling them to adapt to changing technology as new devices appear on the market.

### FEATURES

- PSpice simulation examples and problems in the book illustrates how concepts can be simulated using the PSpice program and demonstrates step-by-step approaches to circuit simulation
- An entire chapter on specialized integrated applications—includes universal active and switched capacitor filters; phase-locked loop; 555 timer; voltage and switching regulators; and power amplifiers
- New! IC design projects have been added that are based on op-amps and 555 timer
- New! illustrative examples and exercise problems added
- New! 150 problems from previous years' GATE question papers has been included

### CONTENTS

1. Introduction to Operational Amplifiers
2. Interpretation of Data Sheets and Characteristics of an Op-amp
3. An Op-amp with Negative Feedback
4. The Practical Op-amp
5. Frequency Response of an Op-amp
6. General Linear Applications
7. Active Filters and Oscillators
8. Comparators and Converters
9. Specialized IC Applications
10. Selected IC System Projects

### ABOUT THE AUTHOR

**Ramakant A. Gayakwad**, Mt. Sierra College

#### Contributor:

**Rekha S**, National Institute of Technology Karnataka, Surathkal

## Operational Amplifiers with Advanced Applications

NEW

POD

OPERATIONAL  
AMPLIFIERS  
WITH ADVANCED  
APPLICATIONS



Pearson

K. C. SELVAM

E-Book  
available

ISBN: 9789357053280

 K. C. Selvam

 576 | © 2024

### ABOUT THE BOOK

The book provides a comprehensive exploration of operational amplifiers (op-amps) and their myriad applications in both linear and non-linear circuits. Beginning with a foundational introduction to op-amps, the text delves into linear circuits, followed by an examination of non-linear circuits. The middle sections cover essential topics such as waveform generators, active filters, and data converters. Subsequent chapters expand on the use of op-amps in more complex analog and digital applications, including voltage regulators, analog multipliers, dividers, and the versatile 555 timer circuits. The final chapters focus on the im-

plementation of logic gates, combinational circuits, and flip-flops using op-amps. The appendices offer practical insights through various tutor kits developed by the author and additional resources, making this book an invaluable resource for both students and professionals in the field of electronics.

### FEATURES

- Comprehensive Coverage: The book covers a wide range of topics from basic to advanced applications of operational amplifiers, making it suitable for both beginners and experienced practitioners.
- Detailed Practical Guides: Appendices include practical tutor kits for op-amp circuits, analog functions, and digital trainer kits developed by the author, providing hands-on learning opportunities.
- In-Depth Exploration of Analog and Digital Applications: Extensive chapters on analog multipliers, dividers, waveform generators, and active filters, as well as the use of op-amps in digital logic and combinational circuits, highlight the versatility and essential role of op-amps in various electronic applications.

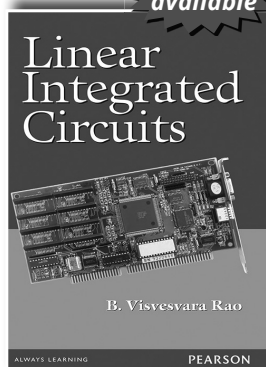
### ABOUT THE AUTHOR

**K. C. Selvam** Department of Electrical Engineering Indian Institute of Technology Madras Chennai, India.

## MICROCONTROLLERS/EMBEDDED SYSTEMS

### Also Available

E-Book  
available



Linear Integrated  
Circuits

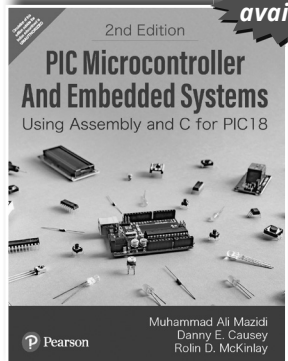
 B. Visvesvara Rao

ISBN: 9789332534124

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## PIC Microcontroller and Embedded Systems Using Assembly and C for PIC18, 2e

**E-Book  
available**



**ISBN: 9789353941833**



**Muhammad Ali Mazidi | Rolin McKinlay | Danny Causey**



**672 | © 2021**

### ABOUT THE BOOK

The PIC18 is a widely used microcontroller. There are many reasons for this, including the existence of massive support in both software and hardware by Microchip Technology. This book is intended for use in college-level courses teaching microcontrollers and embedded systems. It not only establishes a foundation of Assembly language programming but also provides a comprehensive treatment of PIC18 interfacing for engineering students. From this background, the design and interfacing of microcontroller-based embedded systems can be explored. This book can also be used by practicing technicians, hardware engineers, computer

scientists, and hobbyists. It is an ideal source for those building stand-alone projects or projects in which data is collected and fed into a PC for distribution on a network.

### FEATURES

- A systematic, step-by-step approach is used to cover various aspects of PIC18 C and Assembly language programming and interfacing.
- Many examples and sample programs are given to clarify the concepts and provide students with an opportunity to learn by doing.
- Review questions are provided at the end of each section to reinforce the main points of the section.

### CONTENTS

1. The PIC Microcontrollers: History and Features
2. PIC Architecture & Assembly Language Programming
3. Branch, Call, and Time Delay Loop
4. PIC I/O Port Programming
5. Arithmetic, Logic Instructions, and Programs
6. Bank Switching, Table Processing, Macros, and Modules
7. PIC Programming in C
8. PIC18F Hardware Connection and ROM Loaders
9. PIC18 Timer Programming in Assembly and C
10. PIC18 Serial Port Programming in Assembly and C
11. Interrupt Programming in Assembly and C
12. LCD and Keyboard Interfacing
13. ADC, DAC, and Sensor Interfacing
14. Using Flash and EEPROM Memories for Data Storage
15. CCP and ECCP Programming
16. SPI Protocol and DS1306 RTC Interfacing
17. Motor Control: Relay, PWM, DC and Stepper Motors
18. APPENDIX A: PIC18 Instructions: Format and Description

### ABOUT THE AUTHOR

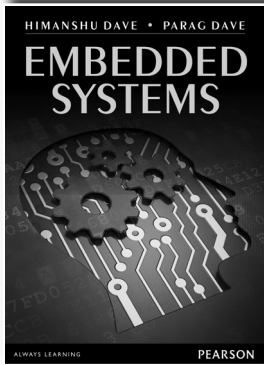
**Muhammad Ali Mazidi** holds Master's degrees from both Southern Methodist University and the University of Texas at Dallas. He is currently a.b.d. on his Ph.D. in the Electrical Engineering Department of Southern Methodist University. He teaches microprocessor-based system design at DeVry University in Dallas, Texas.

**Rolin McKinlay** has a BSEET from DeVry University. He is currently working on his Master's degree and PE license in the state of Texas. He is currently self-employed as a programmer and circuit board designer, and is a partner in MicroDigitalEd.com

**Danny Causey** graduated from CET department of DeVry University. His areas of interest include networking, game development, microcontroller and embedded system design.



# Embedded Systems: Concepts, Design and Programming



ISBN: 9789332543522

 **Himanshu B. Dave | Parag Dave**

 **656 | © 2015**

## ABOUT THE BOOK

This introductory textbook on Embedded Systems focuses on the design and development of hardware and software for embedded systems. The full spectrum of topics related to the embedded system development cycle such as CPU, Memory, Transducers, Operating System, Issues in RTOS, Legacy Microcontrollers and Processors are discussed in detail. Pedagogical features such as real-world case studies and live examples of embedded systems make learning and teaching from this book a pleasure.

## FEATURES

- Extensive coverage on
  - ADC & DAC Converters
  - Noise & EMI in Embedded Systems
  - Operating Systems
  - Digital Signal Processing
- Large number of live examples and case studies
- Exclusive chapter on Issues in Real Time Operating Systems
- In-depth discussion on embedded system debugging
- Excellent Pedagogy
  - 350+ Figures and Illustrations
  - 150+ Solved Questions
  - 400+ Unsolved Questions
  - 300+ MCQs
  - 50+ Lab assignments
  - 15+ Case Studies

## CONTENTS

1. Embedded System
  2. A simple embedded system: Material filling machine
  3. CPU and Memory
  4. Input/Output (I/O) Methods
  5. Input/Output (I/O) Interfaces and transducers
  6. Operating Environment
  7. Development Environment
  8. Programming in C
  9. Case studies
  10. Embedded systems debugging
  11. An example design
- Appendix A:** Logic Circuits, FPGA and ASIC  
**Appendix B:** Some Legacy Microcontrollers  
**Appendix C:** Noise and EMI in embedded systems  
**Appendix D:** ADC and DAC converters  
**Appendix E:** Digital Signal Processing and Transforms

## ABOUT THE AUTHOR

**Himanshu B. Dave**, Senior Consultant-Training elnfochips Ahmedabad, Gujarat, Former Professor IIT Kharagpur, WB

**Parag Dave**, Former Lecturer, Department of Computer Engineering, SVNIT, Surat, Gujarat

# Assembly Language for x86 Processors, 7/e

 Kip R. Irvine

 720 | © 2018



**E-Book  
available**

**ISBN: 9789352869183**

## ABOUT THE BOOK

Assembly Language for x86 Processors, 7e is suitable for undergraduate courses in assembly language programming and introductory courses in computer systems and computer architecture. Proficiency in one other programming language, preferably Java, C, or C++, is recommended.

