Pearson

CATALOGUE
2017

ELECTRICAL AND
ELECTRONICS ENGINEERING

Contents

ELECTRICAL ENGINEERING

ELECTRONICS & COMMUNICATION ENGINEERING

Electrical Engineering

System Dynamics, 4/e

About the Book

This text presents students with the basic theory and practice of system dynamics. It introduces the modeling of dynamic systems and response analysis of these systems, with an introduction to the analysis and design of control systems.

Features

- NEW - Revised and expanded content throughout.
- NEW - Expanded and earlier presentation of state-space modeling—Chapter 5.
- NEW - Added chapter on modeling dynamic systems—Chapter 4.
- Use of MATLAB throughout.
- Hundreds of examples and worked-out problems—With and without solutions.

Contents

1. Introduction to System Dynamics
2. The Laplace Transform
3. Mechanical Systems
4. Transfer-Function Approach to Modeling Dynamic Systems
5. State-Space Approach to Modeling Dynamic Systems
6. Electrical Systems and Electromechanical Systems
7. Fluid Systems and Thermal Systems
8. Time-Domain Analyses of Dynamic Systems
9. Frequency-Domain Analyses of Dynamic Systems
10. Frequency-Domain Analyses and the Design of Control Systems
11. Time-Domain Analyses of Control Systems

Appendix A: Systems of Units
Appendix B: Conversion Tables
Appendix C: Vector-Matrix Algebra
Appendix D: Introduction to MATLAB

Katsuhiko Ogata

ISBN: 9789332534971

Copyright: 2014

Pages: 784

Advanced Control Systems Design

New

About the Book

Stressing the importance of simulation and performance evaluation for effective design, this new text looks at the techniques engineers use to design control systems that work. It covers qualitative behavior and stability theory; graphical methods for nonlinear stability; saturating and discontinuous control; discrete-time systems; adaptive control; and more. For electrical engineers working in modern control system design.

Features

- KEY BENEFIT: Stressing the importance of simulation and performance evaluation for effective design, this new text looks at the techniques engineers use to design control systems that work.
- KEY TOPICS: It covers qualitative behavior and stability theory; graphical methods for nonlinear stability; saturating and discontinuous control; discrete-time systems; adaptive control; and more.
- MARKET: For electrical engineers working in modern control system design.

About the Author

Bernard Friedland, New Jersey Institute of Technology

Bernard Friedland

ISBN: 9789332559561

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Pages: 368

Also Available
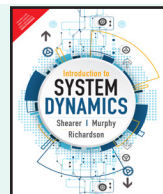
ISBN: 9789332578593
Pages: 432
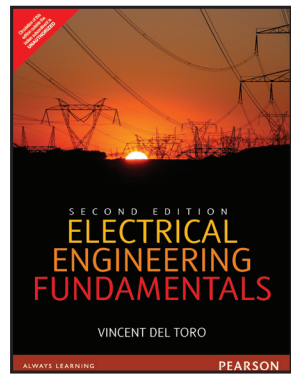
Electrical Engineering Fundamentals, 2/e

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

The Fundamental Laws of Electrical Engineering

Part One: Electric Circuit Theory
1. The Circuit Elements. Elementary Network Theory
2. Circuit Differential Equations:
3. Forms and Solutions. Circuit Dynamics and Forced Responses
4. The Laplace-Transform Method of Finding Circuit Solutions
5. Sinusoidal Steady-State Response of Circuits

Part Two: Electronics
6. Electron Control Devices
7. Semiconductor Types
8. Semiconductor Electronic Circuits
9. Special Topics and Applications

Part Three: Digital Systems
10. Binary Logic: Theory and Implementation
11. Simplifying Logical Functions
12. Components of Digital Systems
13. Microprocessor Computer Systems

Part Four: Electromechanical Energy Conversion
14. Magnetic Theory and Circuits
15. Transformers
16. Electromechanical Energy Conversion
17. The Three-Phase Induction Motor
18. Three-Phase Synchronous Machines
19. D-C Machines
20. Single-Phase Induction Motors
21. Stepper Motors

Part Five: Feedback Control Systems
22. Principles of Automatic Control
23. Dynamic Behavior of Control Systems
24. 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.

Vincent Del Toro

ISBN: 9789332551763

Copyright: 2015

Pages: 940

Electrical Technology: Volume I

About the Book

The book is written and organized in a very simple manner keeping in mind the needs for today's students. As the book introduces the subject with basic fundamentals like System of Units, Fundamentals of Electrons thereby helping engineering students in building their concepts. The Volume 1 of the book comprises of 54 Chapters covering topics in three-parts, Part A covers Electrical Fundamentals, Part B: Electric Machines and Part C: Electric Measurements.

The book is highly illustrative with 1500+ figures and illustrations and 1400+ solved/ unsolved problems as well as 500+ MCQ's.

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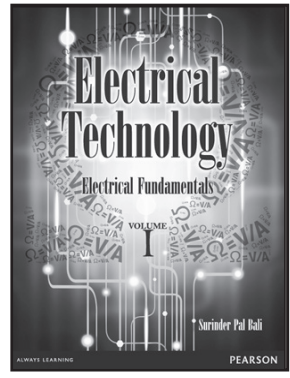
Surinder Pal Bali

ISBN: 9788131785935

Copyright: 2013

Pages: 608

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Features

Part A: Electrical Fundamentals

- 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.
  - o Learning Objectives
  - o Chapter Summary
  - o 900+ illustrations
  - o 450+ solved questions
  - o 450+ unsolved questions
  - o 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

Surinder Pal 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.

Electrical Engineering: Principles & Applications, 6/e

New

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.

Allan R. Hambley

ISBN: 9789332563308

Copyright: 2016

Pages: 912

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.

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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.

Basic Electrical Engineering

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.
- Step-by-step problem-solving methodology to hone problem-solving skills.
- Extended coverage on electric machines and measurements.
- Coverage on specialized motors like hysteresis motor, stepper motor, linear induction motor and universal motor.
- In-depth discussion on renewable sources of energy (eText).
- Separate chapters on Domestic Wiring and Illumination and Earthing and Electrical Safety (eText).
- Excellent pedagogy:
  - o 700+ Figures and Illustrations
  - o 450+ Solved Questions
  - o 400+ Unsolved Questions
  - o 300+ 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

Online Chapters

15. Sources of Electrical Power
16. Introduction to Power System
17. Introduction to Earthing and Electrical Safety
18. Domestic Wiring and Illumination

About the Author

Dr. SK Sahdev, Associate Dean Lovely Professional University.
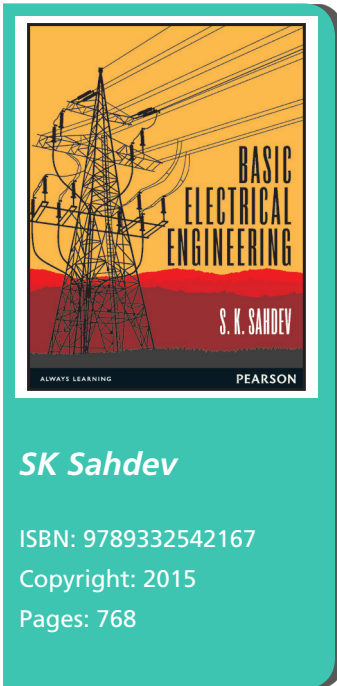
SK Sahdev

ISBN: 9789332542167

Copyright: 2015

Pages: 768

Basic Electrical and Electronics Engineering, 2/e

New-Edition

About the Book

This book provides an overview of the basics of electrical and electronic engineering that are required at the undergraduate level. Efforts have been taken to keep the complexity level of the subject to bare minimum so that the students of non electrical/electronics can easily understand the basics. 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.

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 currently the principal of SUS Women's Engineering College, Mohali, Punjab. Formerly he was the director of National Institute of Technical Teachers' Training and Research (NITTTR), Kolkata, India. A Ph.D. from Birla Institute of Technology and Science (BITS), Pilani, he was professor of Electrical Engineering and then Principal of Technical Teachers' Training Institute, Chandigarh. With a long experience in teaching as well as in training of teachers, he has prepared a number of teaching/learning materials.

S. K. Bhattacharya

ISBN: TBA
Copyright: 2017
Pages: 780

Hughes Electrical and Electronic Technology, 10/e

About the Book

All engineers need to understand the fundamental principles of electrical and electronic technology. The tenth edition of this best-selling text offers a clear and comprehensive introduction to the area, with balanced coverage of electrical, electronic, and power engineering. This revision has been updated to take into account key developments in the subject, including a new chapter on Electrical Energy Systems – an important addition which explores (among other topics) the principles of sustainable electricity generation.

Hughes Electrical and Electronic Technology is a must-have text for all university and college engineering students requiring a comprehensive introduction to electrical and electronic engineering. It is also appropriate as a reference for any practitioners and technicians working in this, or any other engineering discipline.

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.
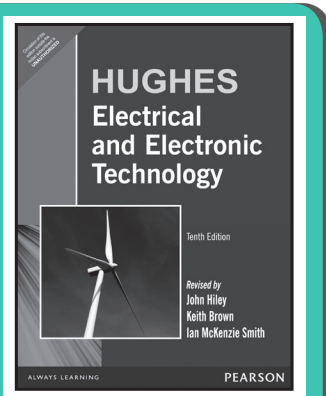
John Hiley

Keith Brown

Ian McKenzie Smith

ISBN: 9788131733660
Copyright: 2010
Pages: 1008

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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

Also Available
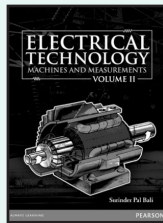
ISBN: 9789332514416
Pages: 456

ISBN: 9788177580198
Pages: 672
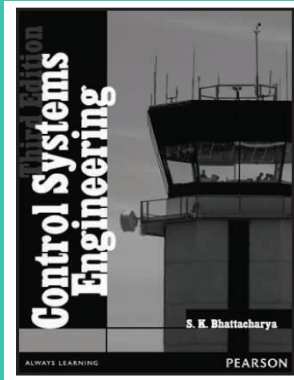
Control Systems Engineering, 3/e

About the Book

Control Systems is a comprehensive text, designed to cover the complete syllabi of this subject offered at various engineering courses at the undergraduate level. The book is also useful for students appearing for competitive examinations like GATE, IAS, IES, NTPC, NHPC and so on.

The book begins with a discussion on open-loop and closed-loop control systems. It goes on to discuss the block diagram representation and reduction techniques, which have been used to arrive at the transfer function of systems. This book lays emphasis on practical applications along with the explanation of key concepts.

In this third edition, the treatment of topics has been made simple and lucid, with the help of extended derivations and an exhaustive number of new figures, illustrations and solved examples.

Features

- Routh's criteria, Bode plot, Nyquist criteria and Root-Locus technique discussed in detail with solved examples.
- Extensive discussion of compensating networks.
- State-space analysis and control system components discussed in separate chapters.
- Solved numerical problems, practice problems and objective-type questions with answers.
- Each chapter contains MATLAB programming on the analysis of control systems.

- Appendices on Laplace transform, MATLAB fundamentals and fuzzy logic.
- Excellent pedagogy:
    - 400+ figures and illustrations
    - 150+ solved questions
    - 200+ unsolved questions
    - 150+ MCQs
    - 10+ MATLAB programs
- New and improved Figures, Diagrams and EquationsNetwork Theory.

Contents

1. Introduction
2. Modelling a Control Systems – Transfer Function Approach
3. Modelling a Control System – Block Diagram Representation
4. Modelling a Control System – Signal Flow Graphs
5. Feedback Control Systems – Characteristics and Performance
6. Error Analysis
7. Time Response Analysis
8. Concept of Stability and Routh – Hurwitz Criteria
9. The root locus analysis
10. Frequency Response Analysis
11. Design and Compensation
12. Concept of State Variable Modelling
13. Control Components
Appendix A: Laplace Transform
Appendix B: MATLAB Fundamentals
**Appendix C:** Fuzzy logic
Appendix D: Multiple Choice Questions

S. K. Bhattacharya

ISBN: 9788131791653

Copyright: 2013

Pages: 774

Modern Control Systems, 12/e

About the Book

Written to be equally useful for all engineering disciplines, this text is organized around the concept of control systems theory as it has been developed in the frequency and time domains. It provides coverage of classical control, employing root locus design, frequency and response design using Bode and Nyquist plots. It also covers modern control methods based on state variable models including pole placement design techniques with full-state feedback controllers and full-state observers. Many examples throughout give students ample opportunity to apply the theory to the design and analysis of control systems. Incorporates computer-aided design and analysis using MATLAB and LabVIEW MathScript.
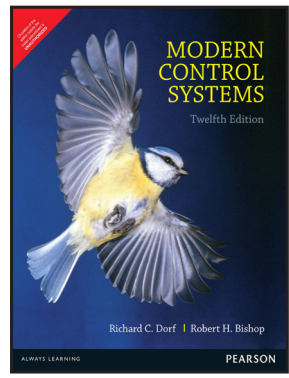
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Features

- Clear exposition of the basic principles of control system design techniques - Using frequency and time-domain methods including robust control design and an introduction to digital control systems.
- An integrated design and analysis approach to real-world engineering problems.
- Coverage of computer-aided design and analysis using MATLAB® and LabVIEW MathScript - Appears throughout the text and in end-of-chapter examples and problems.
- Coverage of several topics - Robust control systems and system sensitivity, state variable models, controllability and observability, computer control systems, internal model control, robust PID controllers, and computer-aided design and analysis.
- The topic of design of real-world, complex control system is a major theme throughout the text - Places emphasis on design for real-world applications, which addresses interest in design by ABET and industry.
- At least one design problem in each chapter - This addresses the interest in design of ABET and industry.

Contents

1. Introduction to Control Systems
2. Mathematical Models of Systems
3. State Variable Models
4. Feedback Control System Characteristics
5. The Performance of Feedback Control Systems
6. The Stability of Linear Feedback Systems
7. The Root Locus Method
8. Frequency Response Methods
9. Stability in the Frequency Domain
10. The Design of Feedback Control Systems
11. The Design of State Variable Feedback Systems
12. Robust Control Systems

About the Authors

Richard C. Dorf is a Professor of Electrical and Computer Engineering at the University of California, Davis. Known as an instructor who is highly concerned with the discipline of electrical engineering and its application to social and economic needs, Professor Dorf has written and edited several successful engineering textbooks and handbooks, including the best selling Engineering Handbook, second edition and the third edition of the Electrical Engineering Handbook.

Robert H. Bishop is the OPUS Dean of Engineering at Marquette University and is a Professor in the Department of Electrical and Computer Engineering. Prior to coming to Marquette University, he was a Professor of Aerospace Engineering and Engineering Mechanics at The University of Texas at Austin for 20 years where he held the Joe J. King Professorship and was a Distinguished Teaching Professor. Professor Bishop started his engineering career as a member of the technical staff at the MIT Charles Stark Draper Laboratory. He authors the well-known textbook for teaching graphical programming entitled Learning with LabVIEW and is also the editor-in-chief of the Mechatronics Handbook.

Control Systems: Theory and Applications, 2/e

About the Book

Control Systems: Theory and Applications is designed to meet the requirements of undergraduate programs in electrical, instrumentation, electronics and communication, and other allied engineering disciplines. This book presents a comprehensive treatment of the fundamentals of control system theory with an emphasis on its practical applications. It covers a range of topics from the conventional to the modern and from the non-linear to the basic digital control systems, along with an introduction on the applications of fuzzy logic in control systems. It also provides an exhaustive coverage on continuous-time and discrete-time systems and the time-domain and frequency-domain analysis of control

MODERN CONTROL SYSTEMS

Twelfth Edition

Richard C. Dorf | Robert H. Bishop

ALWAYS LEARNING   PEARSON

Richard C. Dorf
Robert H. Bishop

ISBN: 9789332518629

Copyright: 2014

Pages: 1046

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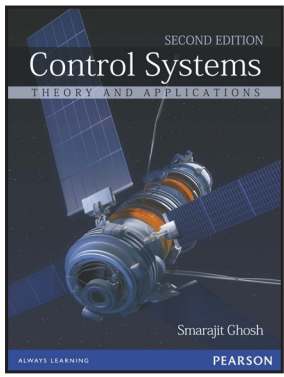
systems. The user-friendly approach and rich pedagogy will help students to enhance their problem-solving skills and enable them to apply the theories to the design and analysis of control systems.

Features

- New topics like servometers and signal flow graphs for networks and P/PI/PID controllers included.
- Comprehensive coverage of a wide variety of control components such as accelerometers; cross-field machines; magnetic and electronic amplifiers; thermal, fluid, chemical and pneumatic systems; design of compensators; and Kalman's and Gilbert's tests.
- A dedicated section on significant points for revision and recapitulation of concepts at the end of each chapter.

- New sections on MATLAB programs at the end of chapters provided to ensure that the theoretical and practical aspects are linked.
- Rigorous additional solved examples provided for more practice after every chapter.
- Enhanced pedagogy:
  - o   442 solved questions
  - o   368 unsolved questions
  - o   326 figures and illustrations
  - o   500+ MCQs
  - o   45+ MATLAB programst

Contents

1. Fundamentals of Control Systems
2. Laplace Transform and Matrix Algebra
3. Transfer Function
4. Control System Components
5. Mathematical Modelling of Physical Systems
6. Block Diagram
7. Signal Flow Graphs
8. Time Domain Analysis of Control Systems
9. Feedback Characteristics of Control Systems
10. Stability

11. Root Locus Method
12. Frequency Domain Analysis
13. Bode Plot
14. Polar Plot
15. Nyquist plot
16. Introduction to Compensators
17. State Variable Approach
18. Digital Control Systems
19. Non - Linear Control Systems
Appendix A: Fuzzy logic
MATLAB Problems
Multiple Choice Questions
Extra Solved Problems

Smarajit Ghosh

ISBN: 9788131758373
Copyright: 2012
Pages: 1044

Control System Design

About the Book

Using a "how to do it" approach with a strong emphasis on real-world design, this text provides comprehensive, single-source coverage of the full spectrum of control system design. Each of the text's 8 parts covers an area in control—ranging from signals and systems (Bode Diagrams, Root Locus, etc.), to SISO control (including PID and Fundamental Design Trade-Offs) and MIMO systems (including Constraints, MPC, Decoupling, etc.).

Features

- Single-source coverage of the full spectrum of control—From simple classical ideas to sophisticated multivariable problems.
- A major emphasis on design issues not found in other books on the topic—Such as digital and hybrid control systems, PID control including classical tuning methods, integration of state space and transfer function approaches, including Kalman filter and linear quadratic regulator.

- Practical issues of real-world control system design are emphasized—The text covers the traditional topics, but goes well beyond introductory topics to consider implementations of PID control, Smith predictors, fundamental limitations in design arising from delays, right half plan zeros and right half plane poles, impact of actuator limitations (slew rate and amplitude constraints).
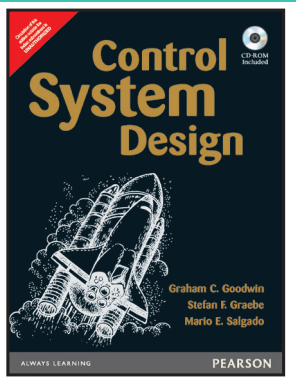
Graham C. Goodwin

Stefan F. Graebe

Mario E. Salgado

ISBN: 9789332550520
Copyright: 2015
Pages: 908

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Contents

About the Authors

Graham Goodwin has over 30 years of experience in the area of control engineering covering research, education and industry. He is the author of seven books, 500 papers and holds four patents. He was the foundation Chairman of a spin-off company and is currently Directory of a special research center dedicated to systems and control research.

Stefan Graebe's career spans both academic and industrial positions. He was previously research coordinator in the Centre for Industrial Control Science at the University of Newcastle. He is currently head of the Department of Optimization and Automation for the Schwechat refinery of OMV—Austria.

Mario Salgado received a Maters degree in Control from Imperial College and a Ph.D. from the University of Newcastle. He is currently an academic in the Department of Electronics at the Universidad Tecnica Frederico Santa Maria, Valparaíso—Chile. His interests include signal processing and control systems design.

Modern Control Engineering, 5/e

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

Katsuhiko Ogata

ISBN: 9789332550162
Copyright: 2015
Pages: 550

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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 Syste
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

Dr. Katsuhiko Ogata graduated from the University of Tokyo (BS), earned an MS degree from the University of Illinois, and his Ph.D from the University of California, Berkeley. He is Professor Emeritus at the University of Minnesota.

Discrete-Time Control Systems, 2/e

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.

Discrete-Time Control Systems is an all-inclusive book for those who need to master this subject. It includes all the required material such as step-by-step details to derive an important equation for observer design and pole placement. Moreover, students will also get to learn the proofs of theorems through this book. It is divided into eight chapters that covers topic like introduction to Discrete-Time Control Systems, state-space analysis, the z transform, quadratic optimal control systems, z-plane analysis of discrete-time control systems, pole placement and observer design, design of discrete-time control systems by conventional methods, and polynomial equations approach to co
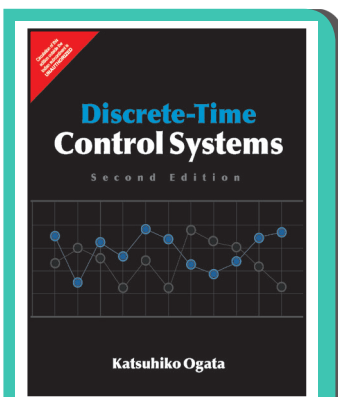
Katsuhiko Ogata

ISBN: 9789332549661

Copyright: 2015

Pages: 768

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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.
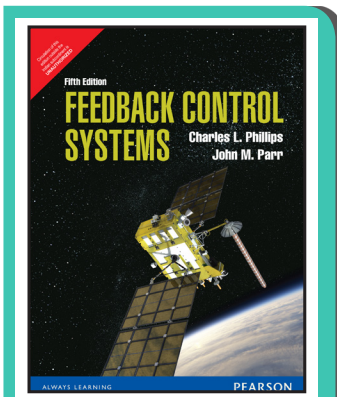8. Quadratic Optimal Control Systems.

Appendixes

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

About the Author

Dr. Katsuhiko Ogata is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata has authored Modern Control Engineering, System Dynamics, Designing Linear Control System Design With MATLAB, Studyguide for Modern Control Engineering, Solving Control Engineering Problems With MATLAB, MATLAB for Control Engineers, and many more.

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 1956 in Engineering Science from the University of California at Berkeley. His research areas are discrete-time control systems and optimal control of complex plants.

Feedback Control Systems, 5/e

About the Book

Feedback Control Systems, 5/e offers a thorough analysis of the principles of classical and modern feedback control in language that can be understood by students and practicing engineers with no prior background in the subject matter. Organized into three sections â€" analog control systems, digital control systems, and nonlinear analog control systems â€"this text helps students understand the difference between mathematical models and the physical systems that the models represent.

The Fifth edition provides a new introduction to modern control analysis and design for digital systems, the addition of emulation methods of design for digital control, and numerous other updates.

Features

- New introduction to modern control analysis and design for digital systems.
- Addition of emulation methods of design for digital control.
- Additional system modeling example added, providing additional exposure to practical problems in developing
- mathematical models for physical system.
- Transfer-function and state-variable models familiarize students with both models for the analysis and design of linear analog systems.
- Coverage of nonlinear system analysis

Charles L. Phillips
John M. Parr

ISBN: 9789332507609
Copyright: 2013
Pages: 784

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methods emphasizes describing-function analysis, linearization, and the state-plane analysis.

- Early coverage of expanded frequency-response design criteria helps explain closed-loop systems to students
- A new chapter on Discrete -Time Pole-Assignment and State Estimation.

Contents

1. Introduction
2. Models Of Physical Systems
3. State-Variable Models
4. System Responses
5. Control System Characteristics
6. Stability Analysis
7. Root-Locus Analysis And Design
8. Frequency-Response Analysis
9. Frequency-Response Design
10. Modern Control Design
11. Discrete-Time Systems
12. Sampled-Data Systems
13. Analysis And Design Of Digital Control Systems
14. Discrete-Time Pole-Assignment And State Estimation
15. Nonlinear System Analysis
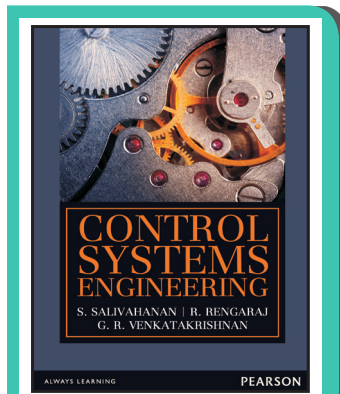
Dr. S. Salivahanan

R. Rengaraj

G. R. Venkata-krishnan

ISBN: 9789332539131

Copyright: 2015

Pages: 1056

Control Systems Engineering

New

About the Book

Control Systems Engineering caters to the requirements of an interdisciplinary course on Control Systems at the undergraduate level. Featuring a balanced coverage of time response and frequency response analysis, the book provides an in-depth analysis of key topics such as components, modelling techniques and reduction techniques, well-augmented by clear illustrations.

Features

- Detailed review of control systems modelling.
- Stepwise treatment of reduction techniques such as block diagram analysis, Routh–Hurwitz criterion and root locus analysis.
- Frequency Analysis using Bode plot, Polar plot and Nichol's chart is illustrated in detail with respective charts.
- An exclusive chapter on digital control systems.
- Clear examples to demonstrate the use of MATLAB programs.
- Over 350 example problems, 250 exercise problems and 45 MATLAB programs.

Contents

1. Control System Modeling
2. Physical System And Components
3. Block Diagram Reduction Techniques
4. Signal Flow Graph
5. Time Response Analysis
6. Stability And Routh-Hurwitz Criterion
7. Root Locus Techniques
8. Frequency Response Analysis
9. Polar Plot And Nyquist Plot
10. Constant M & N Circles And Nichol's Chart
11. Design Of Compensators Using Polar Plot And Bode Plot
12. State Space Analysis
13. Introduction To Digital Control System
14. Matlab Programs

About the Author

Dr S. Salivahanan is Principal of SSN College of Engineering, Chennai. An academic of wide renown with teaching and industrial experience spanning over 30 years, he was earlier Professor at NIT–Trichy. He has also served as a member of the working group on technical and professional education of the eleventh five-year plan (2007 – 2012), government of Tamil Nadu. He is currently the chairman of IEEE Madras Section.
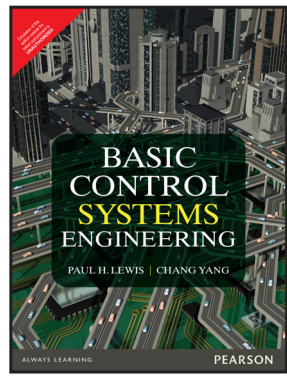
Basic Control Systems Engineering, 1/e

New

About the Book

Appropriate for a basic course in Control Systems Engineering in departments of Electrical, Mechanical, Aerospace, and Chemical Engineering. The level is suitable for junior or senior engineering students.

This very accessibleâ€"text integrates realistic examples throughout its presentation of control systems engineering. By employing the remarkable capabilities of today's computers and programming techniques, the authors describe methodologies for reducing computational difficulties and improving insight into essential areas of study. Coverage addresses the needs of today's practicing engineers by including such topics as the simulation of commonly observed nonlinear phenomena and the design of discrete-event control systems. First controls that to integrate both MATLAB and SIMULINK.

Features

- Maintains a careful balance between theory and practice. Pg.___
- Uses MATLAB and SIMULINK where appropriate. The clear presentation and techniques described reduce computational barriers and improve comprehension in many important areas of study. Pg.___
- Considers practical issues (such as device limitations, windup, practical PI and PID control functions, etc.).
- Presents nonlinear models intermittently throughout the text; chapters 12 and 13 are devoted to this topic nonlinear phenomena (such as static coulomb friction) are incorporated into the simulation studies.
- Presents a subject not usually contained in controls textsâ€"the analysis and design of discrete-event control systemsâ€"because of its pertinence to factory automation and process control. Emphasizes highly-structured techniques that include the use of Petri nets and state-language tables throughout this discussion.
- Presents three system design studies that utilize techniques presented throughout the book, including an automobile cruise control system, a phase-locked motor speed control system, and a system to control the orbit of a satellite.
- Offers numerous worked examples throughout the text, including practical situations, such as the angular position control of an antenna, the design of an automotive suspension system, and the control of a automated fabrication system that utilizes two mobile robots.

Contents

1. Control Systems Engineering.
2. Modeling Physical Systems: Differential Equation Models.
3. Transfer-Function Models.
4. State Models.
5. Simulation.
6. Stability.
7. Performance Criteria and Some Effects of Feedback.
8. Root-Locus Techniques.
9. Frequency-Response Techniques.
10. Cascade Controller Design.
11. Controller Design Variations.
12. Nonlinear Models and Simulation.
13. Nonlinear Systems: Analytical Techniques.
14. The Application of Discrete-Event Control Techniques.
15. Design Examples.

Appendix A: Angles and Intercepts of Root-Locus Asymptotes.

Appendix B: MATLAB: Introductory Information.
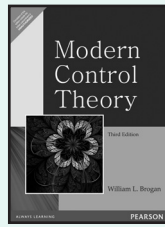
About the Authors

Paul H. Lewis, Michigan Technological University.

Chang Yang, Michigan Technological University.

Paul H. Lewis
Chang Yang

ISBN: 9789332559585
Copyright: 2016
Pages: 464

BASIC CONTROL SYSTEMS ENGINEERING
PAUL H. LEWIS | CHANG YANG
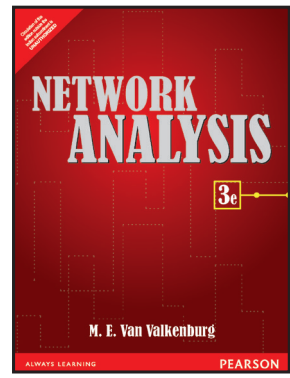ALWAYS LEARNING   PEARSON

Also Available

ISBN: 9788131761670
Pages: 736
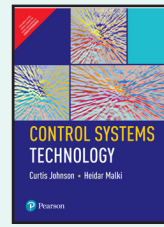
ISBN: 9788131788240
Pages: 461

Network Analysis, 3/e

About the Book

This book provides comprehensive coverage of the topics in the field of electric networks (or circuits) which are considered to be the foundation in 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. Solutions to selected problems are given in the appendix.
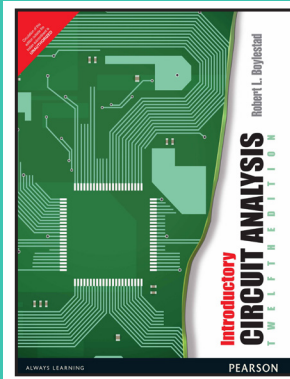
Contents

1. Development of the Circuit Concept
2. Conventions for Describing Networks
3. Network Equations
4. First-order Differential Equations
5. Initial Conditions in Networks
6. The Laplace Transformation
7. Transforms of Other Signal Wave-forms
8. Impedance Functions and Network Theorems
9. Network Functions; Poles and Zeros
10. Two-Port Parameters
11. Sinusoidal Steady-State Analysis
12. Frequency Response Plots
13. Input Power, Power Transfer, and Insertion Loss
14. Fourier Series and Signal Spectra
15. Fourier Integral and Continuous Spectra Appendices

About the Author

Mac 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.