Written specifically for 32- and 64-bit Intel/Windows platform, this complete and fully updated study of assembly language teaches students to write and debug programs at the machine level. This text simplifies and demystifies concepts that students need to grasp before they can go on to more advanced computer architecture and operating systems courses. Students put theory into practice through writing software at the machine level, creating a memorable experience that gives them the confidence to work in any OS/machine-oriented environment.

## FEATURES

- **NEW!** Protected mode programming is entirely the focus of the printed chapters (1 through 13). This edition uses the x86 and x86-64 processor types, explaining the differences between instruction operands and basic architecture differences.
- Students create applications that take full advantage of 32-bit and 64-bit processors, using protected mode and flat memory addressing. This also allows students to create Microsoft® Windows applications.
- 16-bit programming is still covered, using chapters from the previous edition, supplied electronically from the Pearson supplements website.
- **UPDATED:** There is far less dependency on the author's subroutine libraries in this edition. Students are encouraged to call system functions themselves and use the Visual Studio debugger to step through the programs. The Irvine32 and Irvine64 libraries are available to help students handle input/output, but their use is not required.
- **UPDATED:** This edition features increased use of supplementary explanations of short program examples, particularly in the first 5 chapters.
- Review exercises aid students in their comprehension skills. Answers to questions are included for instructors to use in test material.
- **UPDATED:** New programming exercises have been added, others removed, and a few existing exercises were modified. Programming exercises with solutions give students first-hand experience in writing software and allow them to immediately check their results.
- **UPDATED:** Review questions and exercises have been moved from the middle of the chapter to the end of chapters, and divided into two sections: (1) Short answer questions, and (2) Algorithm workbench exercises. The latter exercises require the student to write a short amount of code to accomplish a goal.
- **NEW:** Each chapter now has a Key Terms section, listing new terms and concepts, as well as new MASM directives and Intel instructions.
- Optional chapter topics are offered in the final chapters. This chapter flexibility allows instructors to cover these chapters in varying order and depth.
- **NEW:** Early chapters now include short sections that feature 64-bit CPU architecture and programming, and we have created a 64-bit version of the book's subroutine library named Irvine64.
- **UPDATED:** Students can program in either 32-bit or 64-bit mode.
- **UPDATED:** Legacy chapters on 16-bit programming are provided electronically through the Pearson supplements website.



**ISBN: 9788131710265**

## The 8051 Microcontroller and Embedded Systems: Using Assembly and C, 2/e



**Muhammad Ali Mazidi | Janice Gillispie Mazidi | Rolin McKinlay**



**560 | © 2007**



### ABOUT THE BOOK

This textbook covers the hardware and software features of the 8051 in a systematic manner. Using Assembly language programming in the first six chapters, it provides readers with an in-depth understanding of the 8051 architecture. From Chapter 7, this book uses both Assembly and C to show the 8051 interfacing with real-world devices such as LCDs, keyboards, ADCs, sensors, real-time-clocks, and the DC and Stepper motors. The use of a large number of examples helps the reader to gain mastery of the topic rapidly and move on to the topic of embedded systems project design.

### FEATURES

- A new chapter on 8051 C programming.
- A new section on the 8051 C programming of timers.
- A new section on the second serial port of the DS89C4x0 chip.
- A new section on the 8051 C programming of the second serial port.
- A new section on the 8051 C programming of interrupts.
- Programming of the 1KB SRAM of the DS89C4x0 chip.
- A new section on the 8051 C programming of external memory.
- A new chapter on the DS12887 RTC (real-time clock) chip.
- A new chapter on motors, relays, and optoisolators

### CONTENTS

1. The 8051 Microcontroller
2. 8051 Assembly Language Programming
3. Jump, Loop, and Call Instructions
4. I/O Port Programming
5. 8051 Addressing Modes
6. Arithmetic and Logic instructions and Programs
7. 8051 Programming in C
8. 8051 Hardware Connection and Intel Hex File
9. 8051 Timer Programming in Assembly and C
10. 8051 Serial Port Programming in Assembly and C
11. Interrupts Programming in Assembly and C
12. LCD and Keyboard interfacing
13. ADC, DAC, and Sensor interfacing
14. 8051 Interfacing to External Memory
15. 8051 Interfacing with The 8255
16. DS12887 RTC Interfacing and Programming
17. Motor Control: Relay, PWM, DC, and Stepper Motors

### ABOUT THE AUTHORS

**Muhammad Ali Mazidi** holds Master's degrees from both Southern Methodist University and the University of Texas at Dallas. He is co-author of a widely used textbook, *The 80x86 IBM PC and Compatible Computers*, also available from Prentice Hall. He teaches microprocessor-based system design at DeVry University in Dallas, Texas.

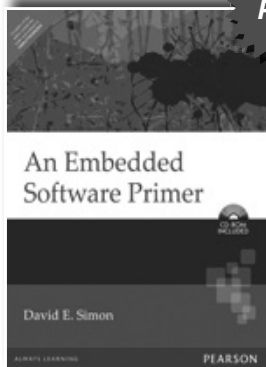
**Janice Gillispie Mazidi** has a Master of Science degree in Computer Science from the University of North Texas. She has several years of experience as a software engineer in Dallas.

**Rolin McKinlay** has a BSEET from DeVry University. He is currently working on his Master's degree and PE license in the state of Texas. He is currently self-employed as a programmer and circuit board designer, and is a partner in MicroDigitalEd.com.

## An Embedded Software Primer

 **David E. Simon**

 **444** | © **2005**



**ISBN: 9788177581546**

### ABOUT THE BOOK

**An Embedded Software Primer** is a clearly written, insightful manual for engineers interested in writing embedded-system software. The example-driven approach puts you on a fast track to understanding embedded-system programming and applying what you learn to your projects. This book will give you the necessary foundation to work confidently in this field. Building on a basic knowledge of computer programming concepts

### FEATURES

- Learn core principles and advanced techniques of embedded-system software
- Find out what a real-time operating system (RTOS) does and how to use one effectively
- Experiment with sample code and the uC/OS RTOS version 1.11 (on the accompanying CD)
- Apply what you learn, no matter which microprocessor or RTOS you use

### CONTENTS

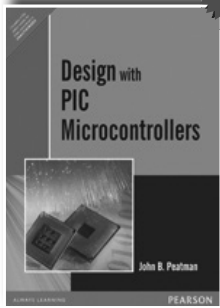
1. A First Look at Embedded Systems
2. Hardware Fundamentals for the Software Engineer
3. Advanced Hardware Fundamentals
4. Interrupts
5. Survey of Software Architecture
6. Introduction to Real-Time Operating Systems
7. More Operating System Services
8. Basic Design Using a Real-Time Operating System
9. Embedded Software Development Tools
10. Debugging Techniques
11. An Example System

### ABOUT THE AUTHOR

**David E. Simon** is a partner in Probitas Corporation, a software development consulting firm. Much of his Work at Probitas is in embedded systems for firms such as Apple, Adobe, Hewlett-Packard, and Symbol technologies. David has 20 years of experience in software development, and is the author of three previous books. He regularly teaches a class on embedded systems for the University of California at Berkeley Extension program.

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## Also Available



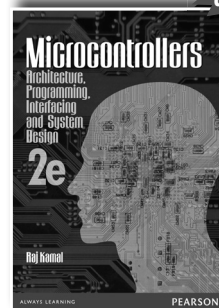
POD

### Design with PIC Microcontrollers

 Peatman

ISBN: 9788177585513

 280      © 2005



E-Book  
available

### Microcontrollers: Architecture, Programming, Interfacing and System Design, 2/e

 Raj Kamal

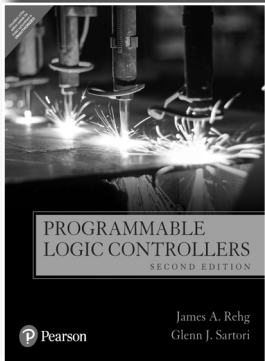
ISBN: 9788131759905

 888      © 2011

Web Supplements  


# PROGRAMMABLE LOGIC CONTROLLERS

## Programmable Logic Controllers, 2/e



ISBN: 9789332581296

 James A. Rehg | Glenn J. Sartori

 576 | © 2016

### ABOUT THE BOOK

This text focuses on the theory and operation of PLC systems with an emphasis on program analysis and development. The book is written in easy-to-read and understandable language with many crisp illustrations and practical examples. It describes the PLC instructions for the Allen-Bradley PLC 5, SLC 500, and Logix processors with an emphasis on the SLC 500 system using numerous figures, tables, and example problems. The text features a new two-column and four-color interior design that improves readability and figure placement. The book's organization also has improved all the chapter questions and problems are listed in one conven-

ient location in Appendix D with page locations for all chapter references in the questions and problems. This book describes the technology in a clear, concise style that is effective in helping students who have no previous experience in PLCs or discrete and analog system control.

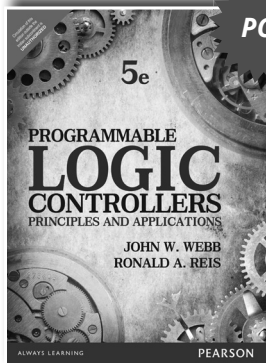
### FEATURES

- Describes the PLC instructions for the Allen-Bradley PLC 5, SLC 500, and Logix processors with an emphasis on the SLC 500 system using numerous figures, tables, and example problems.
- Provides student problems from easy to challenging in the following five formats:
  - PLC system and setup based problems using the text CD
  - PLC 5
  - SLC 500
  - Logix
  - Challenge problems that could use any PLC system.
- Effective two-part organization:
  - Part I covers fundamental PLC concepts plus the operation and programming formats for the most frequently used PLC instructions.
  - Part II addresses advanced ladder logic instructions and applications, analog and process control instructions, the new IEC 61131 PLC languages, and industrial networks.
- Includes aCD-ROM with reference material from Allen-Bradley.
- Provides a concise description of the five IEC 61131 programming languages and includes detailed descriptions and example problems;

### CONTENTS

1. Introduction to Programmable Logic Controllers
2. Input Devices and Output Actuators
3. Introduction to PLC Programming
4. Programming Timers
5. Programming Counters
6. Arithmetic and Move Instructions
7. Comparison Instructions
8. Program Control & Miscellaneous Instructions
9. Indirect and Indexed Addressing
10. Data Handling Instructions and Shift Registers
11. PLC Sequencer Functions
12. Analog Sensors and Control Systems
13. PLC Programming Standard IEC 61131-3 - Function Block Diagrams
14. Intermittent and Continuous Process Control
15. PLC Programming Standard IEC 61131-3 - Text Based Languages
16. PLC Programming Standard IEC 61131-3 - Sequential Function Charts
17. Appendix A - Glossary
18. Appendix B - PLC Module Interface Circuits
19. Appendix C—Programmable Logic Controller History

# Programmable Logic Controllers: Principles and Applications, 5/e



ISBN: 9789332555129

 John W. Webb | Ronald A. Reis

 476 | © 2015

## ABOUT THE BOOK

For an undergraduate-level course on PLCs or Electronic Controls. This practical and clearly written introduction provides both fundamental and cutting-edge coverage on programmable logic controllers today a billion dollar industry. It combines comprehensive, accessible coverage with a wealth of industry examples that make intangible concepts come to life—offering students a broad-based foundation that will serve them well on the job. It examines every aspect of controller usage in an easy-to-understand, jargon-free narrative. Beginning with a basic layout the text goes right into programming techniques, it progresses through fundamental, in-

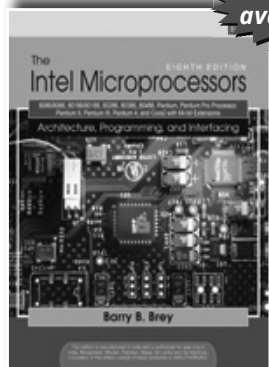
termediate, and advanced functions—and concludes with chapters on related topics. Applications are discussed for each PLC function, and vast arrays of examples and problems help students achieve an understanding of PLCs, and the experience needed to use them.

## FEATURES

- Latest developments in PLC model functions and networking capabilities.
- Provides students with guidelines on the most recent programming developments.
- New chapter on electrical devices connected to I/O modules.
- Provides students with a complete explanation of the latest technology in input/output on/off switching and analog devices.
- Updated and enhanced pedagogical tools—e.g. equipment illustrations, additional example problems, more troubleshooting questions, enhanced glossary and bibliography.
- Provides students with more effective tools that are easier to use and more motivating.
- Updated PLC manufacturers listing.
- Provides students with the most current listing of PLC manufacturers.
- Provides students with a comprehensive look at all the important new standards in the field.
- Provides students with helpful activities that reinforce the material in accompanying chapters in the book.
- Provides students with easy-to-follow guides for determining the important points within each chapter and learning them.
- Presents material in a logical and orderly fashion—Stand-alone chapters provide flexibility and customization.
- Provides students with fortified comprehension every step of the way, so that they can keep pace with technology.
- Maintains a generic approach—By exploring many alternative formats.
- Enables students to apply all the techniques presented to any manufacturer's equipment.

## CONTENTS

- I. PLC Basics
- II. Basic PLC Programming
- III. Basic PLC Functions
- IV. Intermediate Functions
- V. Data Handling Functions
- VI. PLC Functions Working with Bits
- VII. Advanced PLC Functions
- VIII. Related Topics
- Appendix A: PLC Manufacturers
- Appendix B: Operational Simulation and Monitoring
- Appendix C: Commonly Used Circuit Symbols
- Appendix D: Major PLC Instruction, Function, and Word Codes by Typical Manufacturers



**E-Book  
available**

**ISBN: 9788131726228**

## The Intel Microprocessors, 8/e

 **Barry B. Brey**

 **944** | © **2008**



### ABOUT THE BOOK

This book provides a comprehensive view of programming and interfacing of the Intel family of Microprocessors from the 8088 through the latest Pentium 4 and Core2 microprocessors. The text is written for students who need to learn about the programming and interfacing of Intel microprocessors, which have gained wide and at times exclusive application in many areas of electronics, communications, and control systems, particularly in desktop computer systems. Many applications include Visual C++ as a basis for learning assembly language using the inline assembler. Organized in an orderly and manageable format, this text offers more than

200 programming examples using the Microsoft Macro Assembler program and provides a thorough description of each of the Intel family members, memory systems, and various I/O systems.

### FEATURES

- Illustrated concepts for students with relevant programming examples, many written in Visual C++ with embedded assembly language code.
- Coverage of how to develop software to control application interfaces to the microprocessor.
- Coverage of how to program the microprocessor using the popular Microsoft Visual C programming environment with embedded assembly language to control personal computers.
- Descriptions of how to use real mode (DOS) and protected mode (Windows) of the microprocessor.
- Explanation of the operation of a real-time operating system (RTOS) in an embedded environment.

### CONTENTS

1. Introduction to the Microprocessor and Computer
2. The Microprocessor and Its Architecture
3. Addressing Modes
4. Data Movement Instructions
5. Arithmetic and Logic Instructions
6. Program Control Instructions
7. Using Assembly Language With C/C++
8. Programming The Microprocessor
9. 8086/8088 Hardware Specifications
10. Memory Interface
11. Basic I/O Interface
12. Interrupts
13. Direct Memory Access and Dma-Controlled I/O
14. The Arithmetic Coprocessor, Mmx, and Simd Technologies
15. Bus Interface
16. The 80185, 80188, and 80286 Microprocessors
17. The 80386 and 80486 Microprocessors
18. The Pentium and Pentium Pro Microprocessors
19. The Pentium II, Pentium III, Pentium 4, and Core2 Microprocessors



## Microcomputer Systems: The 8086/8088 Family Architecture Programming and Design, 2/e



ISBN: 9789332550087

 Yu-Cheng Liu

 640 | © 2015

### ABOUT THE BOOK

A comprehensive exploration of both the software and hardware for 6-bit microprocessors using the Intel 8086/8088 family — and their supporting devices.

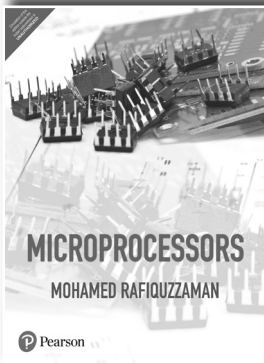
### FEATURES

- Gives readers a working knowledge of programming and designing 8086/8088-based microcomputer systems through an abundance of examples.
  - Covers the 8089 I/O processor, the 8087 numeric data processor, and how they can be integrated into an 8086/8088 based system.
- Introduces the special features of 80130, 80186, and 80286.
  - Includes more than 390 flowcharts, programming examples, logic diagrams, tables, and other illustrations.

### CONTENTS

1. Introduction
  2. 8086 Architecture
  3. Assembler Language Programming
  4. Modular Programming
  5. Byte and String Manipulation
  6. I/O Programming
  7. Introduction to Multiprogramming
  8. System Bus Structure
  9. I/O Interfaces
  10. Semiconductor Memory
  11. Multiprocessor Configuration
  12. VLSI Processing and Supporting Devices
  13. The 80286/80287
- Appendix:** 8086/8088 Instruction Set

## Microprocessors: Theory And Applications, 1/e



ISBN: 9789332577497

 M Rafiqzaman

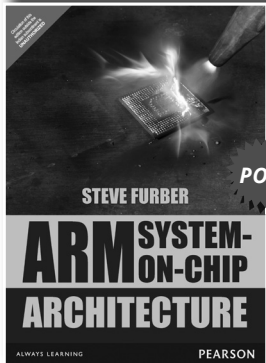
 480 | © 2016

### ABOUT THE BOOK

It addresses practical applications such as personal computers and robotics and provides details of architecture, instruction set, I.O. and system design associated with 8085, 8086 and 68000 respectively. The book also covers the basics of peripheral interfacing, including DMA concepts relating to 68000 - such as interfacing of keyboard, CRT, printer and floppy disk of a typical microprocessor. It contains a summary of interface standards such as IEEE 488, S-100, RS-232 and current loops.