Mac E. Van Valkenburg

ISBN: 9789332550131
Copyright: 2015
Pages: 592

Introductory Circuit Analysis, 12/e

About the Book

The most widely acclaimed text in the field for more than three decades, Introductory Circuit Analysis provides introductory-level students with the most thorough, understandable presentation of circuit analysis available. Exceptionally clear explanations and descriptions, step-by-step examples, practical applications, and comprehensive coverage of essentials provide students with a solid, accessible foundation.

Features

- Major revamping of end-of-chapter problems.
- New chapter on systems in general.
- Updated coverage of PSpice and Multisim to reflect most recent versions of each.
- Detailed introductions to new technology such as the memristor, lithium-ion batteries, energy saving fluorescent bulbs, and advanced instrumentation.
- New applications added in response to advances in the field.
- Improved coverage of use of TI-89 calculator.

Contents

1. Introduction
2. Voltage and Current
3. Resistance
4. Ohm's Law, Power, and Energy
5. Series dc Circuits
6. OParallel dc Circuits
7. Series-Parallel Circuits
8. Methods of Analysis and Selected Topics (dc)
9. Network Theorems
10. Capacitors
11. Inductors
12. Magnetic Circuits
13. Sinusoidal Alternating Waveforms
14. The Basic Elements and Phasors
15. Series and Parallel ac Circuits
16. Series-Parallel ac Networks

Robert L. Boylestad

ISBN: 9789332518612
Copyright: 2014
Pages: 1096

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17. Methods of Analysis and Selected Topics (ac)
18. Network Theorems (ac)
19. Power (ac)
20. Resonance
21. Decibels, Filters, and Bode Plots
22. Transformers
23. Polyphase Systems
24. Pulse Waveforms and the R-C Response
25. Nonsinusoidal Circuits

Basic Circuit Theory, 3/e

About the Book

For a one-year beginning either sophomore or junior year of the undergraduate electrical or computer engineering curriculum.

Written to provide an introduction to the basic concepts of modern circuit theory. This text is designed to motivate students to learn through learning objectives, review questions and discussions.

Contents

1. Introduction
2. Resistors, Sourses, and Simple Circuits
3. Resistance Networks
4. Capacitors and Inductors
5. First-Order Circuits
6. Second-Order aqnd Higher-Order Circuits
7. Sinusoidal Steady-State Analysis-I
8. Sinusoidal Steady-State Analysis-II
9. The Laplace Transform-I
10. The Laplace Transform-II
11. Two-Port Network Parameters
12. The Fourier Series
    A. Matrices and Determinants.
    B. Complex Numbers.
    C. Use of Spice in Circuit Analysis.

About the Author

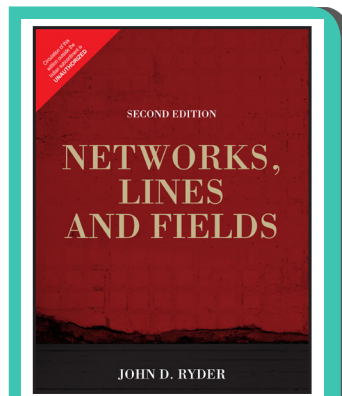**Lawrence P. Huelsman,** University of Arizona.

Lawrence P. Huelsman

ISBN: 9789332550551
Copyright: 2015
Pages: 776

Networks, Lines and Fields, 2/e

New

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.

Contents

1. Introduction
2. Resistors, Sourses, and Simple Circuits
3. Resistance Networks
4. Capacitors and Inductors
5. First-Order Circuits
6. Second-Order aqnd Higher-Order Circuits
7. Sinusoidal Steady-State Analysis-I
8. Sinusoidal Steady-State Analysis-II
9. The Laplace Transform-I
10. The Laplace Transform-II
11. Two-Port Network Parameters
12. The Fourier Series
    A. Matrices and Determinants
    B. Complex Numbers
    C. Use of Spice in Circuit Analysis

John D. Ryder

ISBN: 9789332559516
Copyright: 2016
Pages: 608

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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.

Electric Circuits and Networks

About the Book

Electric Circuits and Networks is designed to serve as a textbook for a two-semester undergraduate course on basic electric circuits and networks. The book builds on the subject from its basic principles. Spread over seventeen chapters, the book can be taught with varying degree of emphasis on its six subsections based on the course requirement. Written in a student-friendly manner, its narrative style places adequate stress on the principles that govern the behaviour of electric circuits and networks.

Features

- Replete with clear illustrations, solved examples, review questions and end-of-chapter problems, the narrative style is ideal for students at the freshman and sophomore level.
- Basic concepts are explained in detail, placing emphasis on providing a qualitative understanding of various circuit theory concepts and their inter-relations.

- Discussions of key topics are borne out with precision and mathematical rigor, adding value to the treatment.
- Linear time-invariant circuits are dealt with due focus, providing the students of linear systems analysis, and signals and systems with sound reference material.

K. S. Suresh Kumar

ISBN: 9788131713907

Copyright: 2008

Pages: 840

Contents

Part I: Basic Concepts
1. Circuit Variables and Circuit Elements
2. Basic Circuit Laws
3. Single Element Circuits

Part II: Analysis of Memory less Circuits
4. Nodal Analysis and Mesh Analysis of Memory less Circuits
5. Circuit Theorems
6. The Operational Amplifier as a Circuit Element

Part III: Sinusoidal Steady-State in Dynamic Circuits
7. Power and Energy in Periodic Waveforms
8. The Sinusoidal Steady-State Response
9. Sinusoidal Steady-State in Three-Phase Circuits

Part IV: Time-Domain Analysis of Dynamic Circuits
10. Simple Rl Circuits in Time-Domain
11. RC and RLC Circuits in Time-Domain
12. Higher Order Circuits in Time-Domain

Part V: Frequency-Domain Analysis of Dynamic Circuits
13. Dynamic Circuits with Periodic Input - Analysis by Fourier Series
14. Dynamic Circuits With a Periodic Inputs - Analysis by Fourier
15. Analysis of Dynamic Circuits by Laplace Transforms

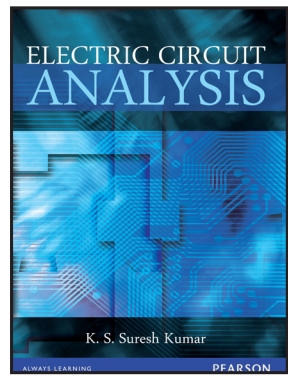**Part VI: Introduction to Network Analysis**
16. Two-Port Networks and Passive Filters
17. Introduction to Networktopology

About the Author

K. S. Suresh Kumar is Assistant Professor, Department of Electrical Engineering, National Institute of Technology Calicut, Kerala. A product of IIT Madras, he has been teaching at NIT Calicut for the past twenty-four years.

Electric Circuit Analysis

About the Book

Electric Circuit Analysis is designed to serve as a textbook for undergraduate course on basic electric circuits. The book builds on the subject from its basic principles. Spread over fourteen chapters, the book can be taught with varying degree of emphasis based on the course requirement. Written in a student-friendly manner, its narrative style places adequate stress on the principles that govern the behaviour of electric circuits.

Features

- Replete with clear illustrations, solved examples, review questions and end-of-chapter problems, the narrative style is ideal for students at the freshman and sophomore level.
- Basic concepts are explained in detail, placing emphasis on providing a qualitative understanding of various circuit theory concepts and their inter-relations.
- Discussions of key topics are borne out with precision and mathematical rigor, adding value to the treatment.
- Linear time-invariant circuits are dealt with due focus, providing the students of linear systems analysis, and signals and systems with sound reference material

Contents

1. Circuit Variables and Circuit Elements
2. Basic Circuit Laws
3. Single Element Circuits
4. Nodal Analysis and Mesh Analysis of Memoryless Circuits
5. Circuit Theorems
6. Power and Energy in Periodic Waveforms
7. The Sinusoidal Steady-State Response
8. Sinusoidal Steady-State in Three-Phase Circuits
9. Dynamic Circuits with Periodic Inputs – Analysis by Fourier Series
10. First-Order RL Circuits
11. First-Order RC Circuits
12. Series and Parallel RLC Circuits
13. Analysis of Dynamic Circuits by Laplace Transforms
14. Magnetically Coupled Circuits

K. S. Suresh Kumar

ISBN: 9788131791554

Copyright: 2013

Pages: 728

Electronic Circuit Analysis

About the Book

This book is designed to serve as a textbook for a two semester undergraduate course on electronic circuit analysis. It builds on the subject from its basic principles over fifteen chapters, providing detailed coverage on the design and analysis of electronic circuits.

Features

- 220 solved examples, 182 exercise problems and 140 multiple choice questions.
- Covers amplifiers and voltage regulators in detail.
- In-depth analysis of power amplifiers.
- JFET and MOSFET circuit analysis explained using graphical methods.
- Inverting and non-inverting amplifiers are thoroughly covered.

Contents

1. Electron Dynamics
2. P-N Junction Diode Characteristics
3. Rectifiers, Filters and Voltage Regulators
4. Characteristics of Transistor Devices (BJT, FET and MOSFET)
5. Transistor Biasing and Stabilization Circuits
6. Transistor (BJT) Amplifiers
7. Feedback Amplifiers
8. Oscillators
9. FET and MOSFET Amplifiers
10. Multistage (Cascaded) Amplifiers
11. Large Signal (Power) Amplifiers
12. High Frequency Transistor Circuits
13. Tuned Amplifiers
14. Switching and IC Voltage Regulators
15. Special Purpose Electronic DevicesElectronic
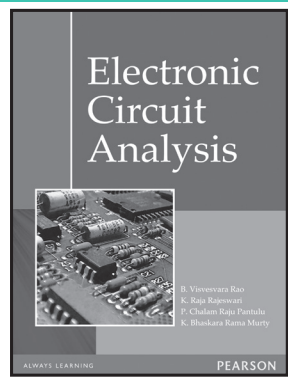
B. Visvesvara Rao

K. Bhaskara Rama Murty

K. Raja Rajeswari

P. Chalam Raju Pantulu

ISBN: 9788131754283

Copyright: 2012

Pages: 792

Principles of Electric Circuits: Conventional Current Version, 9/e

Thomas L. Floyd

ISBN: 9789332573888

Copyright: 2016

Pages: 984

About the Book

For DC/AC Circuits courses requiring a comprehensive, classroom tested text with an emphasis on troubleshooting and the practical application of DC/AC principles and concepts.

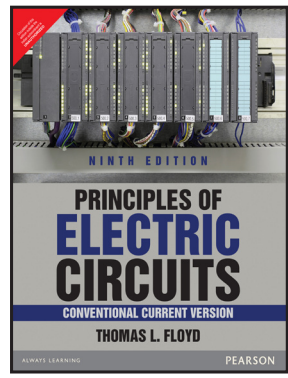This text provides an exceptionally clear introduction to DC/AC circuits supported by superior exercises, examples, and illustrations and an emphasis on troubleshooting and applications. Throughout the text's coverage, the use of mathematics is limited to only those concepts that are needed for understanding. Floyd's acclaimed troubleshooting emphasis provides students with the problem solving experience they need to step out of the classroom and into a job!

New

Features

- Numerous worked examples and related problems throughout each chapter help illustrate and clarify basic concepts of specific procedures.
- Real scenario "Applications", many of which are new to this edition are emphasized with most chapters.
- Complete and straightforward presentation of the basics of electrical components and circuits.
- Troubleshooting coverage.
- Full four color format.
- Two complete Lab Manuals.
- Complete Instructor Resource package (Power Point files, Companion Website, Multisim CD w/circuit file examples, Prentice Hall Test Manager software, Instructors Resource Manual w/solutions to chapter problems, solutions to both lab manuals).

Contents

1. Quantities and Units
2. Voltage, Current, and Resistance
3. Ohm's Law
4. Energy and Power
5. Series Circuits
6. Parallel Circuits
7. Series-Parallel Circuit
8. Circuit Theorems and Conversions
9. Branch, Loop, and Node Analyses
10. Magnetism and Electromagnetism
11. Introduction to Alternating Current and Voltage
12. Capacitors
13. Inductors
14. RC Circuits
15. RL Circuits
16. RLC Circuits and Resonance
17. Passive filters
18. Circuit Theorems in AC Analysis
19. Time Response of Reactive Circuits
20. Three-Phase Systems in Power Applications

Also Available
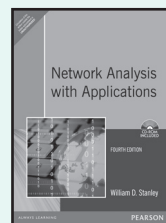
Network Analysis with Applications
ISBN: 9788131703182
Pages:672
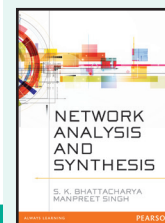
NETWORK ANALYSIS AND SYNTHESIS
ISBN: 9789332542853
Pages:736
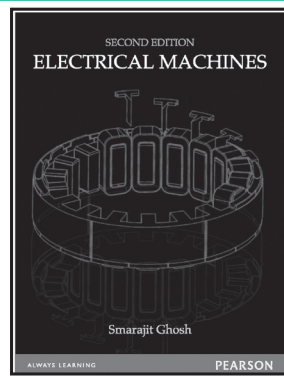
Electrical Machines, 2/e

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

- New and improved figures, diagrams and equations.
- Explicit and rigorous treatment of transformers—current, potential and welding transformers.
- Auto transformers, Three Phase transformers, and Rotating machines are discussed in detail.
- Detailed discussion of Polyphase Induction motors.
- Covers electromechanical energy conversion.
- Special machines, AC/DC servomotors, linear induction motors and permanent magnet DC motors (PMDC).
- Pedagogy includes solved numerical problems, practice problems, short answer questions and multiple choice questions with answers.

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.

Smarajit Ghosh

ISBN: 9788131760901

Copyright: 2012

Pages: 848

Electric Machines: Theory, Operation, Applications, Adjustment and Control

About the Book

Retaining the student-friendly style of the First Edition, this unique text fills a gap in the available Electronics and Computer Technology texts by devoting more time to current industrial requirements. It presents AC machines and transformers before DC machines, motors before generators, gives more attention to machine characteristics, and makes extensive use of NEMA standards and tables. The "self-contained" nature of each chapter gives instructors significant freedom in course development.

Features

- Section on high-efficiency motors.
- DC machines are presented in a stand alone section.
- More time is devoted to machine
- characteristics than armature windings.
- NEMA and NEC standards— Introduced in the solution of application-type problems.
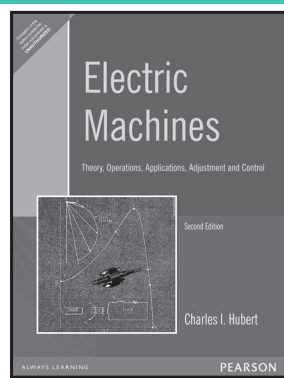
Charles I. Hubert

ISBN: 9788131708026

Copyright: 2002

Pages: 624

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- Summary of equations—Listed at the end of each chapter.
- 276 homework problems.

Contents

1. Magnetics, Electromagnetic Forces, Generated Voltage, and Energy Conversion
2. Transformer Principles
3. Transformer Connections, Operation, and Specialty Transformers
4. Principles of Three-Phase Induction Motors
5. Classification, Performance, Applications, and Operation of Three-Phase Induction Machines
6. Single-Phase Induction Motors
7. Specialty Machines
8. Synchronous Motors
9. Synchronous Generators (Alternators)
10. Principles of Direct Current Machines
11. Direct-Current Motor Characteristics and Applications
12. Direct-Current Generator Characteristics and Operation
13. Control of Electric MotorsElectric

Electric Machinery and Transformers, 2/e

Irving L. Kosow

ISBN: 9788131711279
Copyright: 2007
Pages: 640

About the Book

The book provides in-depth coverage of the complex theory and practical engineering methods pertaining to rotating machinery. The second edition introduces AC motor efficiency using machine constants as well as using the perunit (p.u.) system for calculation of efficiency and regulation of machines and transformers. Completely in conformity with the IEEE standards, this book is a valuable learning tool and a reliable reference for students as well as practicing engineers.

Features

- Updates coverage of specialized machines to include stepper motors, linear motors, magnetic-levitation devices (MAGLEVS) and high-speed surface transport (HSST) vehicles.
- Uses figures with text to enhance understanding, places lengthy derivations of equations in an appendix to avoid interruption of the flow of material, ad adds a unique equivalent circuit diagram to develop motor constants from running light and blocked rotor tests.
- Follows the format method of mesh analysis for induction of motor horsepower and efficiency, using derived motor constants.

About the Author

Irving L. Kosow, Southern College of Tech-Matietta Georgia.

Electrical Machines, Drives and Power Systems, 6/e

Theodore Wildi

ISBN: 9789332518537
Copyright: 2014
Pages: 928

About the Book

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 over the past few years–allowing the entrance of power electronics into every facet of industrial drives, and expanding the field to open more career opportunities.

Features

- NEW–Doubly-fed induction machine properties and behavior—For use as a wind turbine generator to produce electricity.
- NEW–Pulse-width modulation (PWM) modifications.
- NEW—Direct Torque Control (DTC) coverage.

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- NEW–Wind power and the use of turbines.
- NEW—The HVDC Light™ method of transmitting electric power.

Contents

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

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 Motors
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

III. **Electrical And Electronic Drives**
20. Basics of Industrial Motor Control
21. Fundamental Elements of Power Electronics
22. Electronic Control of Direct-Current Motors
23. Electronic Control of Alternating Current Motors

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

About the Author

Theodore Wildi, Sperika Enterprises Ltd.

Electrical Machine Design

New

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.

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.

Contents

1.   Preface
2.   Basic Design Considerations of Electrical Machines
3.   Design of Magnetic circuits
4.   Design of Transformer
5.   Design of Three phase Induction Motor
6.   Design of Single phase induction motor

7.   Design of synchronous machine
8.   Design of DC machine
9.   Computer Aided Design and Analysis of Electric motors
Appendices
Index

Pearson

*V Rajini/
V S Nagarajan*
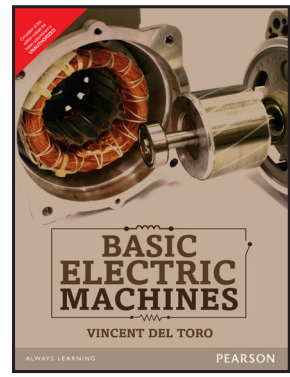
ISBN: TBA
Copyright: 2017
Pages: 624

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About the Authors

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

V.S.Nagarajan is Assistant Professor, Department of EEE, SSN College of Engineering, Chennai
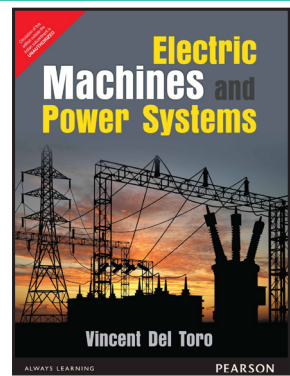
Basic Electric Machines, 1/e

New

About the Book

For core courses in electric machinery.

Features

- For core courses in Electric Machinery. Focuses on all aspects of steady-state performance, control and applications.
- (vs. Fitzgerald, Chapman, Nasar, Lindsay/Rashid).

Toro Vincent Del

ISBN: 9789332571808

Copyright: 2016

Pages: 640

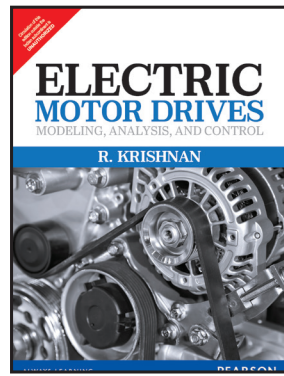## Electric Machines and Power Systems, 1/e

New

About the Book

The book provides a coherent, highly motivated, and pedagogically sound exposition of the theory and characteristics of electric machines when operating as individual units in the steady state and in the dynamical state.

Features

- This book provides a degree of flexibility in meeting the needs of various engineering curricula of "Electric Machines and Power Systems".
- Coverage of the basic fundamentals of subject - Magnetic Theory and Circuits.
- Coverage of Conventional electric machines, special electric machines and Dynamics of electric machines.
- Separate appendix for Units and conversion factors,pitch and distribution factors for machine windings and reduction factors for polyphase windings.

Toro Vincent Del

ISBN: 9789332571815

Copyright: 2016

Pages: 728

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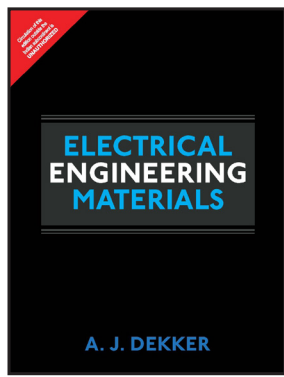# Electric Motor Drives: Modeling, Analysis, and Control

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

R. Krishnan

ISBN: 9789332549715
Copyright: 2015
Pages: 626

ELECTRICAL ENGINEERING MATERIALS

Electrical Engineering Materials

New

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.

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. 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

A.J. Dekker

ISBN: 9789332560116
Copyright: 2016
Pages: 224

About the Book

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

Nonlinear Systems, 3/e
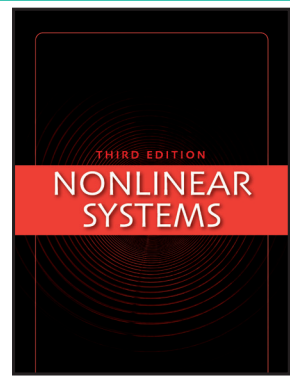
Hassan k. Khalil

ISBN: 9789332542037

Copyright: 2015
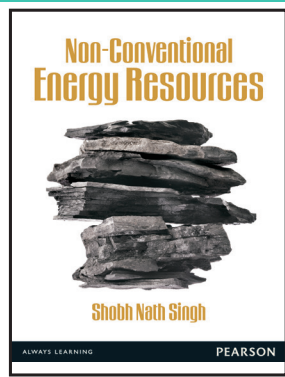
Pages: 560

About the Book

The text is written to build the level of mathematical sophistication from chapter to chapter. It has been reorganized into four parts: Basic analysis, Analysis of feedback systems, Advanced analysis, and Nonlinear feedback control.

Features

- Updated to include subjects which have proven useful in nonlinear control design in recent years
- Over 170 new exercises.

Contents

1. Introduction
2. Second-Order Systems
3. Fundamental Properties
4. Lyapunov Stability
5. Input-Output Stability
6. Passivity
7. Frequency-Domain Analysis of Feedback Systems
8. Advanced Stability Analysis
9. Stability of Perturbed Systems
10. Perturbation Theory and Averaging
11. Singular Perturbations
12. Feedback Control
13. Feedback Linearization
14. Nonlinear Design Tools

Non-Conventional Energy Resources

Shobh Nath Singh

ISBN: 9789332543577

Copyright: 2015

Pages: 570

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, hydropower 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
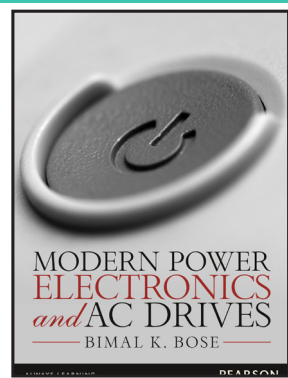
Modern Power Electronics and AC Drives

New

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

Dr. 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.

Bimal K. Bose

ISBN: 9789332557550
Copyright: 2016
Pages: 744

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

New-Edition

About the Book

This text covers the basics of emerging areas in power electronics and a broad range of topics such as power switching devices, conversion methods, analysis and techniques, and applications. Its unique approach covers the characteristics of semiconductor devices first, then discusses the applications of these devices for power conversions. Four main applications are included: flexible ac transmissions (FACTs), static switches, power supplies, dc drives, and ac drives.

Features

- Integration of design techniques and problems.
- Computer-aided design techniques and analysis using PC.
- Integration of industry-standard software tools.
- Numerous worked-out examples, chapter-end review questions, problems and important design formulae.
- Review of Three-Phase Circuits, Magnetic Circuits, Switching Functions of Converters, Transient Analysis, and Fourier Analysis.
- An examination of the characteristics of semiconductor devices–Including SCRs, GTOs, BJTs, MOSFETs, SITs, SITHs, IGBTs, MTOs, ETOs, IGCTs, MCTs and Spice device models.

Muhammad H. Rashid

ISBN: TBA
Copyright: 2017
Pages: 1054

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Contents

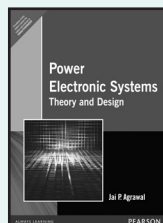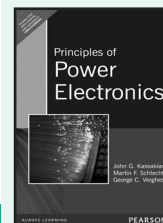## About the Author

Muhammad H. Rashid is employed by the University of West Florida as Professor of Electrical and Computer Engineering. 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 US Library of Congress and more than 160 technical papers. His books are adopted as textbooks all over the world. He is Fellow of the Institution of Engineering and Technology (IET, UK) and Life Fellow of the Institute of Electrical and Electronics Engineers (IEEE, USA).

Dr. Rashid is the recipient of the 1991 Outstanding Engineer Award from the Institute of Electrical and Electronics Engineers. He received the 2002 IEEE Educational Activity Award (EAB), Meritorious Achievement Award in Continuing Education with the following citation "for contributions to the design and delivery of continuing education in power electronics and computer-aided simulation." He is the recipient of the 2008 IEEE Undergraduate Teaching Award with the citation: "For his distinguished leadership and dedication to quality undergraduate electrical engineering education, motivating students and publication of outstanding textbooks."

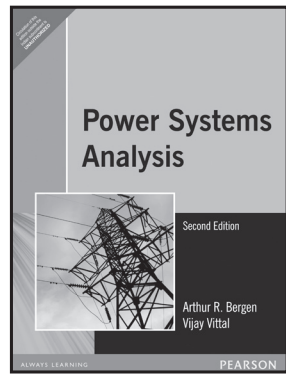## Also Available

Power Electronic Systems
Theory and Design
Jai P. Agrawal
PEARSON

ISBN: 9788177588859
Pages: 544

Principles of Power Electronics
John G. Kassakian
Martin F. Schlecht
George C. Verghese
PEARSON

ISBN: 9788131733202
Pages: 740

Power Systems Analysis, 2/e

About the Book

Keeping pace with the major changes in the structure and operation of the electric utility industry, this is the first text on over system analysis that explores the issues and shows how power system operation will be affected by the changes in the industry. It incorporates state-of-the-art, computer-based power system analysis and shows students how to apply each modern analysis tool in designing and improving an expansion of an existing power system.

Features

- Describes the new market environment of the electric utility industry.
- Emphasizes computer application and design and reflects current industry practice.
- A computer-based design problem dealing with the calculations of transmission line parameters is introduced. Students can use available software or develop software using MATLAB.
- A New chapter on network matrices, their construction and manipulation.
- Many additional worked-out examples and problems—Includes several problems which can be solved using MATLAB.
- Clearly stated objectives and explanation of material without sacrificing necessary rigor and understanding.

Contents

1. Background
2. Basic Principles
3. Transmission-Line Parameters
4. Transmission-Line Modeling
5. Transformer Modeling and the per Unit System
6. Generator Modeling I (Machine Viewpoint)
7. Generator Modeling II (Circuit Viewpoint)
8. Generator Voltage Control
9. Network Matrices
10. Power Flow Analysis
11. Automatic Generation Control and the
12. New Market Environment
13. Unbalanced System Operation
14. System Protection
15. Power System Stability

Arthur R. Bergen

Vijay Vittal

ISBN: 9788177588194
Copyright: 2000
Pages: 632

Power System Analysis
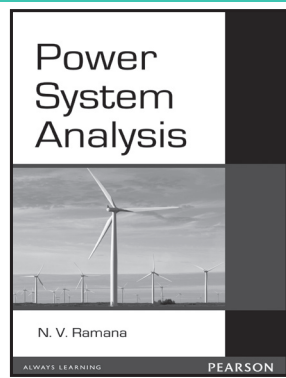
About the Book

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

Answer to selected Competitive Examination Questions
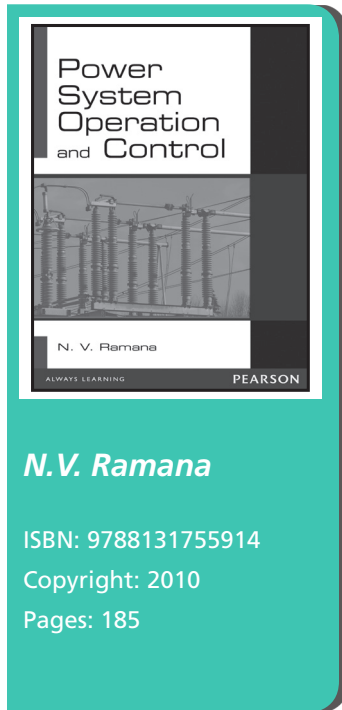
N.V. Ramana

ISBN: 9788131755921
Copyright: 2010
Pages: 456

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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.

Power System Operation and Control

About the Book

Power System Operation and Control 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 economic operation of power system and reactive power control.

Features

- In-depth coverage of single area and two-area load frequency control.
- Exclusive chapter modelling of turbine, generators and automatic controllers.
- Precise explanation supported by suitable examples.
- The book is replete with objective questions and review questions.

Contents

1. Economic Operation of Power System I
2. Economic Operation of Power System 2
3. Hydro Thermal scheduling
4. Modelling of Turbine, Generators and Automatic Controllers
5. Single area Load Frequency control
6. Two-Area Load Frequency control
7. Load frequency controllers
8. Reactive Power control

Answer to selected Competitive Examination Questions

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.

N.V. Ramana

ISBN: 9788131755914
Copyright: 2010
Pages: 185

Electric Power Transmission and Distribution

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

S. Sivanagaraju

S. Satyanarayana

ISBN: 9788131707913
Copyright: 2008
Pages: 632

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

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.

Generation and Utilization of Electrical Energy

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

About the Authors

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

M. Balasubba Reddy is Professor and Head, Department of Electrical Engineering, Prakasam Engineering College, Kandukur, Andhra Pradesh.