## Also Available

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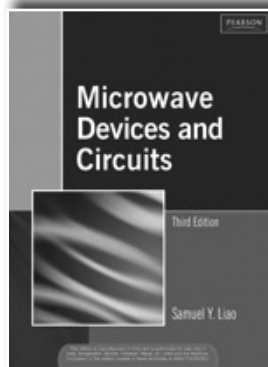
### ARM System-on-Chip Architecture 2/e

 **Steve Furber**

**ISBN: 9789332555570**

 384    © 2015

## Microwave Devices and Circuits, 3/e



**ISBN: 9788177583533**

 **Samuel Y. Liao**

 **564** | © **2005**

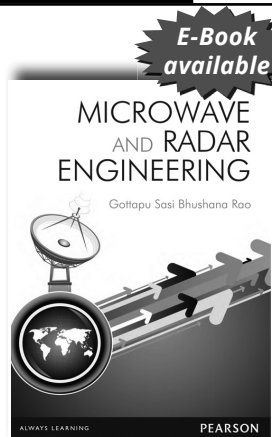
### ABOUT THE BOOK

An ideal text and a ready reference on the latest in microwave electronic technology, this book provides a unified presentation of microwave solid-state devices, microwave tubes, and microwave circuits. This Third Edition has been extensively revised to better reflect modern advances in microwave technology. The text is ideal for microwaves or microwave engineering; physical electronics; microwave electronics courses.

### CONTENTS

1. Introduction between Electrons and Fields
2. Electromagnetic Plane Waves
3. Microwave Transmission Lines
4. Microwave Waveguides and Components
5. Microwave Transistors and Tunnel Diodes
6. Microwave Field-effect Transistors
7. Transferred Electron Devices (TEDs)
8. Avalanche Transit-time Devices
9. Microwave Linear-beam Tubes (O type)
10. Microwave Crossed-field Tubes (M type)
11. Striplines
12. Monolithic Microwave Integrated Circuits

### Also Available

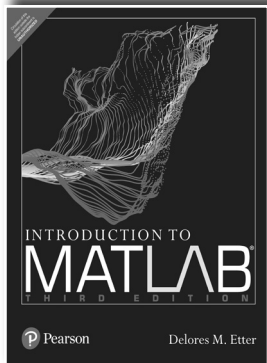


### Microwave and Radar Engineering

 **G. S. B. Rao**

**ISBN: 9788131799444**

 **680** | © **2013**



ISBN: 9789353940669

## Introduction to MATLAB, 3e

 **Dolores Etter**

 248 | © 2020

### ABOUT THE BOOK

Best-selling author Dolores Etter provides an up-to-date introduction to MATLAB. Using a consistent five-step problem-solving methodology, Etter describes the computational and visualization capabilities of MATLAB and illustrates the problem-solving process through a variety of engineering examples and applications.

### FEATURES

- The discussions, screen captures, examples, and problem solutions have been updated to reflect MATLAB Version 8.2, R2013b.
- A discussion of the new Help browser is included along with screen captures to illustrate using this feature.
- The section on random number generation has been rewritten to reflect changes relative to the random

number seed and to include the new function for generating random integers.

- The section on numerical integration has been rewritten to support the new integration function. This includes references using the function handles.
- Updated examples and discussion for current hardware and software are included throughout the text.

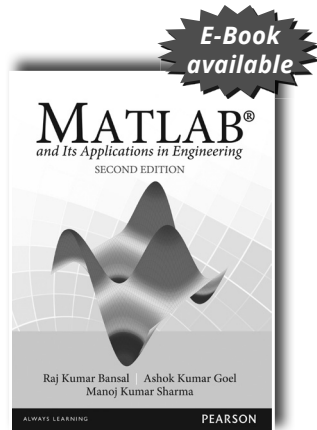
### CONTENTS

1. An Introduction to Engineering Problem Solving
2. Getting Started with MATLAB
3. MATLAB Functions
4. Plotting
5. Control Structures
6. Matrix Computations
7. Symbolic Mathematics
8. Numerical Techniques

### ABOUT THE AUTHOR

**Raj Dolores Etter**, University of Colorado, Boulder

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**ISBN: 9789332542099**

## MATLAB® and Its Applications in Engineering, 2/e

 **Raj Kumar Bansal | Ashok Kumar Goel | Manoj Kumar Sharma**

 **624 | © 2016**

### ABOUT THE BOOK

This popular, application-oriented book has been revised as per the latest version of MATLAB® to capture the recent advances in software. It covers the fundamentals as well as advanced features of MATLAB® and its applications in control systems, neural networks, fuzzy logic, digital signal processing and mathematical methods. This book is valuable both as a textbook as well as a reference book for the theory and practical courses offered to students and practising engineers.

### FEATURES

- Based on the latest version of MATLAB®
- More than 30 graphs in color in the chapter MATLAB® Graphics
- List of commands at the end of the chapter for quick recapitulation
- Appendices on graphic user interface and control system analysis using the LTI viewer
- Approximately 250 figures and screenshots
- Programming tips to highlight good programming practices
- More than 250 solved examples and approximately 200 end-of-chapter exercises.

### CONTENTS

1. Introduction to MATLAB®
2. Constants, Variables and Expressions
3. Vectors and Matrices
4. Polynomials
5. Input Output Statements
6. MATLAB Graphics
7. Control Structures
8. Writing Programs and Functions
9. Ordinary Differential Equations and Symbolic Mathematics
10. Simulink® Basics
11. MATLAB Applications in Control Systems-I
12. MATLAB Applications in Control Systems-II
13. MATLAB Applications in Neural Networks
14. MATLAB Applications in Fuzzy Logic Systems
15. MATLAB Applications in Digital Signal Processing
16. MATLAB Applications in Computational Mathematics

### ABOUT THE AUTHOR

**Raj Kumar Bansal**, Dean Research Guru Kashi University, Bathinda, Punjab

**Ashok Kumar Goel**, Professor and Head Training and Placement, Giani Zail Singh Punjab Technical University Campus, Bathinda, Punjab

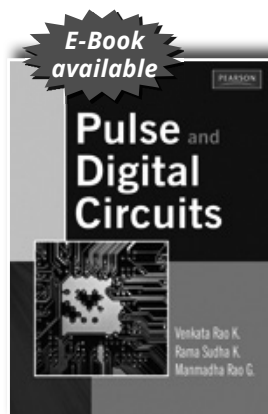
**Manoj Kumar Sharma**, Associate Professor and Coordinator of Electrical and Electronics Engineering Department, University Institute of Engineering and Technology (UIET) Punjab University, Chandigarh

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# PULSE & DIGITAL CIRCUITS/SATELLITE COMMUNICATIONS

## Also Available


### Pulse & Digital Circuits



#### Pulse and Digital Circuits

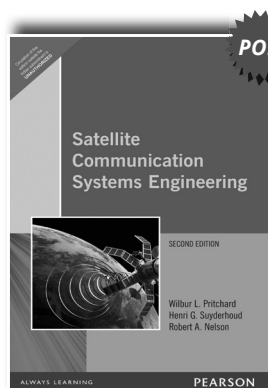
 Venkata Rao K

ISBN: 9788131721353


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### Satellite Communications



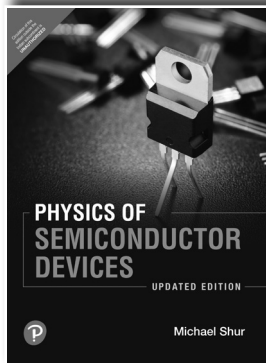
#### Satellite Communications Systems Engineering, 2/e

 Wilbur L. Pritchard

ISBN: 9788131702420

 568    © 2006

## Physics of Semiconductor Devices, Updated edition, 1/e



**ISBN: 9789353430061**

 **Michael Shur**

 **664** | © **2019**

### ABOUT THE BOOK

This book provides a practical introduction to the basics of semiconductor physics as well as insights into important developments, such as amorphous silicon, compound semiconductor technologies, and novel heterostructure transistors.

### FEATURES

- Implements all theories and models discussed in microcomputer programs
  - providing readers with a useful “toolbox” for the modeling and simulation of semiconductor devices.
- Includes detailed appendices with useful information on semiconductor parameters which help readers to solve practical problems related to the analysis, design, and characterization of different semiconductor devices.
- Includes over 35 microcomputer programs and nearly 150 problems.