D. Srilatha is Associate Professor, Department of Electrical Engineering, Prakasam Engineering College, Kandukur, Andhra Pradesh.

Power System Operation and Control
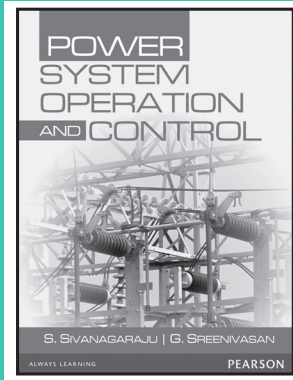
About the Book

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
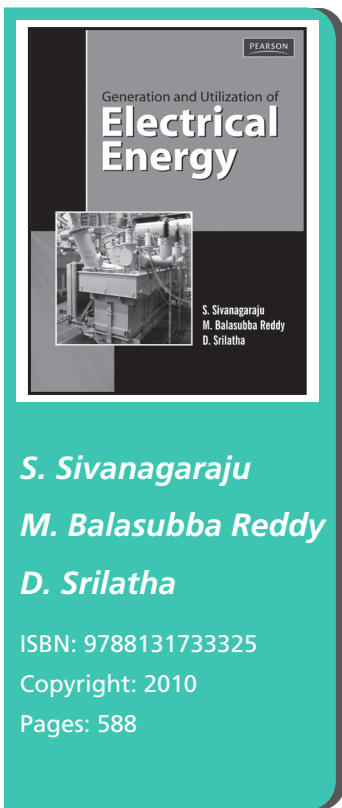
S. Sivanagaraju

M. Balasubba Reddy

D. Srilatha

ISBN: 9788131733325
Copyright: 2010
Pages: 588

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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.

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 is Associate Professor, Department of Electrical and Electronics Engineering, University College of Engineering, JNTU Kakinada, Kakinada, Andhra Pradesh.

G. Sreenivasan is Associate Professor, Department of Electrical and Electronics Engineering, INTELL Engineering College, Anantapur, Andhra Pradesh.

S. Sivanagaraju

G. Sreenivasan

ISBN: 9788131726624
Copyright: 2009
Pages: 612

Power System Analysis: A Dynamic Perspective

New

About the Book

The text is conceived as a textbook for the undergraduate course on Power system analysis. 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. The objective of the book is to introduce the concepts from fundamentals for the complex subjects such as synchronous machine modelling, power system stability analysis, and computational issues to help both the teachers and students.

Features

- Step-by-step methodology provided for solved examples.
- 150+ solved examples and 50+ case studies to be provided in the book.
- Elaborate coverage of power system dynamics.

Contents

1. Preface
2. Introduction
3. Power Systems Fundamentals- A review
4. Park Transformation
5. Synchronous Machine Modelling Using Primitive Parameters
6. Synchronous Machine Modelling Using
   Standard Parameters
7. Numerical Integration Methods-A review
8. Numerical Iterative Methods -A review
9. Fault Analysis of Power Systems
10. Subsynchronous Resonance in Power Systems

K N Shubhanga

ISBN: TBA
Copyright: 2017
Pages: 624

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11. SSR Analysis of the IEEE First Benchmark System
12. Generator Controllers
13. Power Systems Angle stability
14. Modal Analysis of Power Systems with Interconnected Generators
15. Transient Stability Analysis of Power Systems with Interconnected Generators
16. Dynamic Modelling of Some Electrical Machines and their Power-flow Analysis

Appendix

Index

About the Author

Dr. K. N. Shubhanga is Associate Professor, Department of Electrical Engineering, National Institute of Technology Karnataka (NITK), Srinivasnagar, Mangalore, Karnataka, India.

Power Transmission and Distribution

New

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

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

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
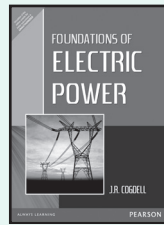27. Earthing & Neutral Grounding

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
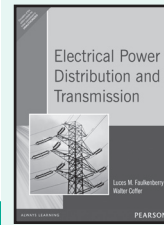31. Operation & Maintenance of T&D Systems
32. Interconnected Power Systems

About the Author

Arunkumar Shamrao Ingole; Retired as Vice President from SIEMENS Ltd

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Arunkumar Shamrao Ingole

ISBN: TBA

Copyright: 2017

Pages: 624

PEARSON

Also Available

FOUNDATIONS OF ELECTRIC POWER
J.R. COGDELL

ISBN: 9788131764039
Pages: 372

Electrical Power Distribution and Transmission
Lucas M. Faulkenberry
Walter Coffer

ISBN: 9788131707098
Pages: 582

SWITCHGEAR AND PROTECTION

Switchgear and Protection

New

About the Book

The text is conceived as a textbook for the undergraduate course on Switchgear and protection. 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
- 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 SWITGEAR 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 EQUIMENT & 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 Book

Arunkumar Shamrao Ingole Retired as Vice President from SIEMENS Ltd.

Pearson

Arun Ingole

ISBN: TBA

Copyright: 2017

Pages: 524
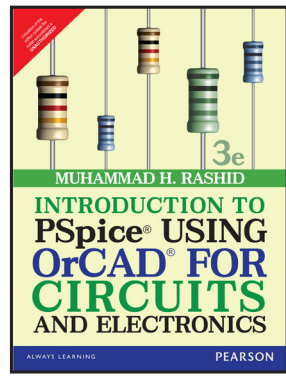
Introduction to PSpice Using OrCAD for Circuits and Electronics, 3/e

New

About the Book

For second and third year Electrical Engineering courses in Electronics, Circuit Analysis, and Circuit Simulation.

Implementing the industry-standard software, this book can be used as a textbook for teaching the simulation of electronics and electrical circuits through SPICE, PSpice A_D, Windows-based PSpice Schematics, or Orcad Capture. Covering topics in basic circuits and electronics, it could also be used as a supplement to books on basic circuits and/or electronics.

Features

- NEW - Included circuit files—for running in the PSpice A_D platform in addition to the Pspice Schematics and Orcad Capture platforms.
- Allows hands-on experience on computers and essential computer-aided design verification.
- NEW - PSpice Schematics and commands through examples.
- Reinforce theoretical knowledge while verifying design assignments.
- NEW - Orcad Capture and command examples.
- Demonstrate and develop theoretical background and analytical technique.
- NEW - Explanation of importing files—from PSpice Schematic (version 9.1 or earlier version) to Orcad Capture (version 9.2).
- NEW - Screen captures from the Windows menu.
- Illustrate the setups for analysis types and the output variables.
- NEW - Examples of bipolar and MOS differential amplifiers within active basing and load.
- NEW - An appendix on Drawing in PSpice Schematics .

- Explains how to install the software (version 9.1), draw a schematic file, and run the simulation.
- NEW - An appendix on Drawing in Orcad Capture .
- Shows students how to install the software (version 9.2), draw an Orcad file, and run the simulation.
- Well-written and easy to follow.
- Suited for self-study assignments and as a self-study guide.
- Summary of SPICE commands.
- Serves as review at the end of each chapter.
- CD included—contains pertinent software versions and related files.
- The book includes a CD that contains the following: Pspice Schematics version 9.1, Orcad Capture version 9.2, Pspice A<95>D circuit files (with an extension .CIR), Pspice Schematics files (with an extension .SCH), Orcad Capture files (with an extension .OPJ), An user-defined model library file, Rashid <95>PCE3<95>MODEL.LIB.
- Numerous examples and problems.
- Reinforces and reviews covered topics and material.
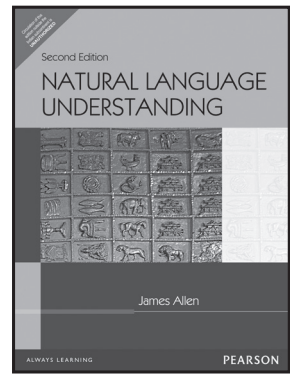
Contents

About the Author

Muhammad H. Rashid received the B.Sc. degree in electrical engineering from the Bangladesh University of Engineering and Technology and the M.Sc. and Ph.D. degrees from the University of Birmingham, UK.
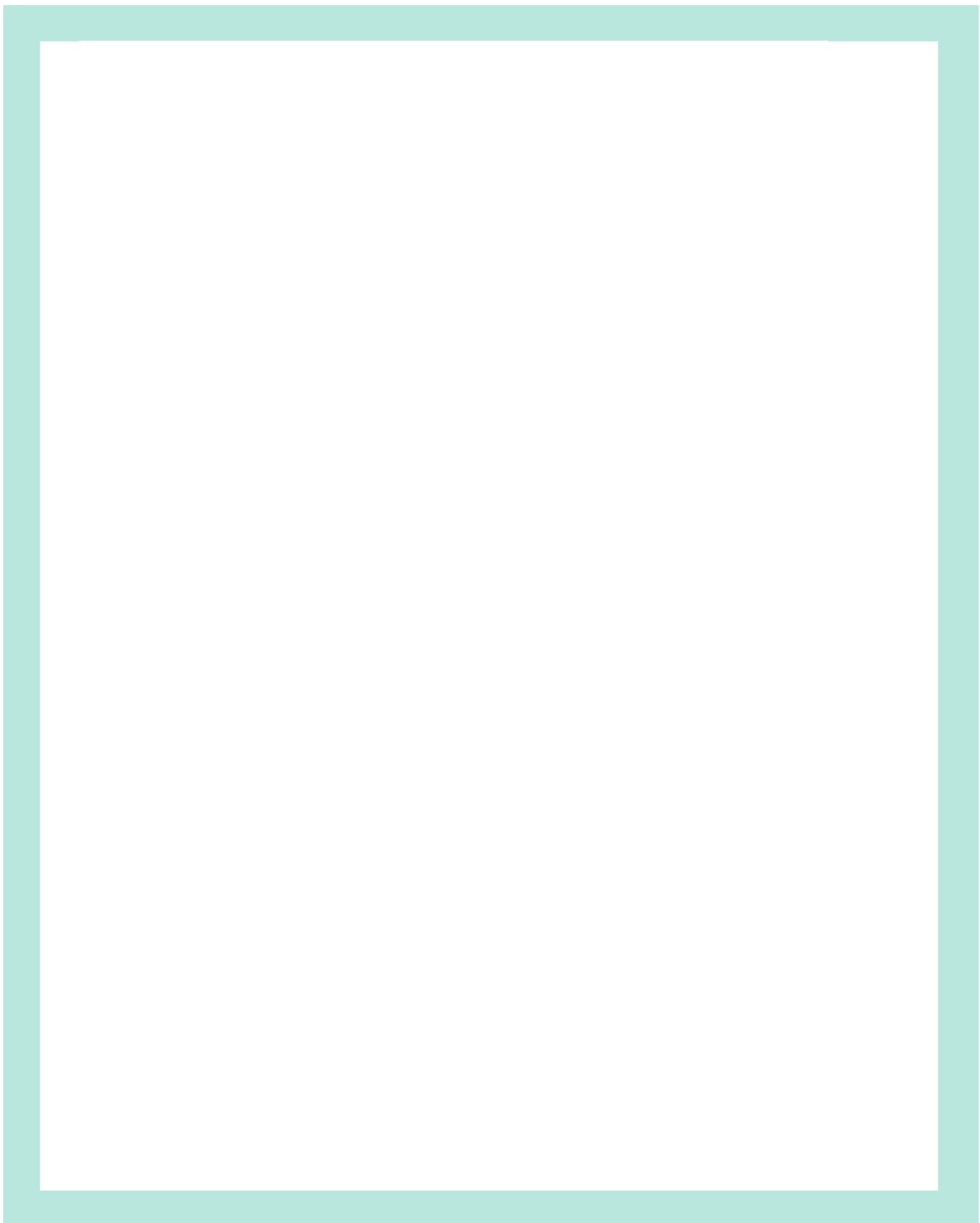
Muhammad H. Rashid

ISBN: 9789332555174
Copyright: 2016
Pages: 480

Electronics & Communication Engineering

Natural Language Understanding, 2/e

About the Book

Natural Language Understanding gives the same balanced coverage of syntax, semantics, and discourse, and offers a uniform framework based on feature-based context-free grammars and chart parsers used for syntactic and semantic processing. Thorough treatment of issues in discourse and context-dependent interpretation is also provided.

In addition, this title offers coverage of two entirely new subject areas. First, the text features a new chapter on statistically-based methods using large corpora. Second, it includes an appendix on speech recognition and spoken language understanding. Also, the information on semantics that was covered in the first edition has been largely expanded in this edition to include an emphasis on compositional interpretation.

Features

- A uniform framework based on feature-based context-free grammars and chart parsers that are used for syntactic and semantic processing.
- An enhanced discussion of basic algorithms within the single framework of chart parsing.
- An expanded discussion of unification-based approaches, scoping constructs, and semantically-driven parsing.

Contents

1. Introduction to Natural Language Understanding
2. Linguistic Background: An Outline of English Syntax
3. Grammars and Parsing
4. Features and Augmented Grammars
5. Grammars for Natural Language
6. Toward Efficient Parsing
7. Ambiguity Resolution: Statistical Methods
8. Semantics and Logical Form
9. Linking Syntax and Semantics
10. Ambiguity Resolution
11. Other Strategies for Semantic Interpretation
12. Scoping and the Interpretation of Noun Phrases
13. Knowledge Representation and Reasoning
14. Local Discourse Context and Reference
15. Using World Knowledge
16. Discourse Structure
17. Defining a Conversational Agent

About the Author

James Allen is the John H. Dessaurer Professor of Computer Science at the University of Rochester. He has taught natural language processing to undergraduate and graduate students for 14 years. He is a fellow of the AAAI and was the recipient of the Presidential Young Investigator Award (1985-1989). In addition, Professor Allen was the Editor-in- Chief of Computational Linguistics from 1983-1993.

James Allen

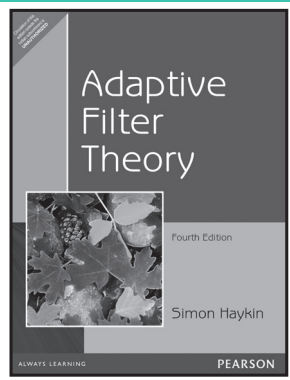ISBN: 9788131708958
Copyright: 1995
Pages: 676

Adaptive Filter Theory, 4/e

About the Book

The subject of adaptive filters constitutes an important part of statistical signal processing. The primary aim of this book is to develop the mathematical theory of various realizations of linear adaptive filters.

Features

- Improves the presentation of material on statistical LMS theory and statistical RLS theory.
- Expands the treatment of normalized LMS filters, and introduces the more general case of affine projection filters.
- Introduces sub-band adaptive filters.
- Repositions the teaching of Kalman filters after the treatment of RLS filters, thereby enhancing the unified treatment of square-root adaptive filters and order recursive adaptive filters.
- In-depth treatment of adaptive filters in a highly readable and understandable fashion.
- Major revision of the MATLAB codes for the computer experiments— Available on the web.

Simon Haykin

ISBN: 9788131708699
Copyright: 2006
Pages: 936

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«««

- Extensive use of MATLAB experiments—Illustrates the practical realities and intricacies of adaptive filters, the codes for which can be downloaded from the Web.

Contents

1. Stochastic Processes and Models
2. Wiener Filters
3. Linear Prediction
4. Method of Steepest Descent
5. Least-Mean-Square Adaptive Filters
6. Normalized Least-Mean-Square Adaptive Filters
7. Transform-Domain and Sub-Band Adaptive Filters
8. Method of Least Squares
9. Recursive Least-Square Adaptive Filters
10. Kalman Filters as the Unifying Bases for RLS Filters
11. Square-Root Adaptive Filters
12. Order-Recursive Adaptive Filters
13. Finite-Precision Effects
14. Tracking of Time-Varying Systems
15. Adaptive Filters Using Infinite-Duration Impulse Response Structures
16. Blind Deconvolution
17. Back-Propagation Learning

Speech and Language Processing

About the Book

This book offers a unified vision of speech and language processing, presenting state-of-the-art algorithms and techniques for both speech and text-based processing of natural language. This comprehensive work covers both statistical and symbolic approaches to language processing; it shows how they can be applied to important tasks such as speech recognition, spelling and grammar correction, information extraction, search engines, machine translation, and the creation of spoken-language dialog agents.

Features

- Each chapter is built around one or more worked examples demonstrating the main idea of the chapter.
- Integration of speech and text processing—Merges speech processing and natural language processing fields.
- Covers all of the new statistical approaches, while still completely covering the earlier more structured and rule-based methods.
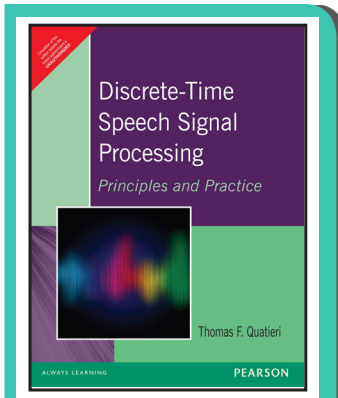
Contents

1. Introduction

I. WORDS

2. Regular Expressions and Automata
3. Morphology and Finite-State Transducers
4. Computational Phonology and Text-to-Speech
5. Probabilistic Models of Pronunciation and Spelling
6. N-grams
7. HMMs and Speech Recognition

II. SYNTAX

8. Word Classes and Part-of-Speech Tagging
9. Context-Free Grammars for English
10. Parsing with Context-Free Grammars
11. Features and Unification
12. Lexicalized and Probabilistsic Parsing
13. Language and Complexity

III. SEMANTICS

14. Representing Meaning
15. Semantic Analysis
16. Lexical Semantics
17. Word Sense Disambiguation and Information Retrieval

IV. PRAGMATICS

18. Discourse
19. Dialogue and Conversational Agents
20. Natural Language Generation
21. Machine Translation

Daniel Jurafsky

James H. Martin

ISBN: 9789332518414

Copyright: 2014

Pages: 940

About the Authors

Daniel Jurafsky received his Ph.D. in Computer Science from the University of California at Berkeley. His Research focusses on combining linguistic knowledge with probabilistic models of language and speech processing in humans and machines.

James H. Martin receives his Ph.D. in Computer Science from the University of California at Berkeley. His research interests include computational semantics, metaphor, machine learning, and information retrieval.

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Discrete-Time Speech Signal Processing: Principles and Practice
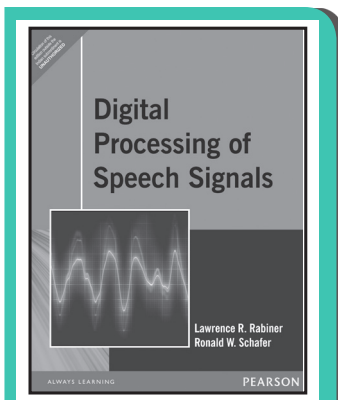
About the Book

This book provides an up-to-date, intensive introduction to the fundamental theory of discrete-time speech signal processing while presenting the state-of-the-art in speech processing research, its applications to speech modification and enhancement, speech coding, and speaker recognition, as well as areas for further advancement in the field.

Features

- Topics that are not included in current speech text booksâ€"Such as sinusoidal speech processing, advanced time-frequency analysis, and nonlinear, aeroa-coustic speech production modeling.
- Most up-to-date applications of speech processing technology.
- Clear distinction between stochastic and deterministic problems.
- Numerous examples and MATLAB exercisesâ€"Integrated into both the theoretical and application sections of the book.

Contents

1. Introduction
2. A Discrete-Time Signal Processing Framework
3. Production and Classification of Speech Sounds
4. Acoustics of Speech Production
5. Analysis and Synthesis of Pole-Zero Speech Models
6. Homomorphic Signal Processing
7. Short-Time Fourier Transform Analysis and Synthesis
8. Filter-Bank Analysis/Synthesis
9. Sinusoidal Analysis/Synthesis
10. Frequency-Domain Pitch Estimation
11. Nonlinear Measurement and Modeling Techniques
12. Speech Coding
13. Speech Enhancement
14. Speaker Recognition

Thomas F. Quatieri

ISBN: 9788177587463
Copyright: 2002
Pages: 802

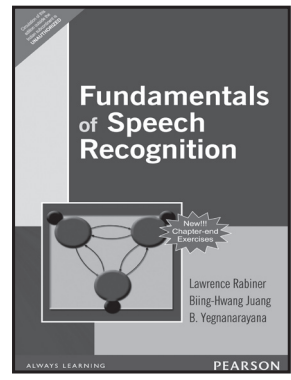# Digital Processing of Speech Signals

About the Book

The purpose of this text is to show how digital signal processing techniques can be applied to problems related to speech communication. The book gives an extensive description of the physical basis for speech coding including fourier analysis, digital representation and digital and time domain models of the wave form. It goes on to discuss homomorphic speech processing, linear predictive coding and digital processing for machine communication by voice.

Features

- This book is organized around several basic approaches to digital representations of speech signals with discussions of specific parameter estimation techniques and applications serving as examples of the utility of each representation.
- Each chapter contains a set of representative homework problems which are intended to reinforce the ideas discussed in each chapter.

Contents

1. Introduction
2. Fundamentals of Digital Speech Processing
3. Digital Models for the Speech Signal
4. Time-Domain Models for Speech Processing
5. Digital Representation of the Speech Waveform
6. Short-Time Fourier Analysis.
7. Homomorphic Speech Processing.
8. Linear Predictive Coding of Speech.
9. Digital Speech Processing for Man-Machine Communication by Voice.

Lawrence R. Rabiner

Ronald W. Schafer

ISBN: 9788131705131
Copyright: 1979
Pages: 528

Fundamentals of Speech Recognition

About the Book

Provides a complete description of the basic knowledge and ideas that constitute a modern system for speech recognition by machine.

Features

- Discusses the breadth and depth of the various disciplines that are required for a deep understanding of all aspects of speech recognition.
- Explores the relatives advantages and disadvantages of the various approaches to speech recognition, and shows why the pattern recognition approach has become the method of choice for most modern systems.
- Outlines the fundamental techniques used to provide speech features used in all recognition systems.
- Extends the speech recognition problem from single-word sequences to fluent speech.
- Includes end of chapter excercises.

Contents

1. An Introduction To Engineering Problem Solving
2. Matlab Environment
3. Predefined Matlab Functions
4. Plotting
5. Programming In Matlab
6. Matrix Computations
7. Symbolic Mathematics
8. Numerical TechniquesAdaptive

Lawrence Rabiner

ISBN: 9788177585605

Copyright: 2008

Pages: 496

Adaptive Signal Processing

About the Book

These are a few examples of the chapter titles in this new book by Bernard Widrow and Samuel D. Stearns. The authors designed the book as a basic text on adaptive signal processing covering a wide range of subject matter.

A background in engineering and mathematics plus an ability to write and run computer programs is assumed.

Features

- Introduces the concept of adaptation as a property or characteristic of certain engineering systems.
- Describes a geometric "performance surface" for the analysis of all adaptive systems.
- Covers the major applications of adaptive signal processing.

Contents

Part I: General Introduction
1. Adaptive Systems
2. The Adaptive Linear Combiner

Part-II: Theory Of Adaptation with Stationary Signals
3. Properties of the Quadratic Performance Surface
4. Searching The Performance Surface
5. Gradient Estimation and Its Effects on Adaptation

Part-III: Adaptive Algorithms and Structures
6. The LMS Algorithm

7. The z-Transform in Adaptive Signal Processing
8. Other Adaptive Algorithms and Structures

Part-IV: Applications
9. Adaptive Modeling and System Identification
10. Inverse Adaptive Modeling, Deconvolution, and Equalization
11. Adaptive Interference Canceling
12. Introduction to Adaptive Arrays and Adaptive Beamforming
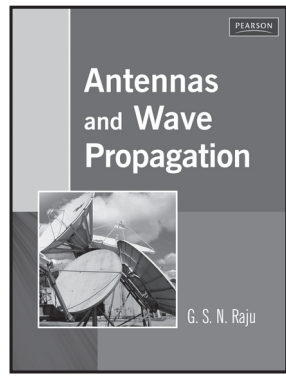13. Analysis of Adaptive Beamformers
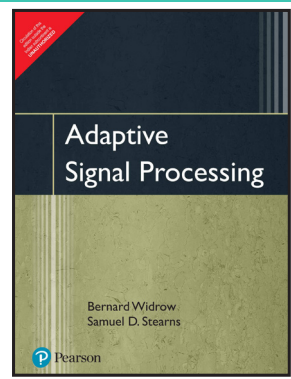
Bernard Widrow

Samuel D. Stearns

ISBN: 9788131705322

Copyright: 1985

Pages: 496

Antennas and Wave Propagation

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. Maxewell's Equations and Electromagnetic waves
4. Radiaton and Antennas
5. Analysis of Leniar Arrays
6. Array Synthesis
7. HF, VHF and UHF Antennas
8. Microwave Antennas
9. Antenna Measurements
10. Wave Propagation
11. MCQ

G. S. N. Raju
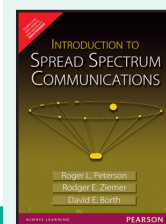
ISBN: 9788131701843

Copyright: 2004

Pages: 512

Also Available
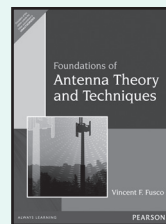
ISBN: 9788131711255
Pages: 246

ADVANCED COMMUNICATION SYSTEMS
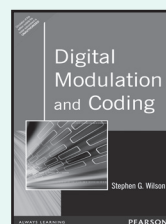
ISBN: 9788131721438
Pages: 694

ISBN: 9789332500228
Pages: 700
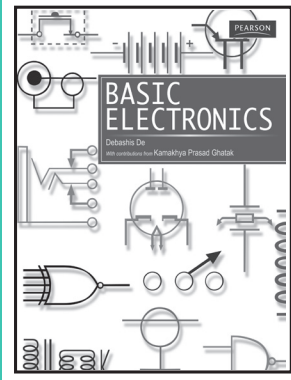
Basic Electronics

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

Debashis De

Kamakhya Prasad Ghatak

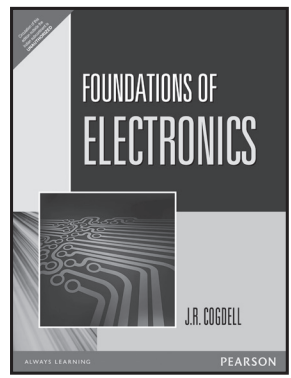ISBN: 9788131710685

Copyright: 2010

Foundations of Electronics

About the Book

Provides detailed, clear explanations of the fundamentals of electrical and electronics engineering, keeping readers focused on the basics. Maintains a strong emphasis on vocabulary throughout, encouraging further thought and communication based on chapter discussions. Used with Foundations of Electric Circuits, this book is ideal for a one-semester course in circuits and electronics for physics, engineering, or computer science students. The first chapter reviews circuit analysis techniques as related to the analysis of electronic circuits, and the remainder of the book covers electronic devices, digital circuits, analog circuits, instrumentation systems, communication systems, and linear system theory based on complex frequency techniques.

Features

- Emphasis is placed on clear definitions of concepts and vocabulary.
- Problems are offered at three levels: "What if" problems extending examples in the text, with answers; "Check our understanding" problems after each major section, with answers, and extensive end-of-chapter problems
- identified with chapter sections, with answers for odd problems.
- Full pedagogical tools: chapter objectives, marginal aids, chapter summaries, chapter glossaries tied to context, and a complete index.

J R Cogdell

ISBN: 9788131764046

Copyright: 2011

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Contents

1. Electric Circuit Theory
2. Semiconductor Devices and Circuits
3. Digital Electronics
4. Analog Electronics
5. Instrumentation Systems
6. Communication Systems
7. Linear SystemsElectronics

Electronics: A Systems Approach, 4/e

About the Book

The fourth edition of Electronics: A Systems Approach is an outstanding introduction to this fast-moving, important field. Fully updated, it covers the latest changes and developments in the world of electronics. It continues to use Neil Storey's well-respected systems approach, firstly explaining the overall concepts to build students' confidence and understanding, before looking at the more detailed analysis that follows. This allows the student to contextualize what the system is designed to achieve, before tackling the intricacies of the individual components. The book also offers an integrated treatment of analogue and digital electronics, highlighting and exploring the common ground between the two fields. This fourth edition represents a significant update and a major expansion of previous material, and now provides a comprehensive introduction to basic electrical engineering circuits and components in addition to a detailed treatment of electronic systems. This extended coverage permits the book to be used as a stand-alone text for introductory courses in both Electronics and Electrical Engineering.

Features

- A range of new chapters covering the basics of Electrical Circuits and Components.
- An introduction to Resistive, Capacitive and Inductive elements, Alternating Voltages and Currents, and AC Power.
- New chapters on the Frequency Characteristics of AC circuits and on Transient Behaviour.
- A new consolidated treatment of Noise and Electromagnetic Compatibility (EMC).
- A new chapter on the Internal Circuitry of Operational Amplifiers.

Contents

**Part I: Electrical Circuits And Components**

1. Basic Electrical circuits and components
2. Measurement of Voltages and Currents
3. Resistance and DC Circuits
4. Capacitance and Electric Fields
5. Inductance and Magnetic Fields
6. Alternating Voltages and Currents
7. Power in AC Circuits
8. Frequency Characteristics of AC Circuits
9. Transient Behaviour

Part II: Electronic Systems

10. Electronic Systems
11. Sensors
12. Actuators
13. Amplification
14. Control and Feedback
15. Operational Amplifiers
16. Semiconductors and Diodes
17. Filed-effect Transistors
18. Bipolar Junction Transistors
19. Power Electronics
20. Internal Circuitry of Operational Amplifiers
21. Noise and EMC
22. Positive Feedback, Oscillators and Stability
23. Digital Systems
24. Sequential Logic
25. Digital Devices
26. Implementing Digital Designs
27. Data Acquisition and Conversion
28. System Design

About the Author

Dr. Neil Storey is a member of the School of Engineering at the University of Warwick, where he has many years of experience in teaching electronics to undergraduate, post-graduate and professional engineers. He is also the author of Electrical and Electronic Systems and Safety-Critical Computer Systems, both published by Pearson Education.
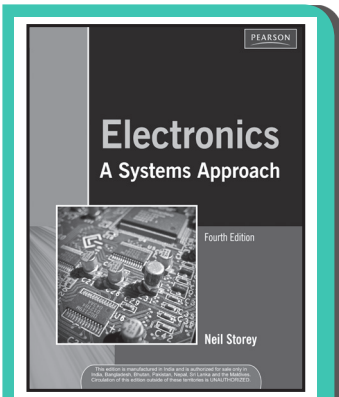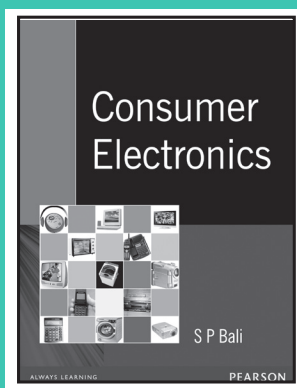
Neil Storey

ISBN: 9788131734124

Copyright: 2009

Consumer Electronics

About the Book

Consumer Electronics,the first book of its kind, comprehensively covers the theory, applications and maintenance of various audio/video systems, telecommunication systems and electronic home/office appliances. The book completely covers the syllabus of the Consumer Electronics paper offered to diploma as well as undergraduate courses in electronics engineering. The book can also be used by service engineers/technicians dealing with troubleshooting and maintenance of electronic gadgets.

Features

- Emphasis on basic principles, concepts and practical aspects.
- Topics include in-car computers, washing machines, microwave ovens, refrigerators, mobile phones, inverters and converters, set top boxes, automated teller machines and so on.
- Block diagrams, circuit diagrams, Illustrations and photographs.
- Solved problems, descriptive questions, multiple-choice questions and fill-in-the blanks.
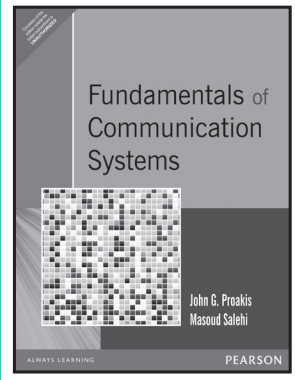
S.P. Bali

ISBN: 9788131717592

Copyright: 2005

Pages: 752

Contents

I. Audio and Video Systems
1. Wave Motion
2. Microphones
3. Headphones and Headsets
4. Loudspeakers
5. Speaker Baffles and Enclosures
6. Acoustics
7. Loudspeakers Systems
8. Disc Recording and Reproduction
9. Distortion in Disc Equipment
10. Magnetic Recording and Reproduction
11. Distortion in Tape Equipment
12. Noise Reduction
13. Recording Level Indicators
14. Optical Recording and Reproduction
15. Mono, Stereo and Quad
16. Recorder/Amplifier Circuits
17. Amplifying Systems
18. Control Circuits
19. Low Level Amplifiers
20. Integrated Amplifiers
21. Power Supplies
22. Stereo Multiplexing
23. Equalisers and Mixers
24. Portable Stereo
25. Electronic Music Synthesisers
26. Commercial Sound
27. Theatre Sound System
28. AM/FM Tuners
29. Audio Systems
30. Monochrome TV Standards and Systems
31. Colour TV Standards and Systems
32. Monochrome and Colour Television Controls
33. Video Tape Recording and Reproduction
34. Video Disc Recording and Playback
35. Remote Controls
36. Video Systems

II. Electronic Gadgets and Home Appliances
37. Telecommunication Systems
38. Switching Systems
39. Modulation Techniques
40. Carrier Systems
41. Fibre Optics
42. Data Services
43. Mobile Systems
44. Facsimile fax
45. Xerography
46. Calculator
47. Digital Clocks
48. Microprocessors, Microcomputers and Microcontrollers
49. In-Car Computers
50. Microwave Ovens
51. Washing Machines
52. Air Conditioners and Refrigerators

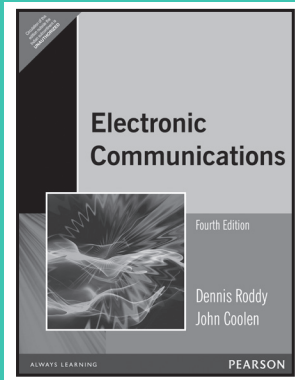# Fundamentals of Communication Systems

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

John G. Proakis

Masoud Salehi

ISBN: 9788131705735

Copyright: 2007

Pages: 876

Electronic Communications, 4/e

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 coveragethat 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

Dennis Roddy

John Coolen

ISBN: 9788177585582

Copyright: 2008

Pages: 736

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«««

14. Wave guides
15. Radio wave Propagation
16. Antennas
17. Telephone Systems
18. Facsimile and Television
19. Satellite Communications
20. Fiber Optic Communications

Electronic Communications Systems: Fundamentals Through Advanced, 5/e
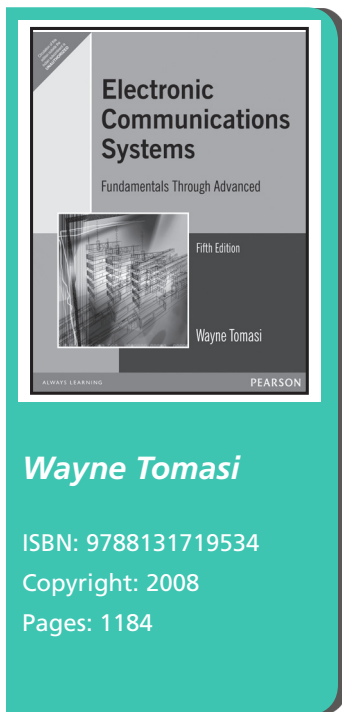
Wayne Tomasi
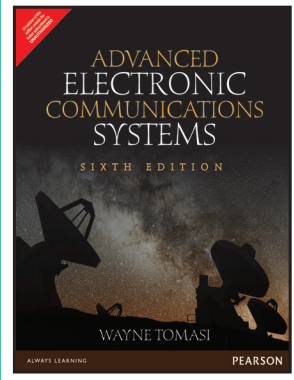
ISBN: 9788131719534
Copyright: 2008
Pages: 1184

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 Networking
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

Advanced Electronic Communications Systems, 6/e

New

About the Book

Comprehensive in scope and contemporary in coverage, this text explores modern digital and data communications systems, microwave radio communications systems, satellite communications systems, and optical fiber communications systems. This text is the last 10 chapters from the Tomasi Electronic Communications Systems: Fundamental Through Advanced, 5/e.
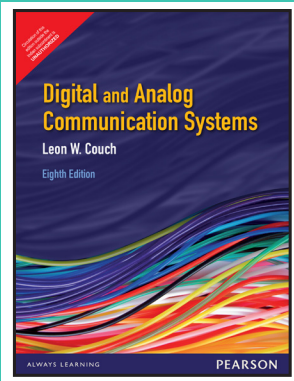
Features

- NEW - Chapter 10—Dedicated entirely to cellular and PCS telephone systems.
- NEW - Optical fiber communications has been moved from Chapter 10 to Chapter 1—Includes new sections on light sources, optical power, optical sources and link budget.
- NEW - Material—Includes 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.
- Numerous examples throughout.
- Chapter-end questions and problems— Includes selected answers.

Contents

1. Optical Fiber Transmission Media
2. Digital Modulation
3. Introduction to Data Communications and Networking
4. Fundamental Concepts of Data Communications
5. Data–Link Protocols and Data Communications Networks
6. Digital Transmission
7. Digital T-Carriers and Multiplexing
8. Telephone Instruments and Signals
9. The Telephone Circuit
10. The Public Telephone Network
11. Cellular Telephone Concepts
12. Cellular Telephone Systems
13. Microwave Radio Communications and System Gain
14. Satellite Communications

About the Author

Wayne Tomasi, DeVry Institute of Technology - Phoenix.

Wayne Tomasi

ISBN: 9789332549685
Copyright: 2015
Pages: 672

Digital and Analog Communication Systems

About the Book

This revision of Couch's authoritative text provides the latest treatment of digital communication systems. The author balances coverage of both digital and analog communication systems, with an emphasis on design. Students will gain a working knowledge of both classical mathematical and personal computer methods to analyze, design, and simulate modern communication systems. MATLAB is integrated throughout.

Features

- MATLAB illustrative examples and plots and practice in files.
- Minimum-level mathematics used throughout.
- Communication system building blocks - Describes down converters, phase-locked loops and other essential blocks used in receivers and transmitters.
- Noise performance analysis of communication systems.
- Case studies of modern communication systems.
- Discussion of communication system standards.
- Over 500 problems with selected answers.
- Study-aid examples and homework problems, many of which are computer-based and marked with a personal computer icon.
- Extensive pedagogy - Includes chapter objectives, summaries, lists of key terms, and a glossary with extensive references.

Leon W. Couch

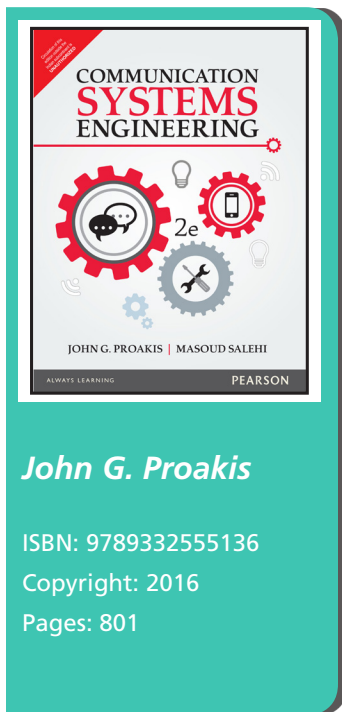ISBN: 9789332518582
Copyright: 2014
Pages: 676

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Contents

1. Introduction
2. Signals And Spectra
3. Baseband Pulse And Digital Signaling
4. Bandpass Signaling Principles And Circuits
5. AM, FM, And Digital Modulated Systems
6. Random Processes And Spectral Analysis

7. Performance Of Communication Systems Corrupted By Noise
Appendix A Mathematical Techniques, Identities, And Tables
Appendix B Probability And Random Variables
Appendix C Using MATLAB

About the Author

Leon W. Couch graduated from Duke University in1963 with a BSEE degree. He earned his masters and Ph.D. degrees in electrical engineering from the University of Florida in 1964 and 1967, respectively. He spent his 36 year career in the Electrical and Computer Engineering Department of the University of Florida (Gainesville, FL). In 1968 he was appointed Assistant Professor and he rose through the ranks to become Professor in 1984. From 1990 to 2004 he was the Associate Chair of the ECE Department at UF. Since 2004 he has been retired as Professor Emeritus.

Communication Systems Engineering, 2/e

New

John G. Proakis

ISBN: 9789332555136

Copyright: 2016

Pages: 801

About the Book

For a one/two-semester senior or first-year graduate level course in analog and digital communications.

With an emphasis on digital communications, Communication Systems Engineering, Second Edition introduces the basic principles underlying the analysis and design of communication systems. In addition, this text gives a solid introduction to analog communications and a review of important mathematical foundation topics.

Features

- NEW - New material has been added on wireless communication systems—GSM and CDMA/IS-94; turbo codes and iterative decoding; multicarrier (OFDM) systems; multiple antenna systems.
- Provides students with timely and current information.
- Thorough coverage of basic digital communication system principles— Including source coding, channel coding, baseband and carrier modulation, channel distortion, channel equalization, synchronization, and wireless communications.
- Ensures that students are exposed to all basic relevant topics in digital communication system design.
- Basic coverage of analog modulation and demodulation methods.
- Exposes students to analog modulation methods such as amplitude modulation,

phase modulation, and frequency modulation.
- Use of CD player and JPEG image coding standard as examples of systems that employ modern communication principles.
- Allows students to relate the theory to practical systems.
- Over 180 worked-out examples throughout the text.
- Helps students understand basic concepts.
- Over 480 problems—Involving applications to practical systems such as satellite communications systems, ionospheric channels, and mobile radio channels.
- Gives students ample opportunity to practice the concepts they have just learned. Gives instructors a wide variety of options when assigning homework.

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Contents

1. Introduction
2. Frequency Domain Analysis of Signals and Systems
3. Analog Signal Transmission and Reception
4. Random Processes
5. Effect of Noise on Analog Communication Systems
6. Information Sources and Source Coding
7. Digital Transmission through the Additive White Gaussian Noise Channel
8. Digital Transmission through Bandlimited AWGN Channels
9. Channel Capacity and Coding
10. Wireless Communications

Digital Communications: Fundamentals and Applications, 2/e

About the Book

Digital Communications: Fundamentals and Applications, Second Edition is a thoroughly revised and updated edition of the field's classic, best-selling introduction to the subject. With remarkable clarity, the authors introduce this important discipline, which forms the nucleus of today's wireless and Internet revolutions. The authors provide a unified structure and context for understanding digital communications - all without sacrificing mathematical precision.

Contents

1. Signals and Spectra
2. Formatting and Baseband Modulation
3. Baseband Demodulation/Detection
4. Bandpass Modulation and Demodulation
5. Communications Link Analysis
6. Channel Coding: Part 1
7. Channel Coding: Part 2
8. Channel Coding: Part 3
9. Modulation and Coding Trade-Offs
10. Synchronization
11. Multiplexing and Multiple Access
12. Spread-Spectrum Techniques
13. Source Coding
14. Encryption and Decryption
15. Fading Channels
16. Optimum Detection and Estimation

Bernard Sklar

Pabitra Kumar Ray

ISBN: 9788131720929

Copyright: 2009

Pages: 1164

About the Author

Bernard Sklar has more than 40 years of experience in technical design and management positions at Republic Aviation Corporation, Hughes Aircraft, Litton Industries, and The Aerospace Corporation. At Aerospace, he helped develop the MILSTAR satellite system and was the principal architect for EHF Satellite Data Link Standards. Currently, he is head of advanced systems at Communications Engineering Services, a consulting company he founded in 1984.
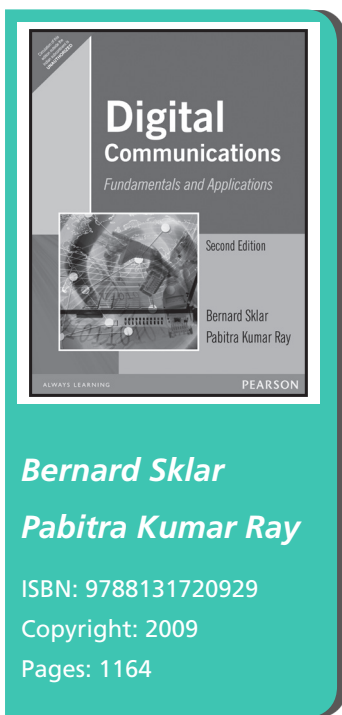
Information Theory, Coding and Cryptography

About the Book

Information Theory, Coding and Cryptography has been designed as a comprehensive text for students of engineering. This book discusses source encoding, error control codes and cryptography. The book also contains the recent developments in coded modulation, trellises for codes, turbo coding for reliable data and interleaving. The text balances the mathematical aspect of the subject with an exhaustive range of solved and unsolved questions, along with a database of MCQs

Features

- Detailed coverage on important topics such as source coding, convolution codes, BCH codes, linear block codes, cryptography and information theory.
- Special emphasis on probability, random processes, sets, groups, fields, etc.
- Coverage on fundamentals of source coding and error control codes for a seamless understanding of topics.
- Excellent coverage of convolution codes, turbo codes and trellis coded modulation.
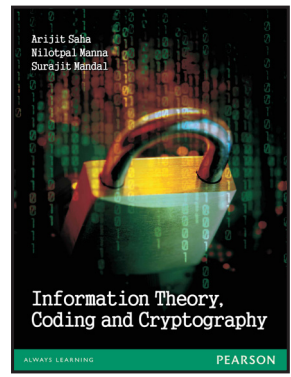
- Covers important topics such as MPEG audio layers, DOLBY, video compression, etc.
- Examples and exercises integrated with the chapters for a deep understanding of the concepts.

- Excellent pedagogy:
  - 80+ figures and illustrations
  - 110+ solved questions
  - 130+ unsolved questions
  - 100+ MCQs

Contents

Part A: Information Theory and Source Coding
1. Probability, Random Processes and Noise
2. Information Theory
3. Source Codes

Part B: Error Control Codes
4. Coding Theory

5. Linear Block Codes
6. Cyclic Codes
7. BCH Codes
8. Convolution Codes

Part C: Cryptography
9. Cryptography and Cryptosystems

About the Authors

Arijit Saha is an Assistant Professor, Electronics and Communication Engineering Department, B P Poddar Institute of Management & Technology.

Nilot Pal Manna is an Assistant Professor in Electronics and Instrumentation Engineering Department, JIS College of Engineering.

Surajit Mandal is an Assistant Professor, Electronics and Communication Department, B P Poddar Institute of Management & Technology.

Arijit Saha, Nilot Pal Manna, Surajit Mandal

ISBN: 9788131797495
Copyright: 2013
Pages: 280

Also Available

ISBN: 9788131726785
Pages: 248

ISBN: 9788131717141
Pages: 1046

ISBN: 9788131731871
Pages: 248

Advanced Digital Design with the Verilog HDL, 2/e

New

Michael D. Ciletti

ISBN: 9789332584464

Copyright: 2017

ISBN: 992

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 selective 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.

Digital Fundamentals, 10/e

Thomas L. Floyd

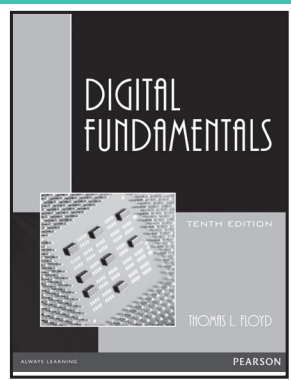ISBN: 9788131734483

Copyright: 2011

Pages: 944

About the Book

For courses in digital circuits, digital systems (including design and analysis), digital fundamentals, digital logic, and introduction to computers

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.

Features

- Teaching and Learning Experience:
- Provides a strong foundation in the core fundamentals of digital technology.
- Covers basic concepts reinforced by plentiful illustrations, examples, exercises, and applications.

Provides a strong foundation in the core fundamentals of digital technology:
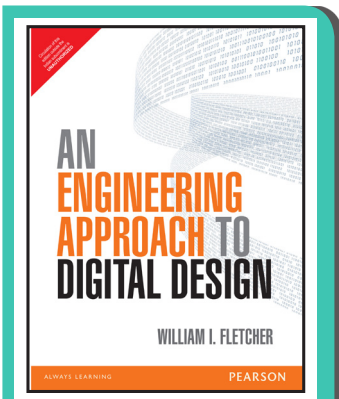
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- Boolean simplification coverage now includes the Quine-McClusky method, and the Expresso method is introduced.
- The chapter on programmable logic has been modified and improved.
- A discussion of memory hierarchy has been added.

- A new chapter on data transmission has been added and includes extensive coverage of standard busses.
- The chapter on computers has been completely revised and is now entitled Data Processing.

Contents

1. Digital Concepts.
2. Number Systems, Operations, and Codes.
3. Logic Gates.
4. Boolean Algebra and Logic Simplification.
5. Combinational Logic Analysis.
6. Functions of Combinational Logic.
7. Latches, Flip-Flops, and Timers.

8. Shift Registers.
9. Counters.
10. Programmable Logic.
11. Data Storage
12. Signal Conversion and Processing.
13. Data Transmission.
14. Data Processing.
15. Integrated Circuit Technologies.

About the Author

Thomas Floyd received his BS degree in electrical engineering from the University of Florida in 1964 and began his industrial experience at Texas Instruments Inc. in Dallas, Texas the same year.He also did consulting work for Martin-Marietta during this time. While at VCC, Mr. Floyd wrote his first textbook, Digital Fundamentals, which was published in 1977 and is now in its eleventh edition.

An Engineering Approach to Digital Design

About the Book

Providing an engineering-based approach to digital design, this book develops general design methodology (stressing documentation) that is useful for a wide range of diverse applications. The text builds up conceptual understanding through a survey of selected theories and examples. Besides, it also considers the 'how-to' of practical time- efficient design methods (for well-documented reliable and debug-gable hardware) for simple combinational systems, traditional sequential machines, high speed system controllers and programmable finite state machines.

W. Fletcher

ISBN: 9789332555228

Copyright: 2015

Pages: 768

Contents

1. Preface
2. Introductory Digital Design Concepts
3. Digital Design Fundamental
4. Minimization and Design of Combinational Circuits
5. MSI and LSI Circuits and their Applications
6. Sequential Machine Fundamentals
7. Traditional Approaches to Sequential Analysis and Design
8. Introduction to Multi-input System Controller Design

9. System Controllers Utilizing Combinational MSI/LSI Circuits
10. Introduction to Programmable System Controllers
11. Asynchronous Finite State Machines
Appendix A: Drafting and Documentation Standards Manual
Appendix B: Boozer Program
Index

High Speed Digital Design: A Handbook of Black Magic
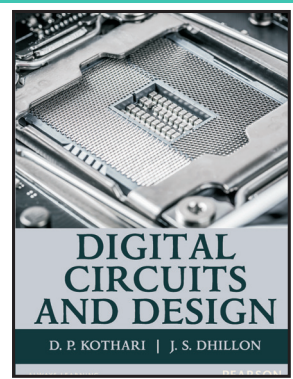
About the Book

Focusing on a combination of digital and analog circuit theory, this comprehensive volume will help engineers who work with digital systems, shorten their product development cycles, and fix their latest high-speed design problems.

Features

- Covers signal reflection, crosstalk, and noise problems that occur in high-speed digtal machines (above 10 megahertz).
- lncludes checklists that ask the questions an experienced designer would about a new system.
- Offers useful formulas for inductance, capacitance, resistance, rise time, and Q.
- Explains the trade-offs between signal cross talk, mechanical fabrication of tolerances, and trace routing density.
- Presents a methodology for determining how many layrs will be required to route a printed circuit board.

Contents

1. Fundamentals
2. High-Speed Properties of Logic Gates
3. Measurement Techniques
4. Transmission Lines
5. Ground Planes and Layer Stacking
6. Terminations
7. Vias
8. Power Systems
9. Connectors
10. Ribbon Cables
11. Clock Distribution
12. Clock Oscillators

Howard Johnson

Martin Graham

ISBN: 9788131714126

Copyright: 1993

Pages: 464

Digital Circuits and Design

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.
- Excellent pedagogy.
  - 300+ Solved Questions
  - 600+ Unsolved Questions
  - 250+ MCQs
- 35+ VHDL Programs.

Contents

1. Introduction
2. Number Systems
3. Digital Logic
4. Combinational logic design
5. Logic circuit design: arithmetic operation
6. Logic circuit design: data processing
7. Flip – Flops
8. Design of sequential circuits
9. Registers
10. Counters
11. Memory
12. Analog-to-digital conversion
13. Logic description using VHDL
14. Digital logic families
15. Clocks timing circuits

D.P. Kothari

J.S. Dhillon

ISBN: 9789332543539

Copyright: 2015

Pages: 1080

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About the Authors

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.

J.S. Dhillon, Professor, Department of Electrical and Instrumentation Engineering Sant Longowal Institute of Engineering and Technology, Punjab.
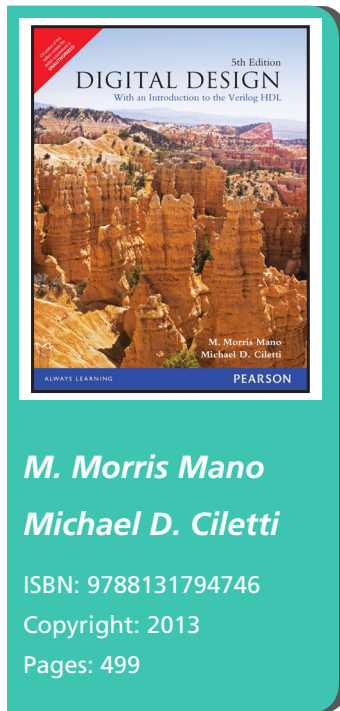
M. Morris Mano

Michael D. Ciletti

ISBN: 9788131794746

Copyright: 2013

Pages: 499

Digital Design : With an Introduction to Verilog HDL, 5/e

About the Book

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

Features

- This edition of Digital Design builds on the previous four editions, and the feedback of the team of reviewers who helped set a direction for the presentation.
- The focus of the text has been sharpened to more closely reflect the content of a foundation course in digital design and the mainstream technology of today's digital systems: CMOS circuits. The intended audience is broad, embracing students of electronics and communication engineering, and electrical engineering.
- The key elements that the book focuses include (1) Boolean logic, (2) logic gates used by designers, (3) synchronous finite state machines, and (4) datapath controller design—all from a perspective of designing digital systems.
- The widespread availability of web-based ancillary material prompted a limitation of the discussion of field programmable gate arrays (FPGAs) to an introduction of

devices offered by only one manufacturer, rather than two.
- Today's designers rely heavily on hardware description languages (HDLs), and this edition of the book gives greater attention to their use and presents a clear development of a design methodology using the Verilog HDL.
- Digital Design supports a multimodal approach to learning, following the VARK characterization of learning modalities identifying the four major modes by which humans learn: (V) visual, (A) aural, (R) reading, and (K) kinesthetic.
- The sequence of topics in the text can accommodate 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

- This edition of Digital Design uses the latest features of IEEE Standard 1364, but only insofar as they support the authors' pedagogical objectives.
- 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 end of the chapters.
- Streamlining of the discussion of Karnaugh-maps.
- Integration of treatment of basic CMOS technology with treatment of logic gates.
- 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

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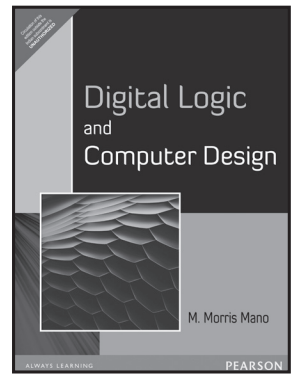
9. Asynchronous Sequential Logic
10. Digital Integrated Circuits
11. Laboratory Experiments with Standard

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.

Digital Logic and Computer Design

New

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).

Features

- Covers all aspects of digital systems from electronic gate circuits to the complex structure of microprocessor systems.
- Presents the classical techniques for the logic design of combination and sequential circuits.
- 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

Logic and Computer Design Fundamentals, 4/e

About the Book

Featuring a strong emphasis on the fundamentals underlying contemporary logic design using hardware description languages, synthesis, and verification, this book focuses on the ever-evolving applications of basic computer design concepts with strong connections to real-world technology.

Features

- Balance of Hardware Description Language coverage - VHDL, Verilog, or none.
- Strong connections to real-word technology-Discusses SRAM, DRAM, and synchronous DRAM technologies.
- Provides solid digital system design fundamentals while accomplishing a gradual, bottom-up development of fundamentals.

Contents

1. Digital Systems and Information
2. Combinational Logic Circuits
3. Combinational Logic Design
4. Arithmetic Functions and HDLs
5. Sequential Circuits
6. Selected Design Topics
7. Registers and Register Transfers
8. Memory Basics

M. Morris Mano

ISBN: 9789332542525
Copyright: 2016
Pages: 560
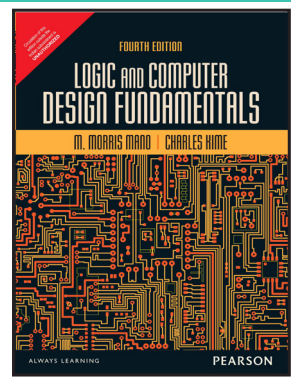
M. Morris Mano

ISBN: 9789332518728
Copyright: 2014
Pages: 700

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9.   Computer Design Basics
10.   Instruction Set Architecture
11.   Memory Systems

12.   Input-Output and Communication
13.   RISC and CISC Processors

About the Author

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

Digital Integrated Circuits, 2/e

New

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 realmâ€"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 introducedâ€"Reflects the changes in design approaches over the last decade.
- A chapter on manufacturing technology has been introducedâ€"Design methodologies are introduced throughout the text in synchronicity with the circuit content.
- Design methodology insertsâ€"Discuss design automation.

Contents

Part 1 The Fabrics
1.   Introduction
2.   The Manufacturing Process
      Design Methodology Insert AIC
      LAYOUT
3.   The Devices Design Methodology
      Insert B Circuit Simulation
4.   The Wire
Part 2 A Circuit Perspective
5.   The CMOS Inverter
6.   Designing Combinational Logic Gates
      in CMOS
      Design Methodology Insert C How to
      Simulate Complex
      Logic Circuits
      Design Methodology Insert D Layout
      Techniques for Complex Gates

7.   Designing Sequential Logic Circuits
Part 3 A System Perspective
8.   Implementation Strategies for Digital IC
      Design Methodology Insert E
      Characterizing Logic and Sequential Cells
      Design Methodology Insert F Design
      Synthesis
9.   Coping with Interconnect
10.   Chapter 10 Timing Issues in Digital
      Circuits Design Methodology Insert G
      Design Verification
11.   Designing Arithmetic Building Blocks
12.   Designing Memory and Array Structures
      Design Methodology Insert H
      Validation and Test of Manufactured
      Circuits

About the Authors

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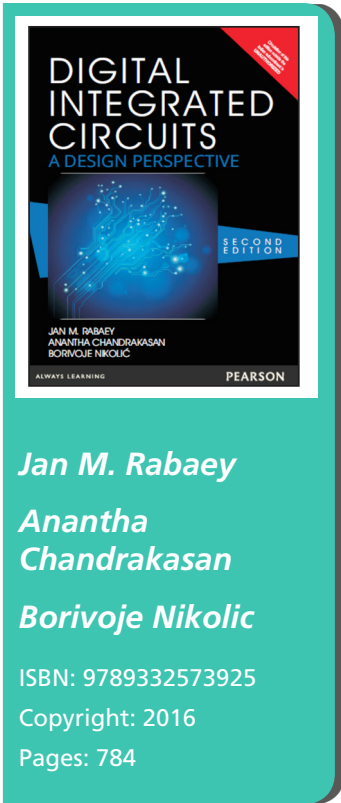
Jan M. Rabaey

Anantha Chandrakasan

Borivoje Nikolic

ISBN: 9789332573925

Copyright: 2016

Pages: 784

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Anantha Chandrakasan, Massachusetts Institute of Technology, Cambridge
Borivoje Nikolic, University of California, Berkeley

Digital Systems: Principles and Applications, 10/e

About the Book

For this new edition, the authors have meticulously worked to provide the right balance between existing and new material while keeping the size of the book within reason. This is a growing challenge due to revolutionary digital technology. Industry's movement from using schematics to using hardware description language (HDLs) to describe complex digital systems has rendered obsolete many topics previously considered to be foundational. In addition, new technology demands the expansion and emphasis of other traditional concepts as it introduces many new tools and techniques for developing and analyzing digital systems.

Features

- Improved analysis of combinational circuits.
- Expanded coverage of the 555 timer in Chapter 5.
- Improved coverage of signed number in Chapter 6.
- Greater emphasis on the synchronous counters in Chapter 7.
- More thorough coverage of state machines, with a practical example of a functional system.
- Description of recent IC technology in Chapter 8.
- Revised and improved VHDL coverage.