### CONTENTS

1. Basic Semiconductor Physics
2. p-n Junctions, Schottky Barrier Junctions, Heterojunctions and Ohmic Contacts
3. Bipolar Junction Transistors
4. Field Effect Transistors
5. Photonic Devices
6. Transferred-Electron Devices and Avalanche Diodes
7. Novel Devices

### ABOUT THE AUTHOR

**Michael Shur**, University of Virginia.

## Semiconductor Optoelectronic Devices, 2/e



**ISBN: 9789332587410**

 **Pallab Bhattacharya**

 **664** | © **2017**

### ABOUT THE BOOK

The first true introduction to semiconductor optoelectronic devices, this book provides, well-organized overview of optoelectronic devices that emphasizes basic principles. This edition has enhanced readability and depth of coverage with expanded explanations of materials, device phenomena, and recent developments in the field. The book's coverage begins with a review of key concepts such as properties of compound semiconductors, quantum mechanics, semiconductor statistics, carrier transport properties, optical processes, and junction theory.

## FEATURES

1. Chapter on lightwave networks that reflects the enormous progress in the field of fiber-optic communication and the use of optoelectronic devices for this application
2. New devices such as the quantum cascade laser and the tunneling injection laser
3. More detailed treatment of distributed feedback lasers, surface-emitting lasers, avalanche and metal-semiconductor-metal photodiodes, photo receivers and phototransistors.
4. Includes more worked out examples and problems in every chapter to help both readers and instructors
5. Chapter Highlights sections to highlight new and attractive portions of each chapter
6. Features a wealth of valuable appendices as vehicles for more rigorous treatment of selected subjects

## CONTENTS

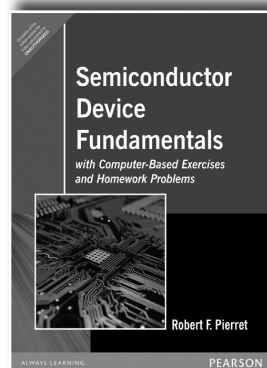
1. Elemental and Compound Semiconductors
2. Electronic Properties of Semiconductors
3. Optical Processes in Semiconductors
4. Junction Theory
5. Light-Emitting Diodes
6. Lasers: Operating Principles
7. Lasers: Structures and Properties
8. Photodetectors
9. Special Detection Schemes
10. Solar Cells
11. Optoelectronic Modulation and Switching devices
12. Optoelectronic Integrated Circuits
13. Lightwave Networks
14. List of symbols
15. Appendices

## ABOUT THE AUTHOR

**Pallab Bhattacharya** is Professor of Electrical Engineering and Computer Science and Director of the Solid State Electronics Laboratory at the University of Michigan, Ann Arbor.

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## Also Available



### Semiconductor Device Fundamentals

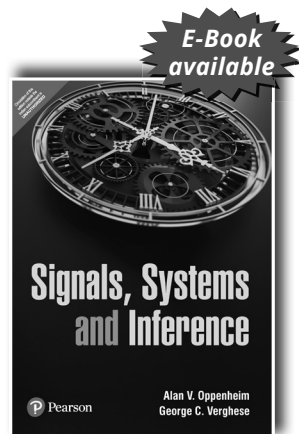
 **Robert F. Pierret**

ISBN: 9788177589771

 816      © 2006







**ISBN: 9789356064676**

## Signals, Systems and Inference

 **Alan V Oppenheim | George C. Verghese**

 **608 | © 2022**

### ABOUT THE BOOK

Signals, Systems and Inference is a comprehensive text that builds on introductory courses in time- and frequency-domain analysis of signals and systems, and in probability. Directed primarily to upper-level undergraduates and beginning graduate students in engineering and applied science branches, this new textbook pioneers a novel course of study. Instead of the usual leap from broad introductory subjects to highly specialized advanced subjects, this engaging and inclusive text creates a study track for a transitional course.

### FEATURES

- Thorough and interesting chapters full of information
- An exploration of fundamental material in an interesting and engaging manner.
- Further Reading sections at the end of each chapter help students gain further knowledge of the subject matter.
- Basic, Advanced, and Extension problems that review chapter material and ask the students to test and apply their knowledge of the subject.

### CONTENTS

- |                                       |                            |
|---------------------------------------|----------------------------|
| 1. Signals and Systems                | 8. Estimation              |
| 2. Amplitude, Phase, and Group Delay  | 9. Hypothesis Testing      |
| 3. Pulse-Amplitude Modulation         | 10. Random Processes       |
| 4. State-Space Models                 | 11. Power Spectral Density |
| 5. LTI State-Space Models             | 12. Signal Estimation      |
| 6. State Observers and State Feedback | 13. Signal Detection       |
| 7. Probabilistic Models               |                            |

### ABOUT THE AUTHOR

**Alan V. Oppenheim**, Massachusetts Institute of Technology

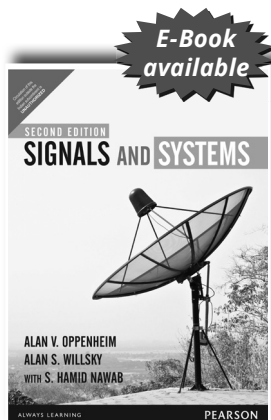
**George C. Verghese**, Massachusetts Institute of Technology

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# Signals and Systems, 2/e

 Alan V. Oppenheim

 957 | © 2015



ISBN: 9789332550230

## ABOUT THE BOOK

For undergraduate-level courses in Signals and Systems. This comprehensive exploration of signals and systems develops continuous-time and discrete-time concepts/methods in parallel highlighting the similarities and differences and features introductory treatments of the applications of these basic methods in such areas as filtering, communication, sampling, discrete-time processing of continuous-time signals, and feedback. Relatively self-contained, the text assumes no prior experience with system analysis, convolution, Fourier analysis, or Laplace and z-transforms.

## FEATURES

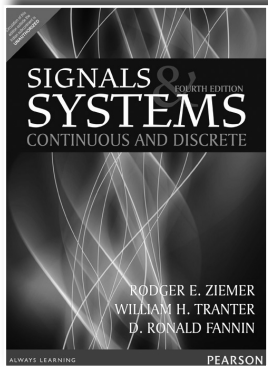
- Develops continuous-time and discrete-time concepts in parallel— highlighting the similarities and differences.
- Introduces some of the important uses of the basic methods that are developed— e.g., filtering, communication, sampling, discrete-time processing of continuous-time signals, and feedback.
- Includes an up-to-date bibliography.
- A companion book contains MATLAB-based computer exercises for each topic in the text.
- Material on Fourier analysis has been reorganized significantly to provide an easier path for the student to master and appreciate the importance of this topic. Now represented in four chapters, each of which is far more streamlined and focused, introducing a smaller and more cohesive set of topics. This will greatly enhance the students ability to organize their understanding of the material.
- Frequency-domain filtering is introduced very early in the development to provide a central and concrete illustration of why this topic is important and to provide some intuition with a minimal amount of mathematical preliminaries. The students will be able to see why this topic is so important and gain some intuition which will enhance his or her appreciation of the developments that follow.
- Much of the advanced material that had appeared in the Fourier transform chapters in the first edition have now been pulled together into the time and frequency domain chapter, so that only the basic concepts are introduced in these chapters; and provide a more cohesive treatment of time and frequency domain issues.
- Relocates coverage of Sampling before Communication.
- Allows instructor and students to discuss important forms of communication, namely those involving discrete or digital signals, in which sampling concepts are intimately involved.
- Includes significantly more worked examples.
- Provides over 600 chapter-end problems,— 20 per chapter, with answers (not solutions).
- Features a majority of new chapter-end problems.
- Chapter-end Problems have been reorganized and assembled to aid the student and instructor. They provide a better balance between exercises developing basic skills and understanding ones that pursue more advanced problem-solving skills. New edition organizes chapter-end problems into four types of sections which makes it easier for the instructor and student to locate the problems that will best serve their purposes; and provides two types of basic problems, ones with answers (but not solutions); and ones with solutions to provide immediate feedback to the student while attempting to master the material.

## CONTENTS

1. Signals and Systems.
2. Linear Time-Invariant Systems.
3. Fourier Series Representation of Periodic Signals.
4. The Continuous-Time Fourier Transform.
5. The Discrete-Time Fourier Transform.
6. Time- and Frequency Characterization of Signals and Systems.
7. Sampling.
8. Communication Systems.
9. The Laplace Transform.
10. The Z-Transform.
11. Linear Feedback Systems.

## Also Available

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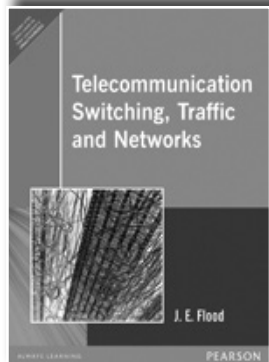
### Signals and Systems: Continuous and Discrete, 4/e

 **Rodger E. Ziemer**

**ISBN:** 9789332542044

 640      © 2014

## Telecommunication Switching, Traffic and Networks



ISBN: 9788131705025

 J. E. Flood

 328 | © 2006

### ABOUT THE BOOK

This book deals with switching, signaling and traffic in the context of telecommunication networks. Its coverage moves from an introduction to those networks through the evolution of switching systems from electromechanical systems to stored-program-controlled digital systems and future broadband systems. The treatment of Teletraffic Theory includes both lost-call and queuing systems.