Contents

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

Ronald J. Tocci

Neal S. Widmer

Gregory L. Moss

ISBN: 9788131727249

Copyright: 2009

Pages: 599

Digital Design: Principles and Practices, 4/e

About the Book

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

Features

- Now covers all popular HDLs (hardware descrioption languages) Verilog as well as ABEL and VHDL.
- Multi-chip design examples are redone
- in terms of VHDL and Verilog programs, instead of interconnected MSI chips and glue logic.
- 50% new exercises.

Contents

1. Introduction
2. Number Systems and Codes
3. Digital Circuits
4. Combinational Logic Design Principles
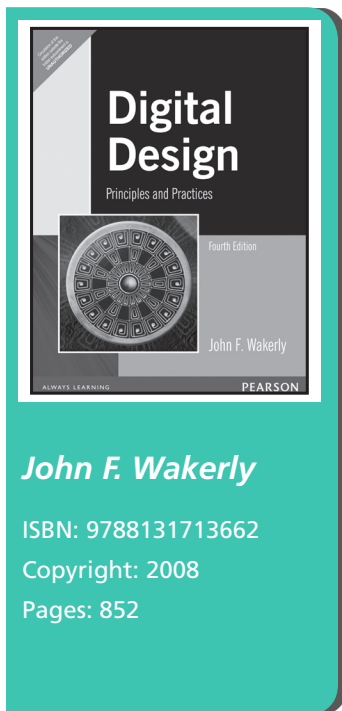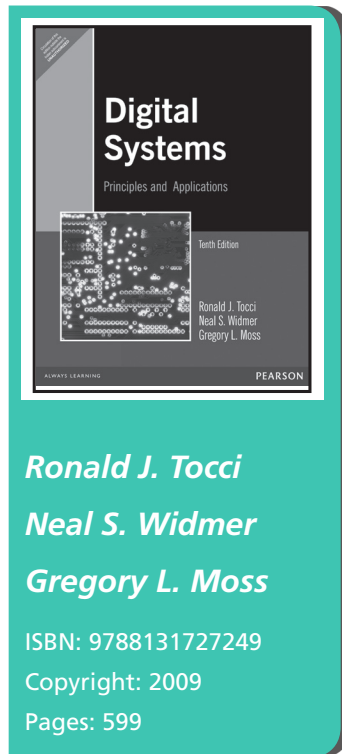
John F. Wakerly

ISBN: 9788131713662

Copyright: 2008

Pages: 852

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5. Hardware Description Languages
6. Combinational Logic Design Practices
7. Sequential Logic Design Principles
8. Sequential Logic Design Practices
9. Memory, CPLDs, and FPGAs

Switching Theory and Logic Design

About the Book

Switching Theory and Logic Design is for a first level introductory course on digital logic design. This book illustrates the usefulness of switching theory and its applications, with examples to acquaint the student with necessary background. This book has designed as a prerequisite to many other courses like Digital Integrated Circuits, Computer Organisation, Digital Instrumentation, Digital Control, Digital Communications, Hardware Description Languages and so on.

Features

- Combinational logic circuit design covered in detail.
- Different types of flip-flops and their conversion from one to the other is explained.
- Utility of the ASM charts in designing the control unit of digit system is emphasized.

- Chapter Objectives, Summary, and Key Terms are provided in each chapter.
- Simple and lucid style of writing.
- Rich in pedagogy with large number of illustrations.

Contents

1. Introduction and Number Systems
2. Boolean Algebra
3. Minimisation of Switching Functions
4. Design of Combinational Circuits
5. Threshold Logic and Symmetric Functions

6. Flip-Flops as Memory Elements
7. Synchronous Sequential Circuits
8. Asynchronous Sequential Circuits
9. Minimisation of Sequential Machines
10. Algorithmic State Machine Charts

C. V. S. Rao

ISBN: 9788131701836

Copyright: 2005

Pages: 336

Also Available
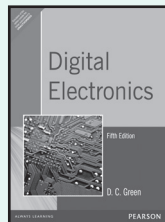
ISBN: 9788177580686
Pages: 408
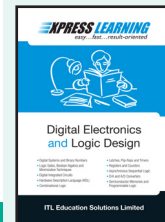
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Pages: 336
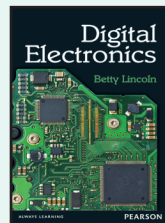
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Pages: 448
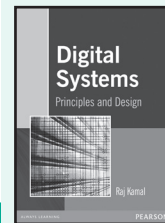
ISBN: 9788177585704
Pages: 544

Digital Image Processing
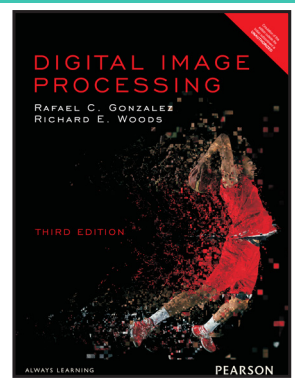
About the Book

Ideal for those who do not possess an advanced background in electrical engineering, this broad introduction to the fundamental concepts of digital imaging shows how the various techniques can be applied to solve real-world problems (e.g., in biology, astronomy, forensics, etc.). It helps students develop the insight required to use the tools of digital imaging to solve new problems.

Features

- Treats digital image processing as a tool for solving practical problems, rather than as a discipline in itself.
- Concentrates on the fundamental techniques that have proven to be the most important and useful in solving real-world problems.
- Adds discussions of color, image compression, user interfaces, software development project management, Wavelet Transforms.
- Expands discussions of analysis of digital imaging systems performance, optics, pattern recognition, image recording and display, CCD cameras and 3-D imaging

Contents

1. Images and Digital Processing
2. Digitizing Images
3. Digital Image Display
4. Image-Processing Software
5. The Gray-Level Histogram
6. Point Operations
7. Algebraic Operations
8. Geometric Operations
9. Linear Systems Theory
10. The Fourier Transform
11. Filter Design
12. Processing Sampled Data
13. Discrete Image Transforms
14. Wavelet Transforms
15. Optics and System Analysis
16. Image Restoration
17. Image Compression
18. Pattern Recognition: Image Segmentation
19. Pattern Recognition: Object Measurement
20. Pattern Recognition: Classification and Estimation
21. Color and Multispectral Image Processing
22. Three-Dimensional Image Processing

Kenneth R. Castleman

ISBN: 9788131712863

Copyright: 2007

Pages: 686

Digital Image Processing, 3/e

New

About the Book

Completely self-contained–and heavily illustrated–this introduction to basic concepts and methodologies for digital image processing is written at a level that truly is suitable for seniors and first-year graduate students in almost any technical discipline. The leading textbook in its field for more than twenty years, it continues its cutting-edge focus on contemporary developments in all mainstream areas of image processing–e.g., image fundamentals, image enhancement in the spatial and frequency domains, restoration, color image processing, wavelets, image compression, morphology, segmentation, image description, and the fundamentals of object recognition. It focuses on material that is fundamental and has a broad scope of application.

Features

Accessible mathematical complexity

- Ensures understanding by students who have introductory preparation in mathematical analysis, vectors, matrices, probability, statistics, and rudimentary computer programming.

Heavily illustrated

- Ensures easy comprehension of material, especially for today's visual learners.

Chapter-end Problem sets.

- Provides students with more opportunities for hands-on practice.

Contents

1. Digital Image Fundamentals
2. Image Enhancement in the Spatial Domain
3. Image Enhancement in the Frequency Domain

Rafael C. Gonzalez

Richard E. Woods

ISBN: 9789332570320

Copyright: 2016

Pages: 980

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4. Image Restoration
5. Color Image Processing
6. Wavelets and Multiresolution Processing
7. Image Compression
8. Morphological Image Processing
9. Image Segmentation
10. Representation and Description
11. Object Recognition

About the Authors

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 served as Chairman of the department from 1994 through 1997. 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. He also founded Perceptics Corporation in 1982 and was its president until 1992. The last three years of this period were spent under a full-time employment contract with Westinghouse Corporation, who acquired the company in 1989.

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, where he was responsible for the development of many of the company's quantitative image analysis and autonomous decision making products.

Fundamentals of Digital Image Processing

New
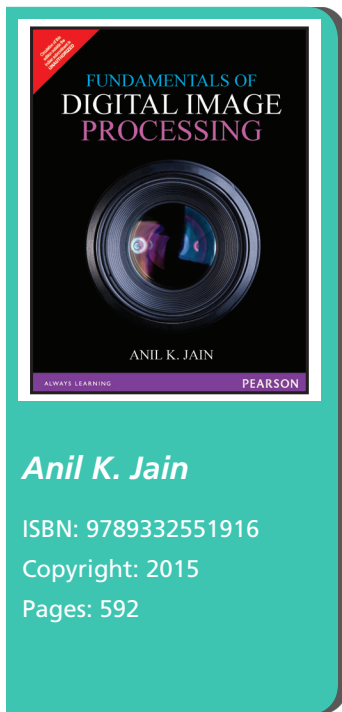
About the Book

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

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

FUNDAMENTALS OF DIGITAL IMAGE PROCESSING

ANIL K. JAIN

ALWAYS LEARNING   PEARSON

Anil K. Jain

ISBN: 9789332551916

Copyright: 2015

Pages: 592

Introductory Digital Image Processing: A Remote Sensing Perspective

About the Book

For junior/graduate-level courses in Remote Sensing in Geography, Geology, Forestry, and Biology.

Introductory Digital Image Processing: A Remote Sensing Perspective focuses on digital image processing of aircraft- and satellite-derived, remotely sensed data for Earth resource management applications. Extensively illustrated, it explains how to extract biophysical information from remote sensor data for almost all multidisciplinary land-based environmental projects. Part of the Pearson Series Geographic Information Science.

Now in full color, the Fourth Edition provides up-to-date information on analytical methods used to analyze digital remote sensing data. Each chapter contains a substantive reference list that can be used by students and scientists as a starting place for their digital image processing project or research. A new appendix provides sources of imagery and other geospatial information.

John R. Jensen

ISBN: TBA

Copyright: 2016

Pages: 544

New

Features

- "Now presented in full color. Contains new, specially developed detailed graphics consistent with current technology.
- Emphasizes the application of digital image processing algorithms rather than engineering ""signal processing""— Extracts useful Earth resource information from remotely sensed imagery.
- Organizes content according to the general flow or method by which digital remote sensor data is actually analyzed. Presents all algorithms in relatively simple algebra terms.
- Summarizes the "remote sensing process" — Includes hypothesis testing procedures, data collection, data analysis, and information presentation (display) alternatives.
- Reviews new methods of image digitization and data compression and summarizes new formats for digital imagery—Includes the national aerial photography program (NAPP); multispectral imaging using discrete detectors and scanning mirrors; multispectral imaging using linear arrays; imagine spectrometry using linear and area arrays; the proposed Earth Observing System (EOS).

- Provides a substantive reference list in each chapter—Enables readers to obtain additional information on a topic.
- Surveys the state-of-the- art of digital image processing hardware and software configurations—Using mainframe, workstation, and personal computers.
- Discusses the functionality of 25 commercial and 6 public digital image processing systems.
- Contains a more detailed treatment of univariate and multivariate statistics which are routinely extracted from remotely sensed data.
- Introduces the concept of ""scientific visualization""and presents alternatives for producing scaled, color, hardcopy output.
- Contains detailed information on how to radiometrically correct for atmospheric attenuation in remotely sensed data using ""relative image normalization"" and ""absolute radiometric correction"" techniques.
- Describes how linear and non-linear contrast enhancement is performed— Provides in-depth coverage of histogram equalization.
  Contains a section on spatial filtering in the frequency domain using the Fourier Transform.

Contents

1. Remote Sensing and Digital Image Processing
2. Remote Sensing Data Collection
3. Digital Image Processing Hardware and Software
4. Image Quality Assessment and Statistical Evaluation
5. Display Alternatives and Scientific Visualization
6. Electromagnetic Radiation Principles and Radiometric Correction
7. Geometric Correction

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8. Image Enhancement
9. Thematic Information Extraction: Pattern Recognition
10. Information Extraction Using Artificial Intelligence
11. Information Extraction Using Imaging Spectroscopy
12. Change Detection
13. Remote Sensing–Derived Thematic Map Accuracy Assessment
    Appendix: Sources of Imagery and Other Geospatial Information
    Index

Also Available

Fundamentals of
**Digital
Image
Processing**

S. Annadurai
R. Shanmugalakshmi

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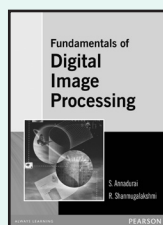
ISBN: 9788177584790
Pages: 440
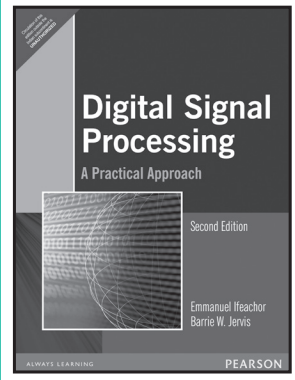
Digital Signal Processing, 2/e

About the Book

Now in its second edition, Digital Signal Processing offers modern coverage of the fundamentals, implementation and applications of digital signal processing techniques from a practical point of view.

The past ten years has seen a significant growth in DSP applications throughout all areas of technology and this growth is expected well into the next millennium. This successful textbook covers most aspects of DSP found in undergraduate electrical, electronic or communications engineering courses. Unlike many other texts, it also covers a number of DSP techniques which are of particular relevance to industry such as adaptive filtering and multirate processing. The emphasis throughout the book is on the practical aspects of DSP.

Features

- NEW—Applications in audio, medical and telecommunications engineering.
- NEW—Coverage of DSP system design includes the use of MATLAB.
- NEW—More applications of multirate processing.
- NEW—More hardware included in later chapters which Cover TI and Motorola systems.
- Real-world application examples and end-of-chapter problems.
- C language implementation of many DSP algorithms and functions.

Contents

1. Introduction
2. Analogue I/O Interface for Real-Time DSP Systems
3. Discrete Transform
4. The Z-Transform and Its Applications in Signal Processing
5. Correlation and Convolution
6. A Framework for Digital Filter Design
7. Finite Impulse Response (FIR) Filter Design
8. Design of Infinite Impulse Response (IIR) Digital Filters
9. Multirate Digital Signal Processing.
10. Adaptive Digital Filters
11. Spectrum Estimation and Analysis
12. General and Special Purpose Hardware for DSP
13. Finite Word Length Effects in Fixed Point DSP Systems and Solutions
14. Applications, Case Studies and Assessment

Emmanuel Ifeachor

Barry W. Jervis

ISBN: 9788131708248

Copyright: 2002

Pages: 960

Introduction to Digital Signal Processing

New

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.

Digital Signal Processing

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.Coverage includes discrete-time signals and systems, z-transform, discrete Fourier transforms, flow graph and matrix representations of digital filters, digital filter design, the fast Fourier transform, discrete Hilbert transforms, dis-crete random signals, effects of finite register length, homo-morphic signal processing, and power spectrum estimation. The authors closely integrate over 200 carefully prepared homework problems, many of which extend the funda-mentals and direct the student towards practical application.

The text is ideal for courses in digital signal processing at the senior or first year graduate level courses. The book assumes a background of advanced calculus, including an introduction to complex variable theory and an exposure to linear system theory for continuous line
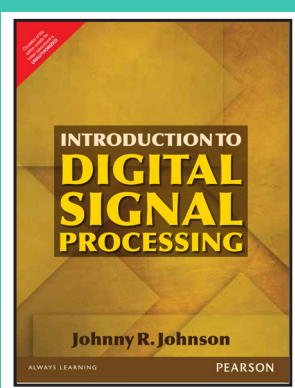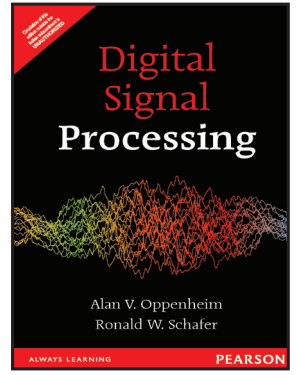
Johnny R. Johnson

ISBN: 9789332560130

Copyright: 2016

Pages: 432

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signals, including Laplace and Fourier transforms as taught in most electrical and mechanical engineering courses.

Contents

1. Introduction
2. Disrete-Time Signals and Systems
3. The Z-Transform
4. The Discrete Fourier Transform
5. Flow Graph and Matrix Representation of Digital Filters
6. Digital Filter Design Techniques
7. Computation of the Discrete Fourier Transform
8. Discrete Hilbert Transforms
9. Discrete Random Signals
10. Effects of Finite Register Length in Digital Signal Processing
11. Homomorphic Signal Processing
12. Power Spectrum Estimation
13. Index

Alan V. Oppenheim

Ronald W. Schafer

ISBN: 9789332550339

Copyright: 2015

Pages: 784
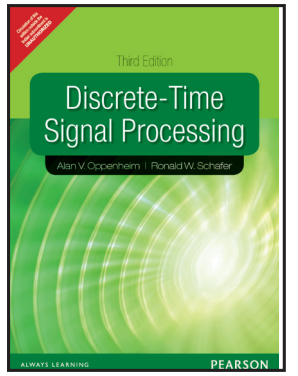
Discrete-Time Signal Processing, 3/e

About the Book

This 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

- Two new chapters — Parametric Signal Modeling and Cepstrum Analysis and Homomorphic Deconvolution.
- 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 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.
- Covers the history of discrete-time signal processing as well as contemporary developments in the field.
- Discusses the wide range of present and future applications of the technology.
- Focuses on the general and universal concepts in discrete-time signal processing.
- Offers a wealth of problems and examples.

Alan V. Oppenheim

Ronald W. Schafer

ISBN: 9789332535039

Copyright: 2014

Pages: 1064

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
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

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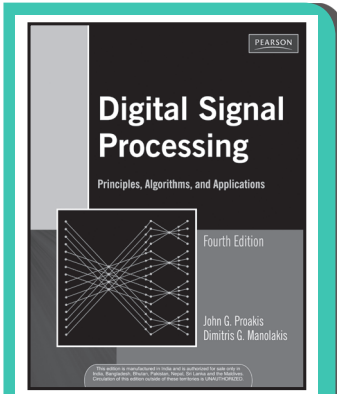13. Cepstrum Analysis and Homomorphic Deconvolution

Appendix A. Random Signals

Appendix B. Continuous-Time Filters

Appendix C. Answers to Selected Basic Problems

About the Authors

Alan V. Oppenheim and **Ronald W. Schafer**

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

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

John G. Proakis

Dimitris G. Manolakis

ISBN: 9788131710005

Copyright: 2007

Pages: 1156

Theory and Application of Digital Signal Processing

About the Book

The entire range of elementary and advanced topics in digital signal processing is covered comprehensively in this text, from filter design and spectrum analysis to digital hardware implementation and speech and radar processing.Chapters are devoted to the theory of discrete-time linear systems, theory and approximation of finite duration impulse response digital filters, finite word length effects in digital filters, spectrum analysis and the Fast Fourier Transform. It provides global introduction to the theory of Two-Dimensional Signal Processing, Digital Hardware, Special Purpose Hardware for the FFT, General Purpose Hardware for Signal Processing Facilities, Applications of Digital Signal Processing to Speech as well as Applications to Radar.

Contents

1. Introduction
2. Theory of Discrete-Time Linear Systems
3. The Theory and Approximation of Finite Duration Impulse Response
   Digital Filters
4. The Theory and Approximation of Infinite Duration Impulse Response Digital Filters
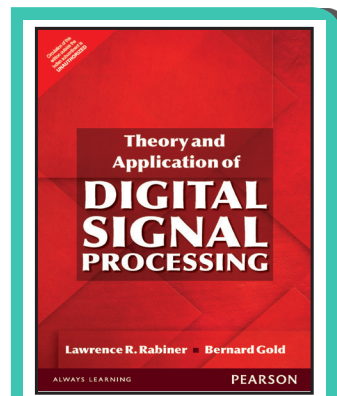
Lawrence R. Rabiner

Bernard Gold

ISBN: 9789332560123

Copyright: 1975

Pages: 778

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5. Finite Word Length Effects in Digital Filters
6. Spectrum Analysis and the Fast Fourier Transform
7. An Introduction to Theory of Two-Dimensional Signal Processing
8. Introduction to Digital Hardware
9. Special-Purpose Hardware for Digital Filtering and Signal Generation
10. Special-Purpose Hardware for the FFT
11. General-Purpose Hardware for Signal Processing Facilities

About the Authors

Lawrence R. Rabiner, Bell Laboratories
Bernard Gold, MIT Lincoln Laboratory

DIGITAL SIGNAL PROCESSORS

Sen M. Kuo
Woon-Seng S. Gan

ISBN: 9788131717936
Copyright: 2005
Pages: 620

Digital Signal Processors: Architectures, Implementations, and Applications

About the Book

This text offers students a hands-on approach to understanding architecture and programming of DSP processors, and the design of real-time DSP systems. It contains real-world applications, and implementation of DSP algorithms using both the fixed-point and floating-point processors.

Features

- MATLAB and Simulink are introduced for design—For design, analysis, and implementation of DSP algorithms.
- Use of the code composer studio CCS—For the TMS320C54x and TMS320C55X for lab experiments, projects, and applications.
- Emphasis on the mixing of C and assembly programs.

Contents

1. Introduction to DSP Systems
2. Fundamentals of Digital Signal Processing
3. Implementation Considerations
4. Fixed-Point DSP Processors
5. Floating-Point DSP Processors
6. FIR Filtering
7. IIR Filtering
8. Fast Fourier Transforms
9. Adaptive Filtering

Electromagnetic Waves and Radiating Systems, 2/e

Edward C. Jordan

Keith G. Balmain

ISBN: 9789332551770

Copyright: 2015

Pages: 768

About the Book

Electromagnetic Waves and Radiating Systems covers all the fundamental principles of electromagnetic theory and the transmission, radiation, and propagation of EM waves.

Electromagnetic radiation (EMR) is a form of energy associated with charged particles as they propagate through space in a wave like pattern. These are called electromagnetic waves. Electromagnetic waves are caused by the interaction between electric and magnetic fields.

In an electromagnetic field, the electric and magnetic fields oscillate at right angles to each other and also perpendicular to the direction of wave propagation and energy flow. Electromagnetic waves do not need a material medium in order to propagate. They can travel through vacuum.

Because electromagnetic waves can travel through vacuum, they can travel through the emptiness of outer space. Light is an electromagnetic wave, and it travels fastest through a vacuum.

This book covers the fundamentals of electromagnetic analysis and electrostatics. It then covers the steady magnetic field, Maxwell's equations, electromagnetic field, wave guides and guided waves, and pointing vector and the flow of power.

Electromagnetic Waves and Radiating Systems then covers the interaction of matter and field, antenna fundamentals, antenna arrays, and secondary sources and aperture antennas. The book then discusses impedance, ionospheric and ground wave propagations, principles of broadband antenna design and electromagnetic theory and special relativity.

The book covers the fundamental theories of electromagnetism, and the radiation of electromagnetic waves. It then discusses the engineering applications of these concepts like waveguides, transmission lines and antennas.

This book is a good introduction to Electromagnetic Waves and Radiating Systems for engineering students.

Contents

1. Fundamentals of Electromagnetic Analysis
2. Electrostatics
3. The Steady Magnetic Field
4. Maxwell's Equations
5. Electromagnetic Waves
6. Pointing Vector and the Flow of Power
7. Guided Waves
8. Wave Guides
9. Inter-action of Fields and Matter
10. Radiation
11. Antenna Fundamentals
12. Antenna Arrays Secondary Sources and Aperture Antennas
13. Impedance
14. Principles of Broadband Antenna Design
15. Ground-wave Propagation
16. Ionospheric Propagation
17. Electromagnetic Theory and Special Relativity
Appendices
List of Symbols
Index

About the Authors

Edward C. Jordan was a distinguished academic and writer. His book, Electromagnetic Waves and Radiating Systems, was first published in 1950. Edward Jordan was born in 1910 in Alberta, Canada. He received his BS and MS degrees from the University of Alberta, and earned his PhD from the Ohio State University. His teaching career started at Worcester Polytechnic Institute, from where he moved to Ohio State University, where he was assistant professor and consultant to the Antenna Laboratory. After a few years he joined the University of Illinois, where he was Professor and later HOD for twenty five years of the Department of Electrical Engineering, in which capacity he retired in 1979.

Keith.G. Balmain is Emeritus Professor at the University of Toronto. He co-authored the second edition of the book, Electromagnetic Waves and Radiating Systems. K.G. Balmain graduated with a degree in engineering physics from the University of Toronto, then earned a postgraduate degree and a doctorate at the University of Illinois. For a time he was Assistant Professor of Electrical Engineering at the University of Illinois. He later joined the University of Toronto where he has chaired the Division of Engineering Science and the University's Research Board for a term each. He is now Professor Emeritus at the University of Toronto.

Electromagnetic Field Theory and Transmission Lines

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
2. Electrostatic Fields
3. Steady Magnetic Fields
4. Maxwell's Equations
5. Electromagnetic Fields and Waves
6. Guided Waves
7. Transmission Lines
8. Radiation and Antennas
9. Advanced TopicsElements

G. S. N. Raju

ISBN: 9788131701713

Copyright: 2005

Pages: 584

Fundamentals of Electromagnetics for Engineering

About the Book

Dr. N. Narayana Rao has designed this compact, one-semester textbook in electromagnetics to fully reflect the evolution of technologies in both electrical and computer engineering. This book's unique approach begins with Maxwell's equations for time-varying fields (first in integral and then in differential form), and also introduces waves at the outset. Building on these core concepts, Dr. Rao treats each category of fields as solutions to Maxwell's equations, highlighting the frequency behavior of physical structures. Next, he systematically introduces the topics of transmission lines, waveguides, and antennas. To keep the subject's geometry as simple as possible, while ensuring that students master the physical concepts and mathematical tools they will need, Rao makes extensive use of the Cartesian coordinate system. Topics covered in this book include: uniform plane wave propagation; material media and their interaction with uniform plane wave fields; essentials of transmission-line analysis (both frequency- and time-domain); metallic waveguides; and Hertzian dipole field solutions. Material on cylindrical and spherical coordinate systems is presented in appendices, where it can be studied whenever relevant or convenient. Worked examples are presented throughout to illuminate (and in some cases extend) key concepts; each chapter also contains a summary and review questions. (Note: this book provides a one-semester alternative to Dr. Rao's classic textbook for two-semester courses, Elements of Engineering Electromagnetics, now in its Sixth Edition.)

Features

- Accessible, yet complete coverage. Develops most key concepts through the use of the simpler Cartesian coordinate system, while utilizing other coordinate systems wherever necessary to ensure that students master the physical concepts and mathematical tools they need to understand.
- Extensive coverage of dynamic fields.
- Focuses most heavily on the information engineers need to succeed today, and deemphasizes coverage of static fields that is less relevant than it once was.
- Full chapter on Transmission Lines. Brings together essential coverage of transmission line analysis in both time domains and frequency domains, including Smith Charts.
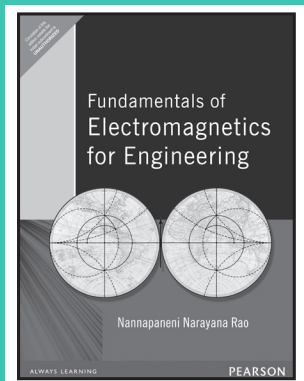
Nannapaneni Narayana Rao

ISBN: 9788131724156

Copyright: 2008

Pages: 480

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Contents

1. Vectors and Fields
2. Maxwell's Equations in Integral Form
3. Maxwell's Equations in Differential Form
4. Wave Propagation in Free Space
5. Wave Propagation in Material Media
6. Statics, Quasistatics, And Transmission Lines
7. Transmission-Line Analysis
8. Waveguide Principles
9. Antenna Basics
10. Supplementary Topics

Foundations of Electromagnetic Theory, 4/e
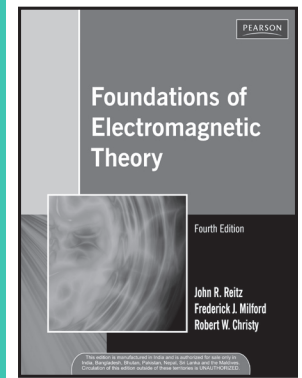
John R. Reitz

Frederick J. Milford

Robert W. Christy

ISBN: 9788131733424

Copyright: 2009

Pages: 630

About the Book

The Fourth Edition of this classic text on electricity and magnetism is now available in paperback format. This revision includes new worked examples and expanded problem sets, an increased emphasis on electromagnetic waves, and numerical problem solving using computer-generated algorithms.

Features

- A solid foundation of basic experimental laws builds up gradually with more rigorous quantitative expositions.
- An integrated macro- and microscopic discussion of electromagnetic theory is included.
- An expanded set of worked examples helps students build their problem solving skills.
- Expanded end of chapter problem sets now include computational questions using BASIC.

Contents

1. Vector Analysis
2. Electrostatistics
3. Solution of Electrostatic Problems
4. The Electrostatic Field in Dielectric Media
5. Microscopic Theory of Dielectrics
6. Electrostatic Energy
7. Electric Current
8. The Magnetic Field of Steady Currents
9. Magnetic Properties of Matter
10. Microscopic Theory of Magnetism
11. Electromagnetic Induction
12. Magnetic Energy
13. Slowly Varying Currents
14. Physics of Plasmas
15. Electromagnetic Properties of Superconductors
16. Maxwell's Equations
17. Propagation of Monochromatic
18. Monochromatic Waves in Bounded Regions
19. Dispersion and Oscillating Fields in Dispersive Media
20. The Emission of Radiation
21. Electrodynamics
22. The Special Theory of Relativity

About the Author

John R. Reitz (Ph.D., University of Chicago, 1949) was a member of the Theoretical Division of Los Alamos Scientific Laboratory from 1949 to 1954, and a consultant to the Lab until 1964. He was a faculty member of Case Institute of Technology (now Case Western Reserve University) from 1954 to 1965 and was appointed Professor of Physics in 1960. From 1965 to 1987 he was Manager of the physics department at Ford Motor Company. Currently he is a consultant in physics and educational software.

Electromagnetic Field Theory

About the Book

Electromagnetic Field Theory is written as an introductory text for the undergraduate students. It extensively discusses the basic electromagnetic principles and laws involved in electrostatics,

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steady magnetic fields, time-varying magnetic fields, and uniform plane waves. Emphasis has been given to some critical topics like transmission lines, waveguides, and antennas that are supposed to be difficult for students.

Features

- Comprehensive and covers all the concepts necessary for an undergraduate student of Electrical/Electronics Engineering.
- Application of Electromagnetic Field Theory using MATLAB.

- Excellent Pedagogy – Most number of Solved Question than any other book in the market.

Contents

1. Introduction to Vector Algebra
2. Coordinate Systems
3. Vector Calculus
4. Metals, Dielectrics, Resistors, Capacitors, Inductors, Conductors and Magnetic Materials
5. Electrostatics

6. Magnetostatics
7. Maxwell's Equations
8. Electromagnetic Waves
9. Transmission Lines
10. Wave Guides
11. Radiation and Antennas
    APPENDIX: MATLAB Programs

Yaduvir Singh

ISBN: 9788131760611

Copyright: 2011

Pages: 600

Field and Wave Electromagnetics, 2/e

About the Book

Respected for its accuracy, its smooth and logical flow of ideas, and its clear presentation, Field and Wave Electromagnetics has become an established textbook in the field of electromagnetics. This book builds the electromagnetic model using an axiomatic approach in steps: first for static electric fields, then for static magnetic fields, and finally for time-varying fields leading to Maxwell's equations. This approach results in an organized and systematic development of the subject matter. Applications of derived relations to fundamental phenomena and electromagnetic technologies are explained.

Contents

1. The Electromagnetic Model
2. Vector Analysis
3. Static Electric Fields
4. Solution of Electrostatic Problems
5. Steady Electric Currents
6. Static Magnetic Fields
7. Time-Varying Fields and Maxwell's Equations
8. Plane Electromagnetic Waves

9. Theory and Application of Transmission Lines
10. Waveguides and Cavity Resonators
11. Antennas and Radiating Systems
Appendix A: Symbols and Units
Appendix B: Some Useful Material Constants
Answers to Selected ProblemsFundamentals
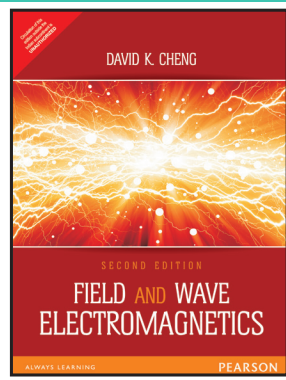
David K. Cheng

ISBN: 9789332535022

Copyright: 2015

Pages: 710

Fundamentals of Engineering Electromagnetics

About the Book

Fundamental of Engineering Electromagnetics not only presents the fundamentals of electromagnetism in a concise and logical manner, but also includes a variety of interesting and important applications. While adapted from his popular and more extensive work, Field and Wave Electromagnetics, this text incorporates a number of innovative pedagogical features. Each chapter begins with an overview which serves to offer qualitative guidance to the subject matter and motivate the student. Review questions and worked examples throughout each chapter reinforce the student's understanding of the material. Remarks boxes following the review questions and margin notes throughout the book serve as additional pedagogical aids.
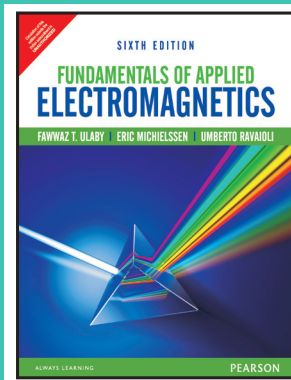
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Contents

1. The Electromagnetic Model.
2. Vector Analysis.
3. Static Electric Fields.
4. Steady Electric Currents.
5. Static Magnetic Fields.
6. Time-Varying Fields and Maxwell's Equations.
7. Plane Electromagnetic Waves.
8. Transmission Lines.
9. Waveguides and Cavity Resonators.
10. Antennas and Antenna Arrays.
Appendix A: Symbols and Units.
Appendix B: Some Useful Material Constants.
Answers to Odd-numbered Problems

David K. Cheng

ISBN: 9789332535138

Copyright: 2014

Pages: 512

Fundamentals of Applied Electromagnetics, 6/e

About the Book

Widely acclaimed both in the U.S. and abroad, this authoritative text bridges the gap between circuits and new electromagnetics material. Ulaby begins coverage with transmission lines, leading students from familiar concepts into more advanced topics and applications. Maintaining its student-friendly approach, this revision introduces full color and incorporates feedback from instructors and students.

Features

- Transmission lines constitute a natural bridge between electric circuits and electromagnetics. By introducing transmission lines early, Ulaby allows the student to use familiar concepts to learn about many of the properties of wave propagation in a guided structure.
- Technology Briefs connect a basic concept, such as capacitance, inductance, or polarization, to real-world applications.
- The interactive CD-ROM accompanying the text can be used in conjunction with the material in the textbook for self-study. The multiple-window features of electronic displays make it possible to design interactive modules with "help" buttons to guide the student through the solution of a problem when needed. Video animations can show how fields and waves propagate in time and space, how the beam of an antenna array can be made to scan electronically, and examples of how current is induced in a circuit under the influence of a changing magnetic field.
- Emphasis is placed on using the mathematics to explain and clarify the physics, followed by practical examples intended to demonstrate the engineering relevance of physical concepts.

New To This Edition

- A set of 42 CD-interactive simulation modules that allow the user to interactively analyze and design transmission line circuits; generate spatial patterns of the electric and magnetic fields induced by charges and currents; visualize in 2-D and 3-D space how the gradient, divergence, and curl operate on spatial functions; observe the temporal and spatial waveforms of plane waves propagating in lossless and lossy media; calculate and display field distributions inside a rectangular waveguide; and generate radiation patterns for linear antennas and parabolic dishes.
- New/updated Technology Briefs establish additional bridges between electromagnetic fundamentals and their countless engineering and scientific applications.
- Full-color figures and images now more efficiently convey core concepts.
- New/updated end-of-chapter problems provide more opportunities for review.
- Updated bibliography features current references.

Fawwaz T. Ulaby

Eric Michielssen

Umberto Ravaioli

ISBN: 9789332535145

Copyright: 2014

Pages: 480

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Contents

1. Introduction: Waves and Phasors
2. Transmission Lines
3. Vector Analysis
4. Electrostatics
5. Magnetostatics
6. Maxwell's Equations for Time-Varying Fields
7. Plane-Wave Propagation
8. Wave Reflection and Transmission
9. Radiation and Antennas

Electromagnetics

Forth Coming

About the Book

Electromagnetics is a thorough text that enables readers to readily grasp EM fundamentals, develop true problem-solving skills, and really understand and like the material. It is meant as an "ultimate resource" for undergraduate electromagnetics

Features

- outstanding worked examples, with very detailed and instructive solutions, tightly coupled to the theory.
- 650 outstanding homework problems, fully supported by solved examples (a demo example for every problem).
- New pedagogy and clear, rigorous, complete, and logical presentation of material with no missing steps.
- Great flexibility for different options in coverage, including the transmission-lines-first approach.
- 500 unique multiple-choice conceptual questions, for active teaching/learning and assessment, available on-line.
- 400 MATLAB computer exercises and rojects, many with tutorials and m files, available on-line"

Contents

1. Electrostatic Field in Free Space
2. Dielectrics, Capacitance, and Electric Energy
3. Steady Electric Currents
4. Magnetostatic Field in Free Space
5. Magnetostatic Field in Material Media
6. Slowly Time-Varying Electromagnetic Field
7. Inductance and Magnetic Energy
8. Rapidly Time-Varying Electromagnetic Field
9. Uniform Plane Electromagnetic Waves
10. Reflection and Transmission of Plane Waves
11. Field Analysis of Transmission Lines
12. Circuit Analysis of Transmission Lines
13. Waveguides and Cavity Resonators
14. Antennas and Wireless Communication Systems

Branislav M. Notaros

ISBN: TBA

Copyright: 2011

Pages: 844

About the Author

Branislav M. Notaroš received the Dipl.Ing. (B.Sc.), M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Yugoslavia, in 1988, 1992, and 1995, respectively. From 1996 to 1998, he was an Assistant Professor in the Department of Electrical Engineering at the University of Belgrade, and before that, from 1989 to 1996, a Teaching and Research Assistant (faculty position) in the same department. He spent the 1998-1999 academic year as a Research Associate at the University of Colorado at Boulder. He was an Assistant Professor, from 1999 to 2004, and Associate Professor (with Tenure), from 2004 to 2006, in the Department of Electrical and Computer Engineering at the University of Massachusetts Dartmouth. He is currently an Associate Professor (with Tenure) of electrical and computer engineering at Colorado State University.

MATLAB-Based Electromagnetics

Forth Coming

Branislav M. Notaros

ISBN: TBA

Copyright: 2014

Pages: 416

About the Book

Designed primarily for undergraduate electromagnetics, but can also be used in follow-up courses on antennas, propagation, microwaves, advanced electromagnetic theory, computational electromagnetics, electrical machines, signal integrity, etc.

MATLAB-Based Electromagentics provides engineering and physics students and other users with an operational knowledge and firm grasp of electromagnetic fundamentals aimed toward practical engineering applications, by teaching them "hands on" electromagnetics through a unique and comprehensive collection of MATLAB computer exercises and projects.

Essentially, the book unifies two themes: it presents and explains electromagnetics using MATLAB on one side, and develops and discusses MATLAB for electromagnetics on the other.

MATLAB codes described (and listed) in TUTORIALS or proposed in other exercises provide prolonged benefits of learning. By running codes; generating results, figures, and diagrams; playing movies and animations; and solving a large variety of problems in MATLAB, in class, with peers in study groups, or individually, students gain a deep understanding of electromagnetics.

Features

- Designed to support a variety of courses
- MATLAB-Based Electromagnetics covers all important theoretical concepts, methodological procedures, and solution tools in electromagnetic fields and waves for undergraduates—organized in 12 chapters on electrostatic fields; steady electric currents; magnetostatic fields; time-varying electromagnetic fields; uniform plane electromagnetic waves; transmission lines; waveguides and cavity resonators; and antennas and wireless communication systems.
- The book provides two interwoven themes: presentation and study of electromagnetics using MATLAB and development and discussion of MATLAB for electromagnetics Provides a theoretical overview at the start of each section within each chapter of the book.
- Can be used to either complement another electromagnetics text, or as an independent resource.
- Designed primarily for undergraduate electromagnetics, but can also be used in follow-up courses on antennas, propagation, microwaves, advanced electromagnetic theory, computational electromagnetics, electrical machines, signal integrity, etc.
- Allows for flexibility in coverage of the material, including the transmission-lines-early and transmission-lines-first approaches.

- Spark independent learning and classroom discussion.
- Assignments of computer exercises along with traditional "by hand" problems help students develop a stronger intuition and a deeper understanding of electromagnetics.
- This book provides abundant opportunities for instructors to assign in-class and homework projects, and for students to engage in independent learning. MATLAB exercises are also ideal for interactive in-class explorations and discussions (active teaching and learning), and for teamwork and peer instruction (collaborative teaching/learning).
- Contains 389 MATLAB computer exercises and projects, covering and reinforcing practically all important theoretical concepts, methodologies, and problem-solving techniques in electromagnetic fields and waves Maintains a favorable balance of MATLAB exercises between static (one third) and dynamic (two thirds) topics
- Features 48 3-D and 2-D movies developed and played in MATLAB, which are extremely valuable for interactive visualizations of fields and waves.
- Displays 133 figures generated in MATLAB with plots of geometries of structures, vector fields, guided and unbounded waves, wave polarization curves, Smith charts, transient signals, antenna patterns, etc.

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- Presents 16 graphical user interfaces (GUIs) built in MATLAB to calculate and display parameters and characteristics of various electromagnetic structures, materials, and systems, selected from a pop-up menu.

- Offers 130 MATLAB exercises recommended to be done also "by hand" – i.e., not using MATLAB, thus serving as traditional written problems.
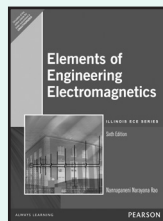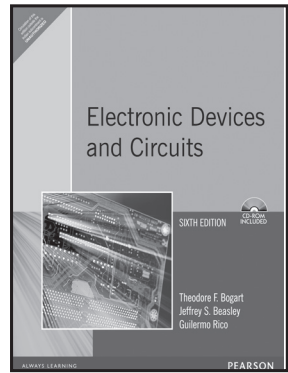
Contents

1. Electrostatic Field in Free Space
2. Electrostatic Field in Dielectrics
3. Steady Electric Currents
4. Magnetostatic Field in Free Space
5. Magnetostatic Field in Material Media
6. Time-Varying Electromagnetic Field
7. Uniform Plane Electromagnetic Waves
8. Reflection and Transmission of Plane Waves
9. Field Analysis of Transmission Lines
10. Circuit Analysis of Transmission Lines
11. Waveguides and Cavity Resonators
12. Antennas and Wireless Communication System

About the Author

Branislav M. Notaroš received the Dipl.Ing. (B.Sc.), M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Yugoslavia, in 1988, 1992, and 1995, respectively. From 1996 to 1998, he was an Assistant Professor in the Department of Electrical Engineering at the University of Belgrade, and before that, from 1989 to 1996, a Teaching and Research Assistant (faculty position) in the same department. He spent the 1998-1999 academic year as a Research Associate at the University of Colorado at Boulder. He was an Assistant Professor, from 1999 to 2004, and Associate Professor (with Tenure), from 2004 to 2006, in the Department of Electrical and Computer Engineering at the University of Massachusetts Dartmouth. He is currently an Associate Professor (with Tenure) of electrical and computer engineering at Colorado State University.

Also Available

Elements of Engineering Electromagnetics
ISBN: 9788131703991
Pages: 900
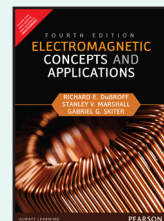
ELECTROMAGNETIC CONCEPTS AND APPLICATIONS
ISBN: 9789332559462
Pages: 756

Electronic Devices and Circuits, 6/e

About the Book

Using a structured, systems approach, this text provides a modern, thorough treatment of electronic devices and circuits. Topical selection is based on the significance of each topic in modern industrial applications and the impact that each topic is likely to have in emerging technologies. Integrated circuit theory is covered extensively, including coverage of analog and digital integrated circuit design, operational amplifier theory and applications, and specialized electronic devices and circuits such as switching regulators and optoelectronics.

Features

- A systems or block-diagram approach— Each new concept is introduced in a systems or block-diagram approach— e.g., the effect of the input and output resistance on the voltage gain of an amplifier is developed by regarding the amplifier as a functional block rather than as a particular circuit.
- Analog integrated circuits—Presents analysis and design of analog integrated circuit building blocks after presenting theory and circuits of discrete transistor circuits.
- The transistor-level implementation of digital CMOS circuits.
- Extensive coverage of operational amplifier theory, analysis, and design— Based on meeting or exceeding required specifications.
- PSpice examples and exercises.

Contents

1. Introduction
2. The pn junction
3. The Diode as a Circuit Element
4. Bipolar Junction Transistors
5. Field-Effect Transistors
6. Amplifier Fundamentals
7. Small Signal Amplifiers
8. Ideal Operational Amplifiers
9. Frequency Response
10. Operational Amplifier Theory and Performance
11. Advanced Operational Amplifier Applications
12. Wave Generation and Shaping
13. Regulated and Switching Power Supplies.
14. Digital-to-Analog and Analog-to-Digital Converters
15. Special Electronic Devices
16. Power Amplifiers
17. Analog Circuit Building Blocks
18. Introduction to Digital VLSI Design

Theodore F. Bogart

Jeffrey S. Beasley

Guilermo Rico

ISBN: 9788177588873

Copyright: 2004

Pages: 894

Electronic Devices and Circuit Theory, 11/e

About the Book

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 Biasingâ€"BJTs
5. BJT AC Analysis
6. Field-Effect Transistors
7. FET Biasing
8. FET Amplifiers

Robert L. Boylestad

Louis Nashelsky

ISBN: 9789332542600

Copyright: 2015

Pages: 952

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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 Parametersâ€"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.

Electronic Devices: Conventional Current Version

New

About the Book

Electronic Devices (Conventional Current Version), Ninth Edition, 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. Easy-to follow worked examples support the text's strong emphasis on real-world application and troubleshooting. Updated throughout, the ninth edition features new GreenTech Applications and a new chapter, "Basic Programming Concepts for Automated Testing." With recent significant efforts to create renewable, sustainable energy sources to offset and eventually replace fossil fuels, a write-up on GreenTech Applications in every chapter, familiarizes students with these relatively new technologies. Sound foundation in basic circuits and concepts and then coverage of analog integrated circuits

Features

- NEW - Chapter on Programmable Analog Devices—Chapter 19.
- Provides students with an introduction to field-programmable analog arrays (FPAAs) and how to program them.
- NEW - Devices—Sections on differential amplifiers and the IGBT (insulated gate bipolar transistor) are now included.

- Circuit simulations examples and problem sets.
- Strong coverage of troubleshooting and applications throughout.
- Coverage of advanced integrated circuits
- Hundreds of photographs, illustrations, and system schematics.

Thomas L. Floyd

ISBN: 9789332545496
Copyright: 2016
Pages: 976

Contents

1. Semiconductor Basics
2. Diode Applications
3. Special-Purpose Diodes
4. Bipolar Junction Transistors (BJTs)
5. Transistor Bias Circuits
6. BJT Amplifiers
7. Field-Effect Transistors (FETs)
8. FET Amplifiers
9. Power Amplifiers
10. Amplifier Frequency Response
11. Thyristors and Other Devices
12. The Operational Amplifier
13. Basic Op-Amp Circuits
14. Special-Purpose Op-Amp Circuits
15. Active Filters
16. Oscillators
17. Communications Circuits
18. Voltage Regulators
19. Programmable Analog Arrays
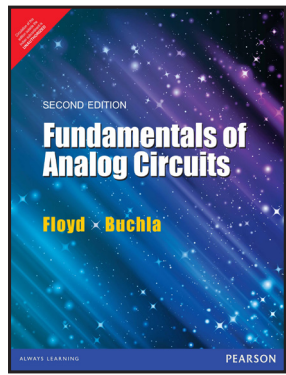
Fundamentals of Analog Circuits, 2/e

About the Book

Fundamentals of Analog Circuits, Second Edition, presents an introduction to discrete linear devices and circuits, followed by comprehensive coverage of operational amplifiers and other linear integrated circuits. This new edition has been expanded and improved to include up-to-date coverage of these topics in a format containing a wealth of features to enhance the learning process. It integrates theory, practical circuits, and troubleshooting concepts, keeping mathematical details to a minimum. Delving more deeply into coverage of linear integrated circuits than discrete device circuits, the text guides readers through a system of pedagogical tools that both reinforces and challenges their understanding.

Features

- NEW - Updated and improved coverage of operational amplifiers and other analog circuits With references to manufacturer's Internet site included where appropriate.
- NEW - Key terms introduced in Chapter Opener Identified again within the text by blue font and margin icon.
- Opens with a five-chapter introduction to discrete devicesâ€"Includes diodes and transistor circuits, plus other topics often omitted in beginning devices texts such as RF amplifiers, transmission lines, transformer coupled amplifiers,
- direct coupled amplifiers, and power amplifiers.
- Operational amplifier with separate chapters on active filters and oscillators.
- Current topics of importance are explored including instrumentation amplifiers, isolation amplifiers, operational transconductance amplifiers (OTA), phase locked loops, A/D and D/A converters, transducers and more.
- Chapter Openers include chapter objectives and introductions to the system applications.

Contents

1. Basic Concepts of Analog Circuits and Signals
2. Diodes and Applications
3. Bipolar Junction Transistors (BJTs)
4. Field-Effect Transistors (FETs)
5. Multistage, RF, and Power Amplifiers
6. Operational Amplifiers
7. Op-Amp Responses
8. Basic Op-Amp Circuits
9. Active Filters
10. Oscillators and Timers
11. Voltage Regulators
12. Special-Purpose Amplifiers
13. Communications Circuits
14. Data Conversion Circuits
15. Measurements and Control Circuits
Appendix A: Data Sheets
Appendix B: Derivations of Selected Equations
Answers to Odd-Numbered ProblemsFundamentals

Thomas L. Floyd, David Buchla

SBN: 9788131787960
Copyright: 2012
Pages: 928

Fundamentals of Nanoelectronics

About the Book

This is the first actual nanoelectronics textbook for undergraduate engineering and applied sciences students. It provides an introduction to Nanoelectronics, as well as a self-contained overview of the necessary physical concepts – taking a fairly gentle but serious approach to a field that will be extremely important in the near future.

Features

- Three-part organization.
- Many experimental results from the literature support the physical concepts described in the text.
- A considerable number of end-of-chapter problems enable students to practice problem-solving..

George W. Hanson

ISBN: 9788131726792
Copyright: 2009
Pages: 400

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Contents

Part I Fundamentals of Nanoscopic Physics
1. Introduction To Nanoelectronics

2. Classical Particles, Classicalwaves, And Quantum Particles
3. Quantum Mechanics of Electrons
4. Free And Confined Electrons
5. Electrons Subject To a Periodic Potential — Band Theory of Solids

Part II Single-Electron and Few-Electron Phenomena and Devices

6. Tunnel Junctions and Applications of Tunneling
7. Coulomb Blockade and the Single-Electron Transistor

Part III Many Electron Phenomena
8. Particle Statistics and Density of States
9. Models of Semiconductor Quantum Wells, Quantum Wires, and Quantum Dots
10. Nanowires, Ballistic Transport, and Spin Transport

RF Circuit Design: Theory and Applications

About the Book

Taking a circuits perspective approach to circuit design fundamentals, this practical and comprehensive text covers all important RF design concepts—with a focus on methodology fundamentals and discussion of theoretical concepts. The Second Edition introduces RF design tools such as the Smith Chart, dual port networks, S-parameters, and provides extensive coverage of RF filter design, matching networks, active and passive device modeling, narrow and broadband amplifiers, mixers, and oscillators.

Features

- NEW - Updated problems throughout the text—Each chapter in the Second Edition includes an expanded list of problems and selected solutions.
- NEW - New sidebars and features— Key RF concepts and ideas are prominently featured in sidebars throughout the text.
- NEW - "Practically Speaking" sections at the close of each chapter clearly

demonstrate how theory relates to practice.
- Approaches RF design from a circuit perspective—Requires students to have little or no background in electromagnetic fields.
- Comprehensive coverage of RF design concepts—Incorporates the required key concepts in a single, convenient source.

Reinhold Ludwig

Gene Bogdanov

ISBN: 9788131762189
Copyright: 2009
Pages: 720

Contents

1. Introduction
2. Transmission Line Analysis
3. The Smith Chart
4. Single- and Multiport Networks
5. An Overview of RF Filter Design
6. Active RF Components
7. Active RF Component Modeling
8. Matching and Biasing Networks
9. RF Transistor Amplifier Designs
10. Oscillators and Mixers
   Appendix A. Useful Physical Quantities and Units
   Appendix B. Skin Equation for a

Cylindrical Conductor
Appendix C. Complex Numbers
Appendix D. Matrix Conversions
Appendix E. Physical Parameters of Semiconductors
Appendix F. Long and Short Diode Models
Appendix G. Couplers
Appendix H. Noise Analysis
Appendix I. Introduction to Matlab
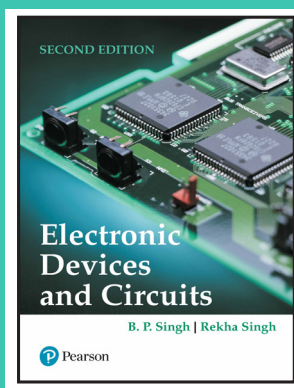
Electronic Devices and Circuits, 2/e

About the Book

This book is intended as a first text for the students of electronics, emphasizes the basic working principles and operations of semiconductor devices and teaches the reader how to analyze and design electronic circuits using various devices.

In the second edition of the book, the treatment of the topics has been made simple and lucid with the help of extended derivations and exhaustive number of new Figures, Illustrations and Solved Examples.

Features

- Circuits using diodes explained in detail with constant current source and constant voltage source regions.
- Extensive coverage of FET, MOSFET, Dual Gate MOSFET, CMOS, MESFET, DVCVS/DVCCS.
- Biasing of discrete BJTs and ICs discussed in detail.
- Additional new topics on Thyristors, High Frequency Diodes, Tunnel Diodes.
- New to the 2nd Edition.
- A completely new chapter on Thyristors
- A new section on High Frequency

- Diodes – Tunnel Diode, GUNN Diode, IMPATT Diode.
- New and more elaborated approach to explaining topics on Semiconductor Fundamentals and Electronic Devices.
- New and improved Figures, Diagrams and Equations.
- Lecture PPTs and Solutions Manual available for instructors.
- Website for students with Self-Evaluation Exercises and supplementary information.

Contents

1. Physics of Semiconductors
2. Physical Phenomenon in p-n Junction
3. Diode as Circuit Element
4. Junction Diode Rectifier
5. Physical Phenomenon in BJT
6. Physical phenomenon in JFET and MOSFET
7. Biasing of BJT
8. BJT Amplifiers
9. FET Amplifiers
10. Frequency Response of BJT Amplifiers
11. Multistage Amplifiers
12. Feedback in Amplifiers
13. Oscillators
14. Power Amplifiers
15. Operational Amplifier
16. Regulated Power Supplies
17. Integrated Circuit Timers
18. Special 2-terminal Devices
19. Tuned Amplifiers

About the Authors

B. P. Singh is Head of Department of Electronics and Communication Engineering and Electrical Engineering, Modi Institue of Technology and Sciences at Lakshmangarh. He received his B.Sc. (Engg.) in 1967 from the Bihar Institute of Technology, Sindri. He received his M.Sc. (Engg.) in 1970 from the Birla Institute of Technology, Mesra, followed by a Ph.D. in 1980 from Ranchi University. He has taught at the Birla Institute of Technology, Mesra; the Indian School of Mines, Dhanbad; and Regional Engineering College, Silchar.

Rekha Singh received her M.Sc. from Dean Dayal Upadhyay Gorakhpur University. She taught electronics and computer science as a guest lecturer at the Government Girls' Polytechnic, Gorakhpur. Presently, she is leading a group of quality analysts at Delphi Automotive, Michigan.

Solid State Electronic Devices, 7/e
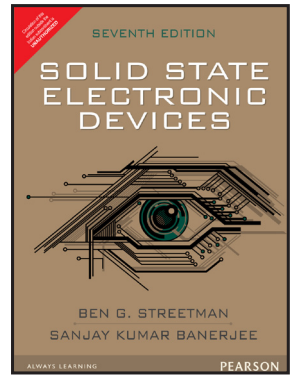
New

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

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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 Authors

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.

Electronic Devices and Circuits

About the Book

Designed as a textbook for undergraduate students, this text provides a thorough treatment of the fundamental concepts of electronic devices and circuits. All the fundamental concepts of the subject, including integrated circuit theory, are covered extensively along with necessary illustrations. Special emphasis has been placed on circuit diagrams, graphs, equivalent circuits, bipolar junction transistors and field effect transistors.

Features

- Comprehensive coverage of topics.
- Lucid and thorough approach.
- Solved numerical problems and practice questions.
- Written from the university examination point of view.

- Encourages readers to be active participants in the learning process.
- Allows a smooth transition for fresh (10+2) students into engineering and science streams.

Ben G. Streetman
Sanjay Kumar Banerjee

ISBN: 9789332555082

Copyright: 2016

Pages: 624

B. Visvesvara Rao,
K. Bhaskara Rama Murty,
K. Raja Rajeswari,
P. Chalam Raju Pantulu

ISBN: 9788131705858

Copyright: 2007

Pages: 424

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Contents

1. Comprehensive coverage of topics
2. Lucid and thorough approach
3. Solved numerical problems and practice questions
4. Written from the university examination point of view
5. Encourages readers to be active participants in the learning process
6. Allows a smooth transition for fresh (10+2) students into engineering and science streams

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K. Raja Rajeswari is Professor, Department of Electronics and Communication Engineering, AU College of Engineering, Andhra University, Vishakapatnam, Andhra Pradesh.

P. Chalam Raju Pantulu was formerly Divisional Engineer, Control and Instruments, Andhra Pradesh Power Generation Corporation Limited (APGENCO).

Also Available
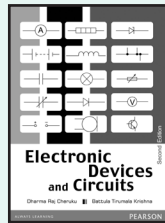
ISBN: 9788131700983
Pages: 664
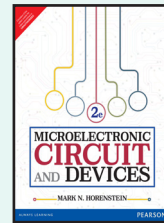
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Pages: 1126
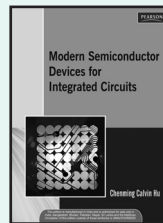
ISBN: 9788131730249
Pages: 384

Fibre-Optic Communications Technology
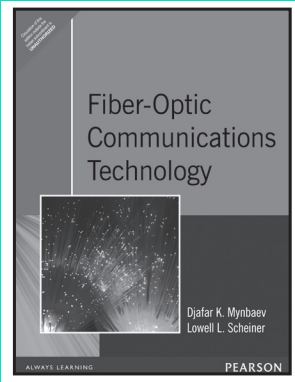
About the Book

Embodying the dynamic nature of fiber-optic communications, this practical Introduction takes a broad, up-to-date look at the industry, and fully prepares students for their future work in the field by providing a solid foundation in the basics with plenty of examples, graphical presentations, and solutions to problems that are similar to those found in the actual workplace.

Features

- State-of-the-art coverage—Considers a wide range of pertinent topics in an insightful and informative manner.
- Stimulating Approach—Encourages Students to develop their analytic, creative and research skills.
- Helps students develop the ability to read data sheets and integrate concepts—a critical skill for practicing engineers.
- Two-level discussion—Divides the discussion of most topics into two parts:

a "Basic" section introduces the main ideas and principles involved in the devices covered, and "A Deeper Look" section offers a more theoretical and detailed discussion of the same material.

- Test, Measurement, and troubleshooting—Includes description of equipment and techniques for test, measurement, and troubleshooting.

Contents

1. Introduction—Telecommunications and Fiber Optics
2. Physics of Light: A Brief Overview
3. Optical Fibers—Basics
4. Singlemode fibers—Basics
5. Singlemode Fibers—A Deeper Look
6. Fabrication, Cabling, and Installation
7. Fiber-Cable Connectorization and Testing
8. Light Source and Transmitters—Basics
9. Light Sources and Transmitters—A Deeper Look
10. Receivers
11. Components of Fiber-Optic Networks
12. Passive Components, Switches, and Functional Modules of Fiber-Optic Networks
13. An Introduction to Fiber-Optic Networks
14. Conclusion

Djafar K. Mynbaev

Lowell L. Scheiner

ISBN: 9788177584189

Copyright: 2001

Pages: 756

Fiber Optic Communications, 5/e

About the Book

This new and revised Fifth Edition of Fiber Optic Communications incorporates coverage of significant advances made in the fiber industry in recent years to present a comprehensive and in-depth introduction to the basics of communicating using optical fiber transmission lines. Students will learn system design as well as operating principles, characteristics, and application of the components that comprise fiber-optic systems.