### FEATURES

- Modern digital networks
- Modern digital switching systems
- Packet switching
- Common-channel signaling
- Digital transmission, including Synchronous Digital Hierarchy
- Integrated service digital network (ISDN)
- Broadband networks including ATM

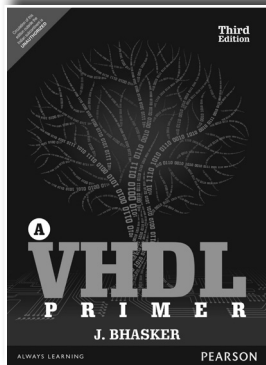
### CONTENTS

1. Introduction
2. Telecommunication Transmission
3. Evolution of switching systems
4. Telecommunications traffic
5. Switching networks
6. Time-division switching
7. Control of switching systems
8. Signaling
9. Packet switching
10. Networks

### ABOUT THE AUTHOR

**Professor John Flood**, O.B.E., D.Sc., C.Eng., F.I.E.E. is Emeritus Professor at Aston University. He has worked both in academia and in industry and is a former chairman of both the British Standards Committee for Telecommunications and the IEE Professional Group on Telecommunications Networks and Systems.

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ISBN: 9789332557161

## A VHDL Primer, 3/e

 **J. Bhasker**

 396 | © 2015

### ABOUT THE BOOK

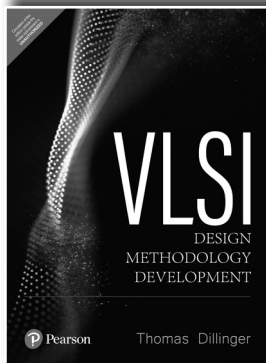
This book introduces the VHDL language to the reader at the beginner's level. It presents a subset of VHDL consisting of commonly used features that make it both simple and easy to use. The extensive hardware modeling coverage includes modeling of regular structures, delays, conditional operations, state machines, Moore and Mealy FSMs, clock dividers and much more.

### CONTENTS

- |  |   |
|--|---|
| 1. Chapter 1 Introduction                | 11. Chapter 11 Model Simulation           |
| 2. Chapter 2 A Tutorial                  | 12. Chapter 12 Hardware Modeling Examples |
| 3. Chapter 3 Basic Language Elements     | 13. Appendix A Predefined Environment     |
| 4. Chapter 4 Behavioral Modeling         | 14. Appendix B Syntax Reference           |
| 5. Chapter 5 Dataflow Modeling           | 15. Appendix C A Package Example          |
| 6. Chapter 6 Structural Modeling         | 16. Appendix D Summary of Changes         |
| 7. Chapter 7 Generics and Configurations | 17. Appendix E The STD_LOGIC_1164 Package |
| 8. Chapter 8 Subprograms and Overloading | 18. Appendix F An Utility Package         |
| 9. Chapter 9 Packages and Libraries      | 19. Appendix G Solved Questions           |
| 10. Chapter 10 Advanced Features         |   |

### ABOUT THE AUTHORS

**J. Bhasker** (Ph.D., University of Minnesota) is a member of the Technical Staff at AT&T Bell Laboratories, Allentown, PA, where he is currently working on a high-level synthesis tool that would synthesize netlists from C or VHDL behavioral descriptions. He teaches courses on VHDL and VHDL Synthesis to internal AT&T designers as well as at Lehigh University.



**ISBN: 9789353948979**

## VLSI Design Methodology Development

 **Thomas Dillinger**

 **756** | © **2020**

### ABOUT THE BOOK

As microelectronics engineers design complex chips using existing circuit libraries, they must ensure correct logical, physical, and electrical properties, and prepare for reliable foundry fabrication. VLSI Design Methodology Development focuses on the design and analysis steps needed to perform these tasks and successfully complete a modern chip design. Microprocessor design authority Tom Dillinger carefully introduces core concepts, and then guides engineers through modeling, functional design validation, design implementation, electrical analysis, and release to manufacturing. Writing from the engineer's perspective, he covers underlying EDA tool

algorithms, flows, criteria for assessing project status, and key tradeoffs and interdependencies. This fresh and accessible tutorial will be valuable to all VLSI system designers, senior undergraduate or graduate students of microelectronics design, and companies offering internal courses for engineers at all levels.

### FEATURES

- Reflect complexity, cost, resources, and schedules in planning a chip design project
- Perform hierarchical design decomposition, floorplanning, and physical integration, addressing DFT, DFM, and DFY requirements
- Model functionality and behavior, validate designs, and verify formal equivalency
- Apply EDA tools for logic synthesis, placement, and routing
- Analyze timing, noise, power, and electrical issues
- Prepare for manufacturing release and bring-up, from mastering ECOs to qualification

### CONTENTS

Preface

Topic I: Overview of Vlsi Design Methodology

1. Introduction
2. VLSI Design Methodology
3. Hierarchical Design Decomposition

Topic II: Modeling

4. Cell and IP Modeling

Topic III: Design Validation

5. Characteristics of Functional Validation
  6. Characteristics of Formal Equivalency Verification
- TOPIC IV: DESIGN IMPLEMENTATION

7. Logic Synthesis
8. Placement
9. Routing

Topic V: Electrical Analysis

10. Layout Parasitic Extraction and Electrical Modeling

11. Timing Analysis

12. Noise Analysis

13. Power Analysis

14. Power Rail Voltage Drop Analysis

15. Electromigration (EM) Reliability Analysis

16. Miscellaneous Electrical Analysis Requirements

Topic VI: Preparation for Manufacturing Release and Bring-up

17. ECOs

18. Physical Design Verification

19. Design for Testability Analysis

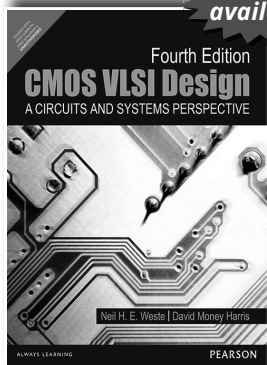
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### ABOUT THE AUTHOR

**Thomas Dillinger** has more than 30 years of experience in the microelectronics industry, including semiconductor circuit design, fabrication process research, and EDA tool development. He has been responsible for the design methodology development for ASIC, SoC, and complex microprocessor chips for IBM, Sun Microsystems/Oracle, and AMD. He is the author of the book VLSI Engineering and has written for SemiWiki.



**E-Book  
available**

## CMOS VLSI Design: A circuits and systems perspective, 4/e

 **Neil H. E. Weste | David Money Harris**

 **664 | © 2015**

**ISBN: 9789332542884**

### FEATURES

- Broad, in-depth, up-to-date, and comprehensive coverage of the entire field of CMOS VLSI design
- Introduces each key element of VLSI design, including delay, power, interconnect, and robustness
- Ample circuit-level coverage, emphasizing practical circuits used in commercial chips
- Illuminates circuit simulation with SPICE through a complete tutorial chapter (Chapter 8)
- Presents extensive coverage of data-path, array, and special purpose building blocks (Chapters 11-13)
- Contains a rich set of problems, worked examples and exercises for learning reinforcement
- Presents “war stories” of “chips gone bad” and their lessons for today’s designers
- Links theory to practice through expert Historical Perspective and Pitfall sections that reveal what’s happening in real R&D and engineering laboratories

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1. Introduction
  2. MOS Transistor Theory
  3. CMOS Processing Technology
  4. Delay
  5. Power
  6. Interconnect
  7. Robustness
  8. Circuit Simulation
  9. Combinational Circuit Design
  10. Sequential Circuit Design
  11. Datapath Subsystems
  12. Array Subsystems
  13. Special-Purpose Subsystems
  14. Design Methodology and Tools
  15. Testing, Debugging, and Verification
- Appendix A: Hardware Description Languages**

### ABOUT THE AUTHORS

**David Money Harris** is an Associate Professor of Engineering at Harvey Mudd College in Claremont, CA, holds a Ph.D. from Stanford University and S.B. and M.Eng. degrees from MIT. His research interests include CMOS VLSI design, microprocessors, and computer arithmetic. He holds a dozen patents, is the author of three other books in the field of digital design and three hiking guidebooks, and has designed chips at Sun Microsystems, Intel, Hewlett-Packard, and Evans & Sutherland.

**Neil Weste** is a member of the faculty at the Department of Electronic Engineering, Macquarie University; Adjunct Professor of Electrical Engineering at The University of Adelaide; and Director, Engineering at Cisco’s Wireless Networking Business Unit. He has served as department head at Bell Laboratories; leader of design projects for Symbolics, Inc.; and as president of TLW, Inc., an IC engineering company that completed groundbreaking chip designs for companies such as North American Philips, Analog Devices, AT&T Microelectronics and Thomson Consumer Electronics.