Features

- Numerous illustrations and worked examples.
- Over 200 homework problems-Includes answers to selected problems at the end of the book.
- Wide range of topics-Includes fiber lasers and optical amplifiers, vertical-cavity surface-emitting laser diodes,

dense wavelength-division multiplexing, fiber Bragg grating technology, new component descriptions (fiber attenuator, circulator, and polarization controller), new phenomena descriptions (polarization mode dispersion, mode-partition noise), and power penalty.

Contents

1. Fiber Optic Communications Systems
2. Optics Review
3. Lightwave Fundamentals
4. Integrated Optic Waveguides
5. Optic Fiber Waveguides
6. Optical Sources and Amplifiers
7. Light Detectors
8. Couplers and Connectors

Joseph C. Palais

ISBN: 9788131717912

Copyright: 2008

Pages: 456

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9. Distribution Networks and Fiber Components
10. Modulation

11. Noise and Detection
12. System Design
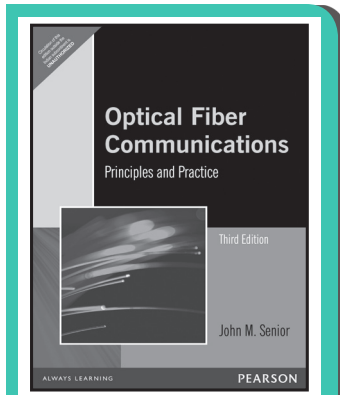
Optical Fiber Communications: Principles and Practice

About the Book

Senior 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

About the Authors

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

John M. Senior

ISBN: 9788131732663
Copyright: 2009
Pages: 1128
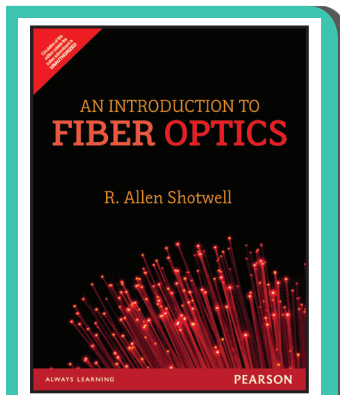
R. Allen Shotwell

ISBN: 9789332550544
Copyright: 2015
Pages: 173

An Introduction to Fiber Optics

About the Book

Designed specifically to meet the needs of students in technology/technician programs, this introduction to fiber optics offers a less-theoretical/mathematical and more applied, algebra-based approach to the subject.

Features

- Covers all major areas of fiber optics.
- Uses an algebra-based approach and

leaves out much of the high-level mathematics.

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- However, presents a sufficient amount of theory and mathematics to explain the topics and prepare students for further exploration, if desired.
- Provides an abundance of practical examples.

- Contains a chapter on measurements and testing equipment.
- Offers flexibility in coverage — allowing some sections to be omitted by those students who are studying them in more depth in other courses.

Contents

1. An Introduction to Optical Fiber
2. The Physics of Light
3. Light Propagation
4. Types of Optical Fiber and Their Properties
5. Light Sources for Optical Fibers
6. Optical Detectors
7. Splices, Connectors, Cables and other Components

8. Fundamentals of Communications
9. Communications Applications for Optical Fiber
10. Optical Fiber Measurement and Testing
Appendix A: Safety
Appendix B: Useful Constants and Data

Also Available

Fiber Optics Communications

Harold Kolimbiris
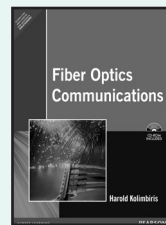
ISBN: 9788131715888
Pages: 664
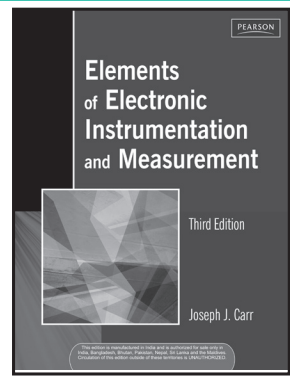
Elements of Electronic Instrumentation and Measurement, 3/e

About the Book

Book is appropriate as a primary text for courses in instrumentation and may also be used as a parallel reader in lab courses in instrumentation. Secondarily, it is also appropriate for courses in which the study of electronics instruments or measurement is integral.

The text provides a readable introduction to ordinary workshop and laboratory instrumentation. Material is presented through a careful blend of theory and practice to provide a practical text for students who will soon be in the real world, working with electronics.

Features

- A new section on measurement math and statistics has been added to the third edition. Provides students a basis for handling, interpreting, and understanding the data collected by instruments.
- Discusses technology from the late 19 century to the present to provide a context for the development of current and future technological innovations.
- Presents the theories and process of measurement to provide students with an understanding of the practical uses of the instruments being studied.
- Includes practical material that is oriented toward various fields of measurement: electronic communications, audio, components testing, medical electronics and servicing.

Contents

1. Introduction to Electronic Instrumentation and Measurement
2. Some Basic Measurement Theory
3. DC and AC Deflection Meter Movements
4. Bridge Circuits
5. Comparison Measurements
6. The Basics of Digital Instruments
7. Electronic Multimeters
8. The Oscilloscope
9. Signal Generators
10. Mechanical Graphics Chart Recorders
11. Special-Purpose Laboratory Amplifiers
12. Operational Amplifiers
13. Sensors, Electrodes, and Transducers
14. Probes and Connectors
15. Handling Signals, Sensors, and Instruments
16. Data Converters
17. Testing Electronic Components
18. Measurement of Frequency and Time
19. Measurements on Untuned Amplifiers
20. Measurements on Tuned Circuits
21. Antenna and Transmission Line Measurements
22. Radio Receiver Measurements and Alignment
23. Spectrum Analyzers
24. Radio Transmitter Measurements
25. IEEE—488 General Purpose Interface Bus (GPIB) Instruments

Appendix A: Integration and Differentiation

Joseph J. Carr

ISBN: 9788131712115

Copyright: 1996

Pages: 614

Introduction to Biomedical Equipment Technology, 4/e

About the Book

Introduction to Biomedical Equipment Technology is recognized as the premier book used to train biomedical equipment professionals, and serves as an excellent reference for these professionals in the filed. It is also valuable reference work for engineers and technologies who design biomedical equipment.

Features

- A new chapter on Quality Improvement is included.
- New sections on hemodialysis machines, the Y2K problem, and new computer devices in medicine are provided.
- Key features have been incorporate to address current issues and important technological advances.
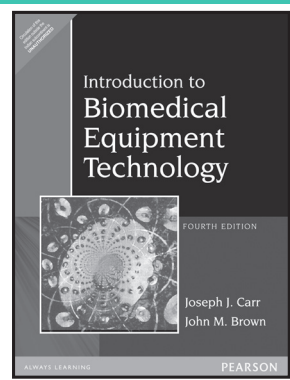
Joseph J. Carr

John M. Brown

ISBN: 9788177588835

Copyright: 2001

Pages: 768

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Contents

Biomedical Instrumentation and Measurements, 2/e

New

About the Book

Leslie Cromwell, Fred J. Weibell and Erich A. Pfeiffer's Biomedical Instrumentation and Measurements, is a comprehensive book for those who have the fundamental technical knowledge in Electronics or Electrical Engineering with a basic acquaintance with Physiology. Also, it is an extensive resource for Life Sciences and Allied Fields' students who have a fair knowledge of Instrumentation. The book serves as a reliable guide for medical and paramedical employees as well. It discusses concepts like Introduction to Biomedical Instrumentation, Basic Transducer Principles, Sources of Bioelectric Potentials, Electrodes, The Cardiovascular System, Cardiovascular Measurements, Patient Care and Monitoring, Measurements in the Respiratory System, Non-invasive Diagnostic Instrumentation, The Nervous System, Instrumentation for Sensory Measurements and the Study of Behavior, Biotelemetry, Instrumentation for the Clinical Laboratory, X-Ray and Radioisotope Instrumentation, The Computer in Biomedical Instrumentation, and Electrical Safety of Medical Equipment. An extensive Medical Terminology and Glossary are added towards the end of the book. A Physiological Measurements Summary and SI Metric Units and Equivalencies are also provided. A large number of Problems and Exercises are included for better learning and understanding.
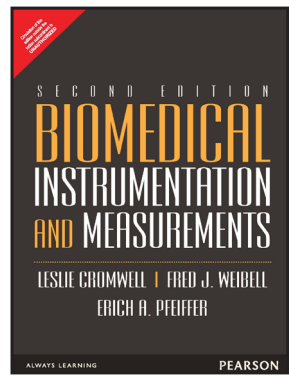
Leslie Cromwell

Fred J. Weibell

Erich A. Pfeiffer

ISBN: 9789332556911
Copyright: 2016
Pages: 528

Contents

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A. Medical Terminology and Glossary.
B. Physiological Measurements Summary.
C. SI Metric Units and Equivalencies.
D. Problems and Exercises.
Index.

Modern Electronic Instrumentation and Measurement Techniques

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 clarication 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.

New

Contents

Preface
1. Measurement and Error
2. Systems of Units of Measurement
3. Standards of Measurement
4. Electromechanical Indicating Instruments
5. Bridge Measurements
6. Electronic Instruments for Measuring Basic Parameters
7. Oscilloscopes
8. Signal Generation
9. Signal Analysis

10. Frequency Counters and Time-Interval Measurements
11. Transducers as Input Elements to Instrumentation Systems
12. Analog and Digital Data Acquisition Systems
13. Computer-Controlled Test Systems
14. Fiber Optics Measurements
Appendix
Selected answers
Index
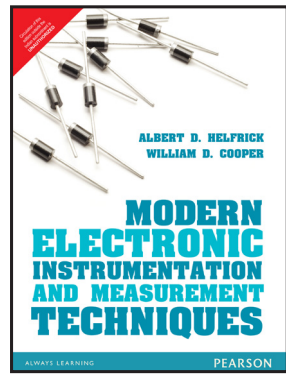
Albert D. Helfrick

William D. Cooper

ISBN: 9789332556065
Copyright: 2016
Pages: 424

Process Control Instrumentation Technology, 8/e

About the Book

This text is designed to provide students with an understanding and appreciation of some of the essential concepts behind control system elements and operations, without the need of advanced math and theory. It also presents some of the practical details of how elements of a control system are designed and operated, such as would be gained from on-the-job experience. This edition includes treatment of modern fieldbus approaches to networked and distributed control systems. This middle ground of knowledge enables students to design the elements of a control system from a practical, working perspective, and comprehend how these elements affect overall system operation and tuning.

Features

- NEW – Rewritten and renamed section on Industrial Electronics—Now called Power Electronics, updated to include more current devices such as GTOs, MOSFETs and IGBTs.
- NEW – Expanded treatment of modern control systems and fieldbuses—

Chapter 11 features improved coverage of computer-based controllers and distributed control.
- NEW – Re-worked examples and problems.
- Up-to-date coverage of measurement, instrumentation, and control—e.g. smart

Curtis D. Johnson

ISBN: 9789332549456
Copyright: 2015
Pages: 704

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- sensors, embedded control systems and enhanced P&ID.
- Enhanced and rewritten treatment of PLCs.
- Straightforward writing style—Technical writing without obscure jargon and mathematics.

- Variety of Problems —From very basic to complex real-world design.
- Practical coverage of analog and digital signal conditioning.
- Coverage of non-Laplace controller/ compensator action.

Contents

1. Introduction to Process Control
2. Analog Signal Conditioning
3. Digital Signal Conditioning
4. Thermal Sensors
5. Mechanical Sensors
6. Optical Sensors
7. Final Control
8. Discrete-State Process Control
9. Controller Principles
10. Analog Controllers
11. Computer-Based Control
12. Control Loop Characteristics

Electronic Measurements and Instrumentation

About the Book

Electronic Measurements and Instrumentation provides a comprehensive blend of the theoretical and practical aspects of electronic measurements and instrumentation. Spread across eight chapters, this book provides a comprehensive coverage of each topic in the syllabus with a special focus on oscilloscopes and transducers.

Features

- Clear illustrations and circuit diagrams for enhanced comprehension.
- Points to remember that help students grasp the essence of each chapter.
- Objective-type questions, review questions, and unsolved problems provided at the end of each chapter, which help students prepare for competitive examinations.

- Solved numerical problems and examples are provided, which enable the reader to understand design aspects better and to enable students to comprehend basic principles.
- Summaries at the end of each chapter that help students recapitulate all the concepts learnt.

Contents

1. Measurements and Instruments
2. Waveform Generator
3. Signal Analysers
4. Oscilloscopes
5. Special Types of CROs
6. DC and AC Bridges
7. Transducers
8. Other Types of Transducers

About the Authors

K. Lal Kishore has over 30 years of teaching and research experience, which has prompted him to write this book. He has written books on Electronic Devices, Electronic Circuit Analysis, Linear IC Applications and VLSI Design. The author has over 86 research publications to his credit and is currently the Rector of Jawaharlal Nehru Technological University Hyderabad.

K. Lal Kishore

ISBN: 9788131721995

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Pages: 448

Also Available
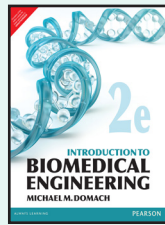
ISBN: 9789332555266
Pages: 312
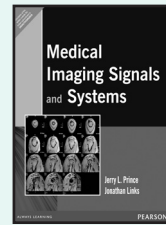
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Pages: 496
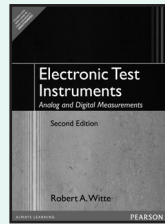
ISBN: 9788177587487
Pages: 388

Operational Amplifiers and Linear Integrated Circuits, 6/e
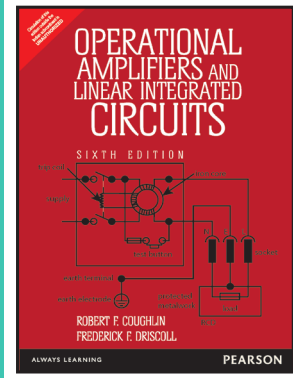
About the Book

This popular book presents a clear and interesting approach for op-amp courses while examining four basic active filters, illustrating 5-V digital logic ICs, and more. It provides many detailed, practical design and analysis examples intended to relate theory to the workplace. Chapter topics include first experiences with an op amp; inverting and noninverting amplifiers; comparators and controls; selected applications of op amps; signal generators; op amps with diodes; differential, instrumentation, and bridge amplifiers; DC performance: bias, offsets, and drift; AC performance: bandwidth, slew rate, noise; active filters; modulating, demodulating, and frequency changing with the multiplier; integrated-circuit timers; digital-to-analog converters; analog-to-digital converters; and power supplies. For design engineers.

Op-Amps and Linear Integrated Circuits, 4/e

About the Book

For one-semester courses in Op-Amps, Op-Amp Applications or Linear Integrated Circuits.

This successful technology-based text supports a thorough understanding of a wide variety of operational amplifiers and integrated circuit applications. It 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-amp circuits.

Features

- NEW - PSpice Simulation Examples and Problems—Added to most of the important chapters.
- NEW - Reorganized, more logical approach—Opens text with an introduction to op-amps, and ends with IC system projects.
- NEW - Op-amps theory, experiments, and simulation.
- Makes the material more meaningful, and effective for learning.
- Analysis and design approach.
- 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.
- A complete chapter on integrated system projects—Includes an audio function generator; LED temperature indicator; digital dc motor speed control; and appliance timer.
- Focus on operational amplifier circuits—e.g., filters; oscillators; detectors; clippers; and sample-and-hold circuits.
- Introduces students to a collection of those commonly used. Ex___
- Thorough discussion of various op-amp characteristics, circuit analysis, and design considerations.
- Chapter objectives.
- Chapter-end summaries and lists of questions.
- Worked-out examples and chapter-end problems—In every chapter.
- Focus on practical and functional op-amp circuits.

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

Appendix A: Resistance Chart
Appendix B: Capacitance Chart
Appendix C: Important Derivations
Appendix D: Data Sheets
Appendix E: Answers to Selected Problems

Robert F. Coughlin

Frederick F. Driscoll

ISBN: 9789332550483
Copyright: 2015
Pages: 564
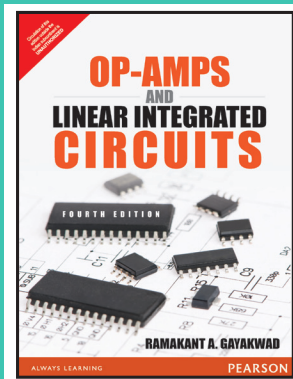
Ramakant A Gayak-wad

ISBN: 9789332549913
Copyright: 2015
Pages: 543

Design and Application of Analog Integrated Circuits

New

About the Book

A comprehensive overview of the analysis and design of the full range of analog integrated circuits.

Features

- Explores the internal circuitry, basic characteristics, fabrication, analysis, and applications of a wide variety of analog ICs..

Contents

1. Integrated-Circuit Fabrication
2. Integrated-Circuit Devices
3. Constant-Current Sources, Voltage Sources, and Voltage References
4. Differential Amplifiers
5. Operational Amplifier Characteristics and Applications
6. IC Active Filters and Switched-Capacitor Circuits
7. Operational Amplifier Circuit Design
8. Field-Effect Transistor Operational Amplifiers
9. Current-Feedback, Norton, and Transconductance Operational Amplifiers
10. Voltage Comparators
11. Voltage Regulators
12. Power Amplifiers
13. Wide Bandwidth and Video Amplifiers
14. Modulators, Demodulators, and Phase Detectors
15. Voltage-Controlled Oscillators and Waveform Generators
16. Phase-Locked Loops
17. Digital-to-Analog and Analog-to-Digital Converters

Sidney Soclof

ISBN: 9789332556928

Copyright: 2016

Pages: 840

Operational Amplifiers with Linear Integrated Circuits, 4/e

About the Book

Focusing on applications, this text develops students' ability to analyze, model, and predict the performance of operational amplifiers and related linear circuits, as well as design the various circuit functions to perform specified operations. It studies a few widely used and time-tested devices in detail, and builds upon basic principles to establish a foundation for understanding and adapting to new technology and developments.

Features

- NEW - Chapter-end Electronics Workbench®/Multisim software example problems.
- NEW - Updated information regarding new devices.
- NEW - Revised chapter-end problems—Divided into three categories: drill, derivation, and design.
- NEW - Added laboratory exercises—Total 52 in Chs. 2-8.
- An emphasis on the essentials of operational amplifiers throughout.
- Over 100 detailed sample problems.
- An entire chapter devoted to ECA (Electronic Circuit Analysis).

Contents

1. General Amplifier Concepts
2. Ideal Operational Amplifier Analysis and Design
3. Operational Amplifier dc Effects and Limitations
4. Operational Amplifier ac Effects and Limitations
5. Linear Operational Amplifier Circuits
6. Comparators
7. Oscillators and Waveform Generators.
8. Active Filters
9. Rectifier, Diode, and Power Circuits
10. Analog-to-Digital and Digital-to-Analog Conversion
11. Miscellaneous Circuits
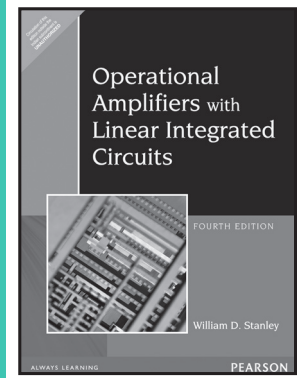
William D. Stanley

ISBN: 9788131708453

Copyright: 2002

Pages: 692

Also Available
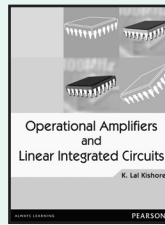
ISBN: 9788177585667
Pages: 440
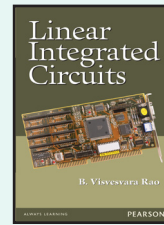
ISBN: 9789332534124
Pages: 504
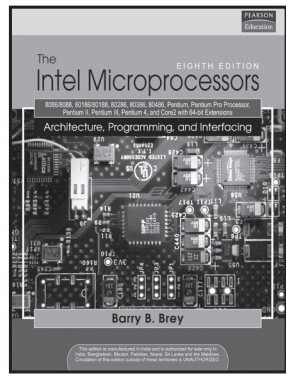
The Intel Microprocessors, 8/e

About the Book

The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions, 8/e, 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

Barry B. Brey

ISBN: 9788131726228

Copyright: 2008

Pages: 944

The x86 Microprocessor: Architecture, Programming and Interfacing, 2/e

About the Book

The book is designed for an undergraduate course on 16-bit microprocessor and Pentium. The text comprehensively covers both the hardware and software aspects of the subject with equal emphasis on architecture, programming and interfacing. The book gives an introduction to 8051 Microcontroller and its applications

Features

- Comprehensive analysis of programming and interfacing of 8086, with practical examples.
- Discusses the features and enhancements of the 80386, 80486 and Pentium processors.
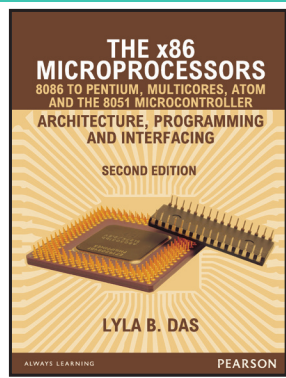
Lyla B. Das

ISBN: 9789332536821

Copyright: 2014

Pages: 888

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New to the Second edition

- Architecture of Intel's advanced Atom SoC processor is explained in detail.
- 8051 Microcontroller – architecture, interfacing and applications is covered.

Contents

Introduction: Basics of Computer Systems
1. Structure of 8086
2. Programming Concepts – I
3. Programming Concepts - II:
4. Programming Concepts - III
5. Programming Concepts - IV
6. The Hardware Structure of 8086
7. Memory and I/O Decoding
8. The Interrupt Structure of 8086
9. Peripheral Interfacing - I
10. Peripheral Interfacing - II
11. Peripheral Interfacing - III
12. Semi conductor memory Devices
13. Multiprocessor Configurations
14. 80286 to Pentium
15. Micro-architectural features of advanced processors
16. Multi core processors
17. Beyond Pentium-More advanced processors
18. Intel's High End Embedded processor –the ATOM SoC

Part II – The 8051 Microcontroller
19. The 8051- The Programmer's perspective
20. Programming the Peripherals of 8051
21. 8051 Applications

About the Author

Lyla B. Das is Associate Professor, Department of Electronics and Communication Engineering, National Institute of Technology Calicut, Kozhikode, KeralaARM.

ARM System-on-Chip Architecture

New

About the Book

ARM System-on-Chip Architecture presents and discusses the major issues of system-on-chip design, including memory hierarchy, caches, memory management, on-chip buses, on-chip debug and production tests. It provides an overview of the ARM processor family, enabling the reader to decide which ARM is best for the job in hand, describes the ARM and Thumb programming models enabling the designer to begin to develop applications. It also covers all the latest ARM products and developments, including StrongARM, the ARM9 and ARM10 series of cores, and the ARM-based SoC components at the heart of Ericsson's Bluetooth technology, the Psion Series 5 PDA and Samsung's SGH2400 GSM handset. It includes details on the AMULET asynchronous ARM cores and the AMULET3H asynchronous SoC subsystem. ARM System-on-Chip Architecture is an essential handbook for system-on-chip designers using ARM processor cores and engineers working with the ARM. It can also be used as a course text for undergraduate and master's students of computer science, computer engineering and electrical engineering.

Steve Furber

ISBN: 9789332555570

Copyright: 2016

Pages: 432

Contents

Preface
1. An Introduction to Processor Design
2. The ARM Architecture
3. ARM Assembly Language Programming
4. ARM Organization and Implementation.
5. The ARM Instruction Set
6. Architectural Support for High-Level Languages
7. The Thumb Instruction Set
8. Architectural Support for System Development
9. ARM Processor Cores
10. Memory Hierarchy
11. Architectural Support for Operating Systems
12. ARM CPU Cores
13. Embedded ARM Applications
14. The AMULET Asynchronous ARM Processors
    Appendix: Computer Logic
    Glossary
    Bibliography
    Index

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About the Author

Steve Furber has a long association with the ARM, having helped create the first ARM chips during the 1980s. Now an academic, but still actively involved in ARM development, he presents an authoritative perspective on the many complex factors that influence the design of a modern system-on-chip and the microprocessor core that is at its heart. This book represents the culmination of fifteen years of experience of ARM research and development and of teaching undergraduate, masters and industrial training courses in system-on-chip design using the ARM.

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

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

Yu-Cheng Liu

Glenn A. Gibson

ISBN: 9789332550087

Copyright: 2015

Pages: 640

The 8088 and 8086 Microprocessors: Programming, Interfacing, Software,Hardware and Applications, 4/e

About the Book

Future designers of microprocessor-based electronic equipment require a systems-level understanding of the 80x86 microcomputer. This widely acclaimed edition provides balanced and comprehensive coverage of both the software and hardware of the 8088 and 8086 microprocessors. The book examines how to assemble, run, and debug programs, and how to build, test, and troubleshoot interface circuits. New material has been added on number-system conversions, binary arithmetic, and combinational logic operations.

Features

- Part I explores the software architecture and how to write, execute, and debug assembly language programs.
- Part II examines the hardware architecture of microcomputers built with the 8088 and 8086 microprocessors.
- Part III provides detailed coverage of the other microprocessors in the 80x86 family: the 80286, 80486, and Pentium® processors. The newest Pentium ® family – Pentium® III and Pentium® IV – are also examined.
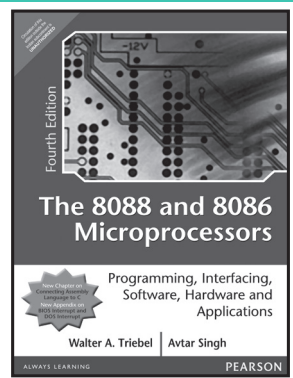
Walter A. Triebel

Avtar Singh

ISBN: 9788177584813

Copyright: 2007

Pages: 864

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Contents

1. Introduction to Microprocessors and Microcomputers
2. Software Architecture of the 8088 and 8086 Microprocessors
3. Assembly Language Programming
4. Machine Language Coding and the Debug Software Development Program of the PC
5. 8088/8086 Programming—Integer Instructions and Computations
6. 8088/8086 Programming—Control Flow Instructions and Program Structures
7. Assembly Language Program Development with MASM
8. The 8088 and 8086 Pin Configuration and their Memory and Input/Output Interfaces
9. Memory Devices, Circuits, and Subsystem Design
10. Input/Output Interface Circuits and LSI Peripheral Devices
11. Interrupt Interface of the 8088 and 8086 Microprocessors
12. Real-Mode Software and Hardware Architecture of the 80286 Microprocessor
13. The 80386, 80486, and Pentium® Processor Families: Software Architecture
14. The 80386, 80486, and Pentium® Processor Families: Hardware Architecture
15. Connecting Assembly Language To C
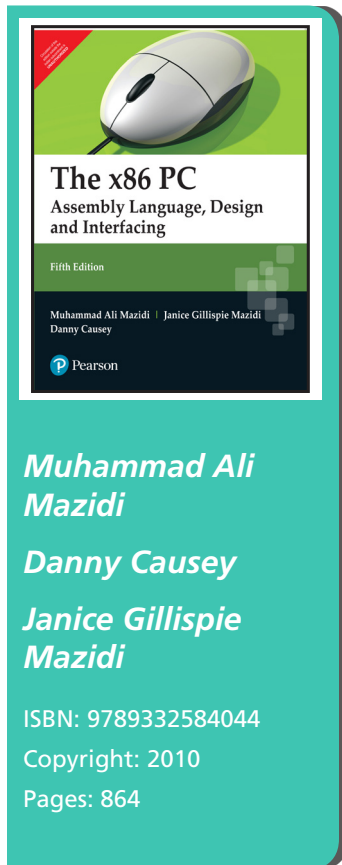
The X86 PC: Assembly Language, Design, And Interfacing, 5/e

About the Book

Praised by experts for its clarity and topical breadth, this visually appealing, comprehensive source on PCs uses an easy-to-understand, step-by-step approach to teaching the fundamentals of 80x86 assembly language programming and PC architecture. This edition has been updated to include coverage of the latest 64-bit microprocessor from Intel and AMD, the multi core features of the new 64-bit microprocessors, and programming devices via USB ports.

Offering students a fun, hands-on learning experience, the text uses the Debug utility to show what action the instruction performs, then provides a sample program to show its application. Reinforcing concepts with numerous examples and review questions, its oversized pages delve into dozens of related subjects, including DOS memory map, BIOS, microprocessor architecture, supporting chips, buses, interfacing techniques, system programming, memory hierarchy, DOS memory management, tables of instruction timings, hard disk characteristics, and more.

Features

- Comprehensive coverage of all the 80x86 microprocessors, from the 8088 to the Pentium Pro.
- Combines assembly and C programming early on.
- Introduces the 80x86 instructions with examples of how they are used, and covers 8-bit, 16-bit and 32-bit programming of x86 microprocessors.
- Uses fragments of programs from IBM PC technical reference, showing students a real-world approach to programming in assembly.
- Ensures a basic understanding of binary and hex numbering systems (before delving into PC assembly language and system programming).
- Places all C programming in the last section of each chapter, which maintains continuity for those with no C programming experience.
- Analyzes hardware differences among 8086, 286, 386, 486, Pentium and Pentium Pro chips -- looks at the internal architecture on programming such chips.