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POD

## FPGA-Based System Design



ISBN: 9788131724651

# FPGA-Based System Design

Wayne Wolf

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### ABOUT THE BOOK

**Appropriate for all introductory-to-intermediate level courses in FPGAs, VLSI, and/or digital design.** Writing specifically for FPGA designers, Princeton University's Wayne Wolf first introduces the essentials of VLSI: fabrication, circuits, interconnects, combinational and sequential logic design, system architectures, and more. He then shows how to reflect this VLSI knowledge in a state-of-the-art design methodology that leverages FPGAs most valuable characteristics while mitigating its limitations. Along the way, he introduces the basics of Verilog, VHDL, and leading tools for optimizing logic and sequential machine designs. Wolf then turns to the

structure of large digital systems, introducing the sophisticated register-transfer design methodology and presenting a simple DSP case study that addresses a wide variety of design problems. The book concludes with a detailed look at large-scale systems built with FPGAs, including platform FPGAs and multi-FPGA systems. *Includes selected content from Wolfs widely-acclaimed book Modern VLSI Design.*

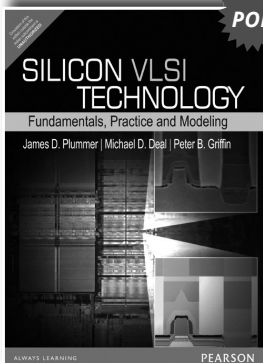
### FEATURES

- FPGA-based logic design, in depth.
- Essential VLSI guidance for FPGA designers.
- HDL-based logic design—Makes use of modern HDL design techniques with both Verilog and VHDL.
- Advanced FPGA coverage—Detailed introduction to platform-based and multi-FPGA systems.
- Detailed DSP case study—Includes a start-to-finish case study that touches on a wide range of design problems.

### CONTENTS

1. FPGA-Based Systems
2. VLSI Technology
3. FPGA Fabrics
4. Combinational Logic
5. Sequential Machines
6. Architecture
7. Large-Scale Systems

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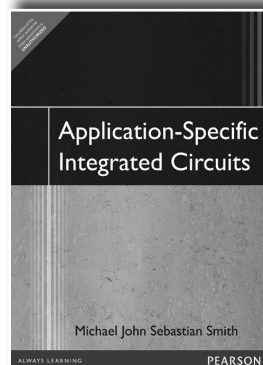
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### Silicon VLSI Technology

James D. Plummer

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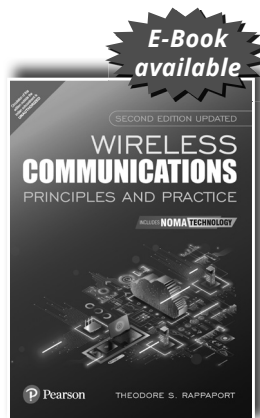
### Application Specific Integrated Circuits

Sebastian Smith

ISBN: 9788177584080

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**ISBN: 9789356066212**

## Wireless Communication, Principles and Practice 2e (Updated)

 **Theodore S Rappaport**

 **760** | © **2022**

### ABOUT THE BOOK

Wireless communication: Principles and Practice, Second Edition (Updated) is the definitive modern text for wireless communications technology and system design. Building on his classing first edition. Theodore S. Rappaport covers the fundamental issues impacting all wireless networks and reviews virtually every important new wireless standard and technological development, offering especially comprehensive coverage of the 3G systems and wireless local area network (WLANs) that will

transform communications in the coming years. Rappaport illustrates each key concept with practical examples, thoroughly explained and solved step-by-step

### FEATURES

- An overview of key wireless technologies: voice, data, cordless, paging, fixed and mobile broadband wireless
- Wireless system design fundamental: channel assignment, handoffs, trunking efficiency, interference, frequency reuse, capacity planning, large-scale fading and more
- Path loss, small scale fading, multiple reflection, diffraction, scattering, shadowing, spatial-temporal channel modelling, and microcell/indoor propagation
- Modulation, equalization, diversity, channel coding, and speech coding
- New wireless LAN technologies: IEEE 802.11a/b, HIPERLAN, BRAN and other alternatives
- New 3G air interface standards, including W-CDMA, CDMA2000, GPRS, and EDGE
- Bluetooth™, wearable computers, fixed wireless, and Local Multipoint Distribution Service (LMDS) and other advanced technologies
- Non-Orthogonal Multiple Access (NOMA) Technology – A requirement of current mobile generation
- Updated glossary of abbreviations and acronyms, and a through list of references
- Dozens of new examples and end-of-chapter problems

### CONTENTS

1. Introduction to Wireless Communication Systems
2. Modern Wireless Communication Systems
3. The Cellular Concept—System Design Fundamentals
4. Mobile Radio Propagation: Large-Scale Path Loss
5. Mobile Radio Propagation: Small-Scale Fading and Multipath
6. Modulation Techniques for Mobile Radio
7. Equalization, Diversity, and Channel Coding

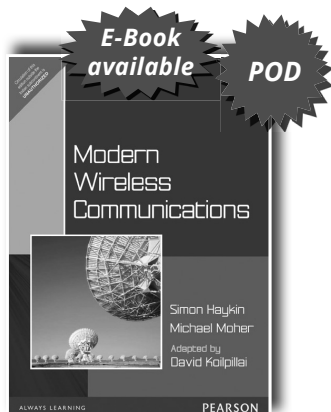
### ABOUT THE AUTHOR

**Theodore S. Rappaport** is the James S. Tucker Professor of Electrical and Computer Engineering at the Virginia Polytechnic Institute and State University and the Series Editor for Prentice Hall's Communications Engineering and Emerging Technologies Series. In 1990 he founded the Mobile & Portable Radio Research Group at Virginia Tech, one of the first university research and educational programs focused on wireless communication. Rappaport has developed dozens of commercial products now used by major carriers and manufacturers. He has also created fundamental research and teaching materials used in industry short courses and in university classroom around the globe. His current research focuses on new methods for analyzing and developing wireless broadband and portable Internet access in emerging frequency bands and on the development, modelling and practical use of 3-D site-specific propagation techniques for future wireless networks

## Modern Wireless Communication

 **Simon Haykin | Michael Moher | David Koilpillai**

 **592 | © 2011**



**ISBN: 9788131704431**

### ABOUT THE BOOK

This text provides a comprehensive introduction to wireless communications, unraveling these techniques in an order consistent with the evolution of spectral utilization of the radio channel. *Modern Wireless Communication* begins with a discussion of FDMA systems and traces the progress of wireless communication through TDMA, CDMA, and SDMA techniques, while simultaneously presenting the engineering principles required for each multiple access strategy.

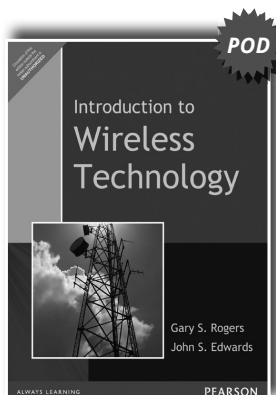
### FEATURES

- Concise and Clear Presentation—Gives students the physical techniques behind antennas and radio wave propagation.
- Multiple-Input, Multiple-Output (MIMO) —Provides the first text that treats MIMO and space-time coding techniques at an introductory level
- Worked Examples—Theme examples in each chapter illustrate how the concepts are used in engineering practice
- Comprehensive Appendices—10 appendices added on theories, functions and computer assignments among other intrinsic topics indispensable for a thorough coverage of the subject

### CONTENTS

1. Introduction
2. Propagation and Noise
3. Modulation and Frequency-Division Multiple Access
4. Coding and Time-Division Multiple Access
5. Spread Spectrum and Code-Division Multiple Access
6. Diversity, Capacity and Space-Division Multiple Access
7. Wireless Architectures

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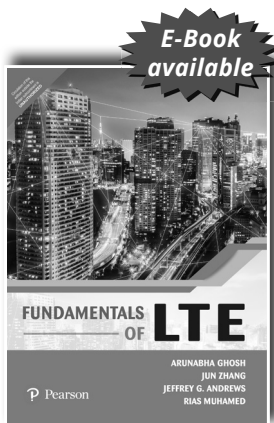


### Introduction to Wireless Technology

 **Gary S. Rogers**

**ISBN: 9788131715345**

 **552 | © 2007**



ISBN: 9789353062392

## Fundamentals of LTE

 Arunabha Ghosh | Jun Zhang | Jeffrey G. Andrews | Rias Muhamed

 456 |  2018

### ABOUT THE BOOK

Long-Term Evolution (LTE) is the next step in the GSM evolutionary path beyond 3G technology, and it is strongly positioned to be the dominant global standard for 4G cellular networks. LTE also represents the first generation of cellular networks to be based on a flat IP architecture and is designed to seamlessly support a variety of different services, such as broadband data, voice, and multicast video. Its design incorporates many of the key innovations of digital communication, such as MIMO (multiple input multiple output) and OFDMA (orthogonal frequency division multi-

ple access), that mandate new skills to plan, build, and deploy an LTE network.

In *Fundamentals of LTE*, four leading experts from academia and industry explain the technical foundations of LTE in a tutorial style—providing a comprehensive overview of the standards. Following the same approach that made their recent *Fundamentals of WiMAX* successful, the authors offer a complete framework for understanding and evaluating LTE.

### FEATURES

- Cellular wireless history and evolution: Technical advances, market drivers, and foundational networking and communications technologies
- Multicarrier modulation theory and practice: OFDM system design, peak-to-average power ratios, and SC-FDE solutions
- Frequency Domain Multiple Access: OFDMA downlinks, SC-FDMA uplinks, resource allocation, and LTE-specific implementation
- Multiple antenna techniques and tradeoffs: spatial diversity, interference cancellation, spatial multiplexing, and multiuser/networked MIMO
- LTE standard overview: air interface protocol, channel structure, and physical layers
- Downlink and uplink transport channel processing: channel encoding, modulation mapping, Hybrid ARQ, multi-antenna processing, and more
- Physical/MAC layer procedures and scheduling: channel-aware scheduling, closed/open-loop multi-antenna processing, and more
- Packet flow, radio resource, and mobility management: RLC, PDCP, RRM, and LTE radio access network mobility/handoff procedures

### CONTENTS

1. Evolution of Cellular Technologies  
**Part I: LTE Tutorials**
2. Wireless Fundamentals
3. Multicarrier Modulation
4. Frequency Domain Multiple Access: OFDMA and SC-FDMA
5. Multiple Antenna Transmission and Reception
- Part II: The LTE Standard**
6. Overview and Channel Structure of LTE
7. Downlink Transport Channel Processing
8. Uplink Transport Channel Processing
9. Physical Layer Procedures and Scheduling
10. Data Flow, Radio Resource Management, and Mobility Management

### ABOUT THE AUTHOR

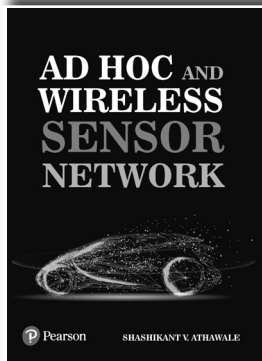
**Arunabha Ghosh** is a lead member of technical staff in the Wireless Communications Group in AT&T Laboratories.

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## Ad-Hoc and Wireless Sensor network



ISBN: 9789356066137

 **Shashikant V. Athawale**

 352 | © 2022

### ABOUT THE BOOK

Ad-Hoc and Wireless Sensor Network – A book meant for BE, B-Tech, ME, M-Tech, BCA, MCA, BSc, MSc, undergraduate, postgraduates and master's audience with no special computational experiences. This book is written in such a way that all possible topics are covered in order. Though there are many ways to teach a wireless and ad hoc network concept, this book follows a simple fundamentals and basic concept terminology.

Despite the widespread use of wireless sensor networks (WSNs), there are not many books that focus on the description of algorithms, performance evaluation,

and applications of network management strategies in WSNs. Ad Hoc and Wireless Sensor Networks addresses the demand by summarizing cutting-edge approaches to network management in addition to more established methods.

To help the readers understand wireless sensor ad hoc network concepts, this book includes a variety of features designed to enhance great learning experiences.

### FEATURES

- **Figures and Tables:** Numerous figures give you multidimensional view to understand concepts. Tables provide a detailed and a comparative view of the topic making it easy to grasp
- **Summary:** At the end of each chapter gives a brief overview of topics and lets the readers to quickly recall important points and enhances the modern teaching and learning methods
- **Recommended Reading:** For readers to enhance their learning and understandings, they can refer the recommended reading for more details mentioned at the end of every chapter
- **Recommended websites:** Nowadays various web pages are the major source and medium to understand the basic concepts and topics, hence Recommended websites play a vital role
- **Multiple choices Question:** To test skills, to experience deep understanding of topic and to check critical analytical reasoning skill with close answer sets

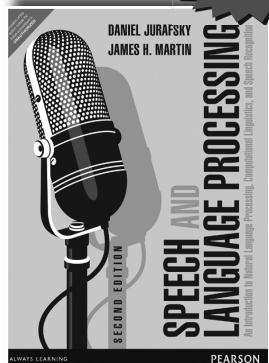
### CONTENTS

1. Wireless LANs also PANs
2. Ad Hoc Wireless Networks
3. Routing Protocols
4. Quality of Service
5. Mesh Networks

### ABOUT THE AUTHOR

**Dr. Shashikant V** is a highly motivated and dynamic professor, passionate about learning and educating students with engaging lessons. He is an Assistant Professor in Department of Computer Engineering, All India Shri Shivaji Memorial Society's College of Engineering – Pune

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**E-Book available**

# Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition 2/e

 Daniel Jurafsky | James H. Martin

 940 | © 2013

**ISBN: 9789332518414**

## ABOUT THE BOOK

An explosion of Web-based language techniques, merging of distinct fields, availability of phone-based dialogue systems, and much more make this an exciting time in speech and language processing. The first of its kind to thoroughly cover language technology — at all levels and with all modern technologies — this text takes an empirical approach to the subject, based on applying statistical and other machine-learning algorithms to large corporations. The authors cover areas that

traditionally are taught in different courses, to describe a unified vision of speech and language processing. Emphasis is on practical applications and scientific evaluation. An accompanying Website contains teaching materials for instructors, with pointers to language processing resources on the Web. The Second Edition offers a significant amount of new and extended material.

## FEATURES

- Each chapter is built around one or more worked examples demonstrating the main idea of the chapter
  - Uses the examples to illustrate the relative strengths and weaknesses of various approaches
- Methodology boxes included in each chapter - Introduces important methodological tools such as evaluation, wizard of oz techniques, etc.
- Problem sets included in each chapter.
- Integration of speech and text processing - Merges speech processing and natural language processing fields.
- Empiricist/statistical/machine learning approaches to language processing-Covers all of the new statistical approaches, while still completely covering the earlier more structured and rule-based methods.
- Modern rigorous evaluation metrics.
- Unified and comprehensive coverage of the field - Covers the fundamental algorithms of various fields, whether originally proposed for spoken or written language.
- Emphasis on Web and other practical applications
  - Gives students an understanding of how language-related algorithms can be applied to important real-world problems.
- Emphasis on scientific evaluation - Offers a description of how systems are evaluated with each problem domain.
- Description of widely available language processing resources
- Seven new chapters that extend coverage to include:
  - Statistical sequence labeling
  - Information extraction
  - Question answering and summarization
  - Advanced topics in speech recognition
  - Speech synthesis

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- Part I Words**
2. Regular Expressions and Automata
3. Words and Transducers
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5. Part-of-Speech Tagging
6. Hidden Markov and Maximum Entropy Models
- Part II Speech**
7. Phonetics
8. Speech Synthesis
9. Automatic Speech Recognition
10. Speech Recognition: Advanced Topics
11. Computational Phonology
- Part III Syntax**
12. Formal Grammars of English
13. Syntactic Parsing
14. Statistical Parsing
15. Features and Unification
16. Language and Complexity
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17. The Representation of Meaning
18. Computational Semantics
19. Lexical Semantics
20. Computational Lexical Semantics
21. Computational Discourse

## Part V Applications

- 22. Information Extraction
- 23. Question Answering and Summarization

- 24. Dialogue and Conversational Agents
- 25. Machine Translation

### ABOUT THE AUTHORS

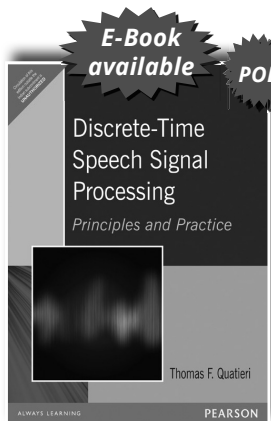
**Dan Jurafsky** is an associate professor in the Department of Linguistics, and by courtesy in Department of Computer Science, at Stanford University. Previously, he was on the faculty of the University of Colorado, Boulder, in the Linguistics and Computer Science departments and the Institute of Cognitive Science. He received the National Science Foundation CAREER award in 1998 and the MacArthur Fellowship in 2002.

**James H. Martin** is a professor in the Department of Computer Science and in the Department of Linguistics, and a fellow in the Institute of Cognitive Science at the University of Colorado at Boulder.

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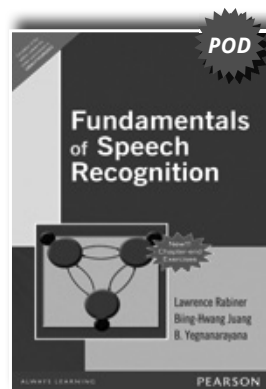


#### Discrete-Time Speech Signal Processing: Principles and Practice

 **Thomas F. Quatieri**

**ISBN: 9788177587463**

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#### Fundamentals of Speech Recognition

 **Lawrence Rabiner**

**ISBN: 9788177585605**

 528      © 2008

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