Muhammad Ali Mazidi

Danny Causey

Janice Gillispie Mazidi

ISBN: 9789332584044
Copyright: 2010
Pages: 864

Contents

Part I: Assembly Language Programming on the IBM PC, PS and Compatibles
Introduction to Computing

1. The 80x86 Microprocessor
2. Assembly Language Programming

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3. Arithmetic and Logic Instructions and Programs
4. BIOS and DOS Programming in Assembly and C
5. Macros and the Mouse
6. Signed Numbers, Strings, and Tables
7. Modules; Modular and C Programming
8. 32-Bit Programming for 386 and 486 Machines

Part II: Design and Interfacing of the IBM PC, PS and Compatibles

9. 8088/86 Microprocessors and Supporting Chips
10. 80286 Microprocessor and Supporting Chips
11. Memory and Memory Interfacing
12. I/0, 8255 and Device Interfacing
13. 8253/54 Timer and Music
14. Interrupts and the 8259 Chip
15. Direct Memory Accessing; the 8237 DMA Chip
16. Video and Video Adapters
17. Serial Data Communication and the 16550/8250/51 Chips
18. Keyboard and Printer Interfacing

19. Floppy Disks, Hard Disks, and Files
20. The 80x87 Math Coprocessor
21. 386 Microprocessor: Real vs. Protected Mode
22. High-Speed Memory Interfacing and Cache
23. 486, Pentium, Pentium Pro and MMX
24. MS DOS Structure, TSR, and Device Drivers
25. MS DOS Memory Management
26. IC Technology and System Design
27. ISA, EISA, MCA, Local, and PCI BUS
28. Programming DOS, BIOS, Hardware with C/C++

Appendices:
A: Debug Programming
B: 80x86 Instructions and Timing
C: Assembler Directives and Naming Rules
D: DOS Interrupt 21H and 33H Listing
E: BIOS Interrupts
F: ASCII Codes
G: I/O Address Maps
H: IBM PC/PS BIOS Data Area
I: Data Sheets

Also Available

The Pentium Microprocessor
James L. Antonakos
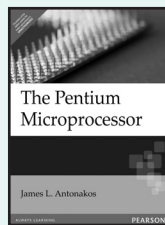
ISBN: 9788177582765
Pages: 556

Microprocessors and Programmed Logic
Second Edition
Kenneth L. Short
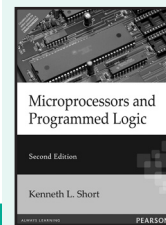
ISBN: 9788131709160
Pages: 640

The 8085 Microprocessor
Architecture, Programming and Interfacing
K. Udaya Kumar • B. S. Umashankar
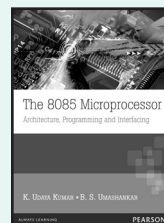
ISBN: 9788177584554
Pages: 624
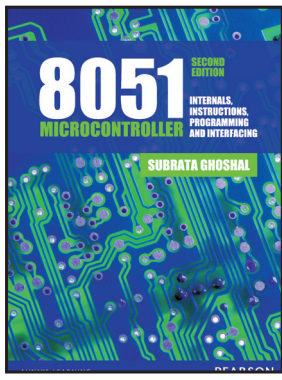
8051 Microcontroller: Internals, Instructions, Programming and Interfacing, 2/e

About the Book

8051 Microcontrollers, is one of the most widely used microcontrollers in embedded system design. The second edition of the book discusses its internal architecture, instruction set and interfacing techniques through simple language, excellent graphical annotations and a large variety of solved examples.

The latest edition of the book features additional C language based programs for varied applications.

Features

- Pictorial representation of most 8051 instructions.
- An exclusive chapter devoted to power management using 8051.
- A chapter on advanced microcontrollers such as the AVR.
- Extensive comment statements in example programs for better understanding of the program-logic.
- Separate chapters on servo motor interfacing with laboratory experiments.
- Checklists for software developers to ensure zero-error subroutines.

New to Second Edition:

- New and improved figures, diagrams and equations.
- More than 100 additional problems and exercises.
- Additional examples of programming 8051 in C language.

Contents

1. Introduction
2. General Architecture of Microcontrollers
3. I/O Ports and Special Function Registers
4. Addressing Modes and Data Move Operations
5. Arithmetic Operations
6. Program Branching
7. Programming Examples
8. Subroutines and Stacks
9. Logical Operations
10. Boolean Variable Manipulation
11. Programming Examples
12. Advanced Instructions
13. Programming Examples
14. External Interrupts
15. Timer Counter Interrupts
16. Serial Communications and Serial Interrupts
17. Interfacing: External Memory
18. Interfacing: Keyboards
19. Interfacing: Display Devices
20. Interfacing: DAC/ADC
21. Interfacing: DC Motor
22. Interfacing: Stepper Motor
23. Interfacing: Servomotors
24. Power Management of Microcontrollers
25. Case Study: An Home Protection System
26. Advanced Microcontrollers

About the Authors

Subrata Ghoshal was a professor of the Department of Embedded System Design, IIIT Pune. He obtained his Ph.D from IIT Bombay. He was Professor and Head of the IT department at the Sikkim Manipal Institite of Technology, and Professor of Computer Science department of St Thomas' College of Engineering and Technology, Kolkata. He has also served as an associate professor at BITS, Pilani, Rajasthan.

Subrata Ghoshal

ISBN: 9789332535756

Copyright: 2014

Pages: 536

Programmable Logic Controllers: Programming Methods and Applications

About the Book

This volume is designed to help readers develop a good general working knowledge of programmable controllers with concentration on relay ladder logic techniques and how a PLC is connected to external components in an operating control system. The text uses real world programming problems that students can solve on any available programmable controller or PLC simulator. Later chapters relate to more advanced subjects in machine controls, which makes this a welcome addition to a personal technical reference library.

Features

- General coverage of PLC programming.
- Specific programming examples relating to Logic State Machines and Logic Gates.
- Broad coverage of off-the-shelf sensor technology.
- Interfacing external inputs and outputs to PLCs; techniques are simplified and easy-to-understand.
- System integrity and safety emphasis.

Contents

1. Ladder Diagram Fundamentals
2. The Programmable Logic Controller
3. Fundamental PLC Programming
4. Advanced Programming Techniques
5. Mnemonic Programming Code
6. Wiring Techniques
7. Analog I/O
8. Discrete Position Sensors
9. Encoders, Transducers, and Advanced Sensors
10. Closed Loop and PID Control
11. Motor Controls
12. System Integrity and Safety
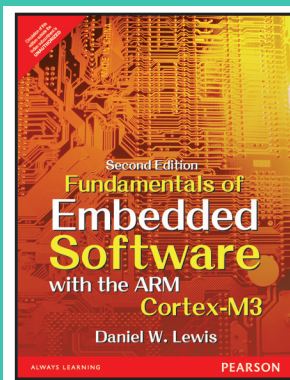
John R. Hackworth

Frederick D. Hackworth Jr.

ISBN: 9788177587715
Copyright: 2003
Pages: 318

Fundamentals of Embedded Software with the ARM Cortex-M3, 2/e

About the Book

This book is intended to provide a highly motivating context in which to learn procedural programming languages. The ultimate goal of this text is to lay a foundation that supports the multi-threaded style of programming and high-reliability requirements of embedded software. It presents assembly the way it is most commonly used in practice - to implement small, fast, or special-purpose routines called from a main program written in a high-level language such as C. Students not only learn that assembly still has an important role to play, but their discovery of multi-threaded programming, preemptive and non-preemptive systems, shared resources, and scheduling helps sustain their interest, feeds their curiosity, and strengthens their preparation for subsequent courses on operating systems, real-time systems, networking, and microprocessor-based design.

Features

- An alternative to a more traditional course on assembly language programming. This text is intended to serve as the basis for a sophomore level course in a computer science, computer engineering, or electrical engineering curriculum. This course is envisioned as a replacement for the traditional course on computer organization and assembly language programming.
- Presents assembly the way it is most commonly used in practice - to implement small, fast, or special-purpose routines called from a main program written in a high-level language such as C. This approach affords time within both the text and the course to cover assembly in the context of embedded software.
- Allows instructors to easily introduce embedded systems into an already packed curriculum, and provides a way to cover the procedural style still necessary in some upper-division courses.

Daniel W. Lewis

ISBN: 9789332549937
Copyright: 2015
Pages: 256

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- Emphasizes those features of C that are employed more frequently in embedded applications, and introduces the procedural style through examples and programming assignments that include large amounts of pre-written source code.

- Programming Assignments and the Companion Web Site. The text is complemented by a collection of programming assignments described in the appendices. Most of the source code for each assignment is provided on the Web Site.

Contents

1. Introduction
2. Data Representation
3. Implementing Arithmetic
4. Getting the Most Out of C
5. Programming in Assembly
6. Programming in Assembly
7. Programming in Assembly
8. Programming in Assembly
9. Concurrent Software
10. Scheduling
11. Memory Management
12. Shared Memory
13. System Initialization

About the Authors

Dr. Daniel W. Lewis' efforts led to the creation of Santa Clara University's Computer Engineering department in 1988, providing its leadership for the first 18 years. During his tenure, Lewis established unique co-op and study abroad options that fit within the normal undergraduate four-year plan, the first graduate-level academic certificate programs for working professionals, a new interdisciplinary major in Web Design and Engineering, and a interdisciplinary minor in Information Technology and Society. Since 2004, Lewis has focused on K-12 outreach in engineering and computing, raising more than $1.7M from NSF and private sources, and providing professional development for more than 200 K-12 teachers and summer camps for more than 2,000 K-12 students.

The 8051 Microcontroller, 4/e

About the Book

MacKenzie's 8051 Microcontroller text emphasizes the programming of the 8051 by illustrating the two most widely used programming methods; Assembly Language and C programming. This text assumes no prior knowledge of the subject and progressively introduces 8051 Microcontroller concepts while reinforcing those concepts with plenty of examples and exercise.

Features

- Treatment of smart cards and data security.
- It covers timer operation, serial port operation, interrupt operation, assembly language programming, 8051 C programming, program structure and design, and tools and techniques for program development.
- Concise treatment of all features of the 8051 microcontroller.
- Comprehensive coding and design examples.

Contents

1. Introduction to Microcontrollers
2. Hardware Summary
3. Instruction Set Summary
4. Timer Operation
5. Serial Port Operation
6. Interrupt Operation
7. Assembly Language Programming
8. 8051 C Programming
9. Program Structure and Design
10. Tools and Techniques For Program Development
11. Design and Interface Examples in Assembly
12. Design and Interface Examples in C
13. Example Student Projects
14. 8051 Derivative Devices
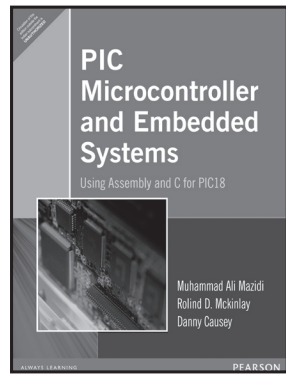
I Scott MacKenzie

Raphael C.W. Phan

ISBN: 9788131720189
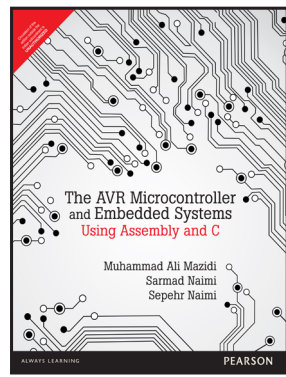
Copyright: 2008

Pages: 560

PIC Microcontroller and Embedded Systems: Using assembly and C for PIC 18

About the Book

PIC Microcontroller and Embedded Systems offers a systematic approach to PIC programming and interfacing using the Assembly and C languages. Offering numerous examples and a step-by-step approach, it covers both the Assembly and C programming languages and devotes separate chapters to interfacing with peripherals such as timers, LCDs, serial ports, interrupts, motors and more. A unique chapter on the hardware design of the PIC system and the PIC trainer round out coverage, while text appendices and online support make it easy to use in the lab and classroom.

Features

- Systematic coverage of the PIC18 family of microcontrollers.
- Coverage of C language programming of the PIC18-starting from Chapter 7.
- Chapters (9-17) on programming and interfacing the PIC with peripherals.
- An entire chapter (Chapter 8) dedicated to the design of the PIC Trainer

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. CCP and ECCP Programming
15. Radio wave Propagation
16. SPI Protocol and DS1306 RTC Interfacing
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 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 De Vry University. His areas of interest include networking, game development, microcontroller and embedded system design.

Muhammad Ali Mazidi

Rolin McKinlay

Danny Causey

ISBN: 9788131716755
Copyright: 2008
Pages: 800

AVR Microcontroller and Embedded Systems: Using Assembly and C

About the Book

The AVR Microcontroller and Embedded Systems: Using Assembly and C features a step-by-step approach in covering both Assembly and C language programming of the AVR family of Microcontrollers. It offers a systematic approach in programming and interfacing of the AVR with LCD, keyboard, ADC, DAC, Sensors, Serial Ports, Timers, DC and Stepper Motors, Opto-

Muhammad Ali Mazidi,

Sarmad Naimi,

Sepehr Naimi

ISBN: 9789332518407
Copyright: 2014
Pages: 700

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isolators, and RTC. Both Assembly and C languages are used in all the peripherals programming. In the first 6 chapters, Assembly language is used to cover the AVR architecture and starting with chapter 7, both Assembly and C languages are used to show the peripherals programming and interfacing.

Features

- Uses a step-by-step approach in covering the Architecture, Registers, and Assembly language programming of the AVR and emphasizes the use of I/O ports programming in Assembly language throughout.
- It covers The AVR C Programming with many examples and emphasizes

the use of I/O ports programming in C language.
- There is a chapter for each of the Peripherals of Timer, LCD, ADC, Motors, and RTC.
- Appendix dedicated to the detail description of the AVR instructions with many examples.

Contents

Introduction to Computing
1. The AVR Microcontrollers: History and Features
2. AVR Architecture & Assembly Language Programming
3. Branch, Call, and Time Delay Loop
4. AVR I/O Port Programming
5. Arithmetic, Logic Instructions, and Programs
6. AVR Advanced Assembly Language Programming
7. AVR Programming in C
8. AVR Hardware Connection and Flash Loaders
9. AVR Timer Programming in Assembly and C
10. Interrupt Programming in Assembly and C
11. AVR Serial Port Programming in Assembly and C
12. LCD and Keyboard Interfacing
13. ADC, DAC, and Sensor Interfacing
14. Relay, Optoisolator, and Stepper Motor Interfacing
15. Input Capture and Wave Generation in AVR
16. PWM Programming and DC Motor Control
17. SPI Protocol and Max7221 Display Interfacing
18. I2C Protocol and DS1307 RTC Interfacing

APPENDICES
A: AVR Instruction Description
H: Data Sheets

The 8051 Microcontroller and Embedded Systems: Using Assembly and C, 2/e
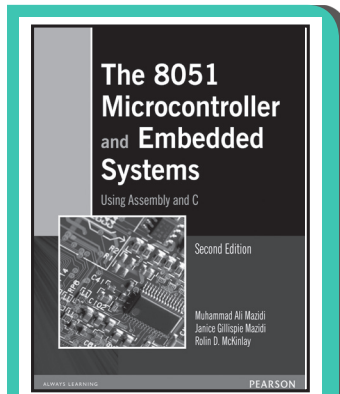
Muhammad Ali Mazidi

Janice Gillispie Mazidi

Rolin D. McKinlay

ISBN: 9788131710265

Copyright: 2007

Pages: 560

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, in 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.

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- 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 went to Tabriz University and 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 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. She has been chief technical writer and production manager, and was responsible for software development and testing of a widely used textbook, The 80x86 IBM PC and Compatible Computers, also available from Prentice Hall.

Rolin D. 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.

Design with PIC Microcontrollers

About the Book

This book is directed towards students of electrical engineering and computer engineering at the senior level and toward practicing engineers. The text develops design techniques for using microcontrollers (i.e., single-chip microcomputers). It emphasizes microcontroller versus microprocessor (e.g., Pentium and Power PC chip) issues.

Features

- Presents expansion with 12C devices.
- Presents the details of the PIC's unusually flexible analog-to-digital conversion facility.
- Discusses the master-slave interconnection of PICs.
- Presents low-power operation alternatives.
- Provides quick insight into the family member which will meet design requirements with block diagram comparisons of PIC family members. (Figure A-4)

Contents

1. A PIC Microcontroller Framework
2. CPU Architecture and Instruction Set

Design with PIC Microcontrollers

John B. Peatman

ISBN: 9788177585513
Copyright: 1998
Pages: 280

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3. MPASM Assember and Its Use
4. LoopTime Subroutine, Timer2 and Interrupts
5. Interrupt Timing and Program Size Considerations
6. External Interrupts and Timers
7. I/O Port Expansion
8. Front-Panel I/O
9. I2C Bus for Peripheral Chip Access
10. Analog-to-Digital Converter
11. UART
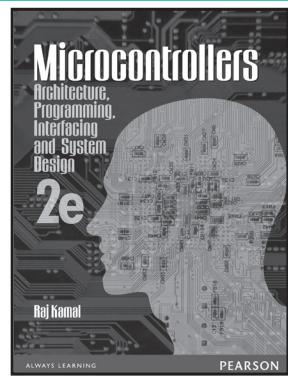
Microcontrollers: Architecture, Programming, Interfacing and System Design, 2/e

About the Book

This fully revised edition of Microcontrollers is based on the feedback received from users across the country. It prepares the students for system development using the 8051 as well as 68HC11, 80x96, ARM and PIC family microcontrollers. It provides a perfect blend of both hardware and software aspects of the subject. A key feature is the clear explanation of the use of the software building blocks, interrupt handling mechanism, timers, RTOS, IDE and interfacing circuits. It also covers aspects such as programming, interfacing and system design, and offers a large number of figures and tables, examples, end-chapter summaries, meanings of key terms, review questions, practice exercises, and multiple choice questions.

Features

- The architecture, instructions and internal resources in the 8051 microcontroller.
- The architecture, instructions and internal resources in the PIC, 80196, ARM and 68MC11/12 family microcontrollers.
- The real-time operating system, IDE, interrupt handling mechanisms and timers for real control in systems.
- Interfacing circuits for LED, LCD, keys, inductive coils, relays, motors, optical encoders, robots, input-output power control and DSP systems.
- Newly added examples in the chapters for a better understanding of the architecture, instructions and internal resources in the 8051 microcontroller and for the real time operating system.
- Interfacing of touch screen displays and controllers.
- Two new chapters for programming examples in assembly-language and C with flowcharts, programs and sample codes for developing embedded microcontroller applications.
- Provides insight into architecture, instructions and internal resources in the PIC microcontroller.
- Fill-in-blank-type short questions.
- Enriched bibliography, web-references and web-links to various microcontroller datasheets.

Contents

1. Types, Selection and Applications of Microcontrollers
2. Overview of Architecture and Microcontroller Resources
3. Intel 8051/8031 Family Architecture
4. 8051 Family Microcontrollers Instruction Set
5. Real Time Control: Interrupts
6. Real-time Control: Timers
7. System Design: Peripherals and Interfacing
8. Systems Design: Digital and Analog Interfacing Methods
9. Programming in Assembly
10. Programming in C
11. Real-time Operating System for System Design
12. Development Tools for Microcontroller Applications
13. PIC Family Microcontrollers
14. 16-Bit Microcontrollers: 8096/80196 Family
15. 32-Bit ARM7, ARM9 and ARM MCUs: Architecture, Programming and Development Tools
16. Motorola MC68HC11/12 Family
    Appendix A ASCII Codes for the Characters

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Raj Kamal

ISBN: 9788131759905

Copyright: 2012

Pages: 888

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Appendix B 8051 Internal and External RAM Byte Addresses between 00H to FFH and RAM bit Addresses

Appendix C Addresses of SFR bytes and Address of their each bit

Appendix D SFR with Byte Addresses

Appendix E SFR Bits Default values

Appendix F 8051 – Opcodes to Instruction Mnemonics Conversion Table

Appendix G 8051 Instruction Mnemonics along with the opcode

Appendix H 8051 Instruction Mnemonics, Length and Cycles for Execution

Appendix I Flag Affecting Instructions and effect on the flags

Appendix J Links to Datasheets

Embedded Systems: An Intregrated Approach

About the Book

Embedded Systems—An Integrated Approach is exclusively designed for the undergraduate courses in electronics and communication engineering as well as computer science engineering. This book is well-structured and covers all the important processors and their applications in a sequential manner. It begins with a highlight on the building blocks of the embedded systems, moves on to discuss the software aspects and new processors and finally concludes with an insightful study of important applications. This book also contains an entire part dedicated to the ARM processor, its software requirements and the programming languages. Relevant case studies and examples supplement the main discussions in the text.

Features

- Extensive coverage on the embedded hardware including details of processors, sensors, actuators, buses and system development.
- Comprehensive discussion on the architecture and programming of the ARM, 8051 and PSoC microcontrollers.
- Analysis on the concepts of operating systems with a special emphasis on the real time operating systems.

- Step-by-step solutions provided for programming examples in Assembly and C.
- Detailed coverage on DSP processors, ASIC design, product life-cycle management and software development tools.
- An entire chapter on the important applications of the embedded systems.

Lyla B. Das

ISBN: 9788131787663

Copyright: 2012

Pages: 784

Contents

1. Introduction to Embedded Systems
2. Embedded Systems—The Hardware Point of View
3. Sensors, ADCs and Actuators
4. Examples of Embedded Systems
5. Buses and Protocols
6. Software Development Tools
7. Operating System Concepts
8. Real-time Operating Systems
9. Programming in Embedded C
10. ARM—The World's Most Popular 32-bit Embedded Processor (Part I - Architecture and Assembly Language Programming)
11. ARM—The World's Most Popular 32-bit Embedded Processor (Part II -

Peripheral Programming of ARM MCU Using C)
12. Cypress's PSoC: A Different Kind of MCU
13. The 8051 Microcontroller: The Programmer's Perspective
14. Programming the Peripherals of 8051
15. DSP Processors
16. Automated Design of Digital ICs
17. Hardware Software Co-design and Embedded Product Development Lifecycle Management
18. Embedded Design: A Systems Perspective
19. Academic Projects

An Embedded Software Primer

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.

David E. Simon

ISBN: 9788177581546

Copyright: 2000

Pages: 444

Programmable Logic Controllers: Principles and Applications

New

About the Book

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, intermediate, 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

- NEW - Latest developments in PLC model functions and networking capabilities.
- Provides students with guidelines on the most recent programming developments.
- NEW - 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.

John W. Webb

Ronald A. Reis

ISBN: 9789332555129

Copyright: 2016

Pages: 480

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- NEW - 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.
- NEW - Updated PLC manufacturers listing.
- Provides students with the most current listing of PLC manufacturers.
- NEW - Examination of new International Electrotechnical Commission (IEC) 1131 international standards for PLCs—Including Function Block Diagram (FBD), Sequential Function Chart (SFC), Ladder Diagram (LD), Instruction List (IL), and Structured Text (ST).
- Provides students with a comprehensive look at all the important new standards in the field.
- NEW - New 28-chapter Activities/ Laboratory Manual—With 980 true/ false, multiple choice, and fill-in questions, plus 170 programming exercises.
- Provides students with helpful activities that reinforce the material in accompanying chapters in the book.

- Extensive pedagogical aids in each chapter—e.g. learning objectives,
- introduction, explanations, examples and troubleshooting problems.
- 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.
- Examples, troubleshooting problems and exercises.
- Provides students with worked-out solutions, program/application tips integrated into programming chapters and exercises that can be carried out in the laboratory on actual PLCs.
- Maintains a generic approach—By exploring many alternative formats.
- Enables students to apply all the techniques presented to any manufacturer's equipment.
- Matrix type chart.
- Provides students with a reference for major function designations listed by major manufacturers.

Contents

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Also Available

ISBN: 9788131720233
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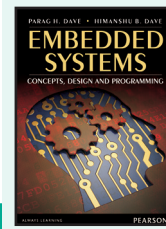
ISBN: 9789332543522
Pages: 568
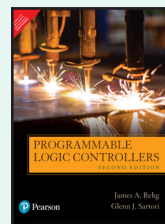
ISBN: 978933258
Pages: 576

Microwave Devices and Circuits, 3/e

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

Samuel Y. Liao

ISBN: 9788177583533

Copyright: 1990

Pages: 564

Microwave and Radar Engineering

About the Book

Microwave and Radar Engineering presents the essential features of microwave and radar engineering will focus on the needs of students who take up the subject at undergraduate and postgraduate levels of electronics and communications engineering courses. Spread across 17 chapters, the text begins with a discussion of wave equations and builds upon the topics step by step with ample illustrations and examples that delineate the concepts to the student's benefit. The book will also come in handy for aspirants of competitive examinations.

Features

- Faraday's law, Ampere's law and Maxwell's equations elucidated.
- Waveguide theory, waveguide components, microwave devices and S-parameters of microwave networks described.
- Principle and applications of RADAR covered.
- Over 100 examples, 240 objective type questions and 260 review questions.

Contents

1. Vector Analysis
2. Review of Maxwell's Equations and EM Wave Characteristics
3. Review of Transmission Lines
4. Introduction to Microwave Engineering
5. Waveguides
6. Waveguide Components
7. Scattering Matrix for Waveguide Components
8. Microwave Tubes
9. Microwave Solid-state Devices
10. Monolithic Microwave Integrated Circuits
11. Microwave Measurements
12. Introduction to Radars
13. CW Radar, FMCW Radar, and Pulse Radar
14. MTI and Pulse Doppler Radars
15. Tracking Radars
16. Detection of Signals in Noise and Radar Receivers
17. Microwave Experiments
   Appendix A Glossary of Terms
   Appendix B The Decibel [dB]
   Appendix C Doppler Frequency Shift
   Appendix D Physical Constants, Factors
   for Converting Measurements, and Measurement Unit Prefixes
   Appendix E Manley-Rowe Relations
   Index

Gottapu Sasibhushana Rao

ISBN: 9788131799444

Copyright: 2014

Pages: 664

About the Authors

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MATLAB and Its Applications in Engineering, 2/e

New
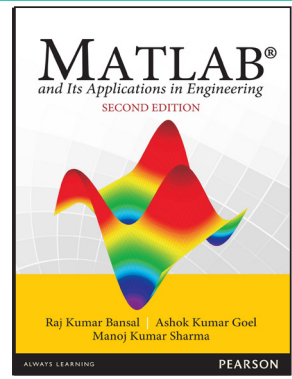
About the Book

This book is valuable both as a textbook as well as a reference for the theory and laboratory courses offered to undergraduate and graduate engineering students, and for practicing 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 Mathematicsn

About the Authors

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Raj Kumar Bansal

Ashok Kumar Goel

Manoj Kumar Sharma

ISBN: 9789332542099
Copyright: 2016
Pages: 560

Mastering MATLAB 7

About the Book

This text covers all essential aspects of MATLAB presented within an easy- to-follow "learn while doing" tutorial format.

Features

- All new features of the latest release of MATLAB are covered—Demonstrates how the new features can be used to increase productivity and do new things.
- Discusses integration of MATLAB with C, FORTRAN, AND Java—Increases MATLABÕs power and flexibility in dealing with external algorithms, datasets, and operating system capabilities.

- Thorough coverage of indexing, vectorizing, and linear algebra—Increases studentsÕ problem-solving productivity and dramatically increases algorithm speed.
- Abundant examples throughout—Also includes a chapter that specifically covers extensive examples.
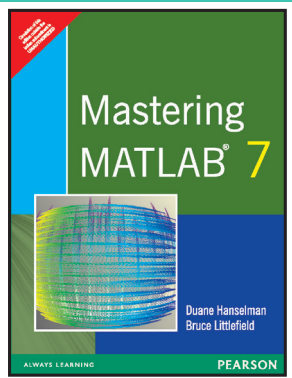
Duane Hanselman

Bruce Littlefield

ISBN: 9788131707432
Copyright: 2006
Pages: 864

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Contents

Programming in MATLAB®: A Problem-Solving Approach

About the Book

MATLAB® provides an interactive programming interface for numerical computation and data visualization making it the default framework used for analysis, design and research in many domains of science and industry. Programming in MATLAB® is intended as an aid to engineers and scientists with no prior programming expertise. The book focuses on the systematic development of practical programming skills through MATLAB language constructs, backed by several well-designed examples and exercises.

Designed to be as much a MATLAB reference tool for researchers in varied fields as it is a guide for undergraduate readers, the book builds on the concepts sequentially as it progresses through the chapters. Each chapter is complete, independent of the book's remaining contents. Thus, for teaching purposes, one can suitably the relevant portions.

Features

- More than 100 solved examples, 100 practice questions and 125 exercises.
- Chapter-wise organization of common errors and programming pitfalls.
- Exclusive chapters on debugging large programs, optimizing memory usage and making codes faster.
- Comprehensive overview of Simulink® Modeling and Graphical User Interface.
- Introduction to the concepts of digital image processing.

Ram N. Patel

Ankush Mittal

ISBN: 9789332524811

Copyright: 2014

Pages: 544

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Contents

1. Introduction to MATLAB®
2. Matrix operations and applications
3. MATLAB graphics and plotting
4. Control structures, loops, and file handling
5. Scripts and functions
6. Numerical methods, calculus, and statistics
7. Using memory efficiently
8. Using the MATLAB debugger And profiler
9. Efficient coding using Vectorization technique
10. Precision and Errors
11. Advanced concepts in MATLAB
12. Modeling With Simulink®
13. Digital Image Processing.

About the Authors

Ram N. Patel did his Ph.D. in the area of power systems from Indian Institute of Technology Delhi, in 2003. He received his M.Tech. from IIT Delhi and a graduate degree in electrical engineering from SGSITS, Indore. His manifold fields of interest include power system stability, optimization in electric power systems, application of artificial intelligence techniques, design of intelligent controllers and renewable energy systems. He has over 14 years of hands-on experience working with MATLAB and Simulink, as an instructor, researcher and trainer. Dr Patel has served as faculty in the electrical engineering department at IIT Roorkee and at the Birla Institute of Technology and Science, Pilani. Currently, he is Professor in the Department of Electrical and Electronics Engineering, Shri Shankaracharya Technical Campus (SSGI), Bhilai, and has many publications to his credit in various international journals of repute.

Ankush Mittal received his B.Tech. in computer science and engineering from Indian Institute of Technology Delhi in 1996, and later, his Master's degree in 1998 from the same institute. He received his Ph.D. degree in electrical and computer engineering from the National University of Singapore in 2001 and was a faculty member in the Department of Computer Science, National University of Singapore, for two years. He has also served as Associate Professor at IIT Roorkee. Currently, he is Director (Research) at Graphic Era University, Dehradun. Dr Mittal has contributed more than 250 research papers in journals and conferences of high repute with significant impact in academic circles. A dedicated teacher and active researcher, he is a recipient of the IIT Roorkee Outstanding Teacher Award and the IBM Faculty Award. He has taught more than 20 courses and worked on MATLAB extensively since his Ph.D.

Also Available

Introduction to MATLAB® 7

Delores M. Etter
David C. Kuncicky
Holly Moore

PEARSON
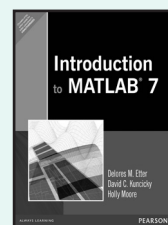
ISBN: 9788131723135
Pages: 304

Probability and Random Processes for Electrical Engineering, 2/e

About the Book

This textbook offers an interesting, straightforward introduction to probability and random processes. While helping students to develop their problem-solving skills, the book enables them to understand how to make the transition from real problems to probability models for those problems. To keep students motivated, the author uses a number of practical applications from various areas of electrical and computer engineering that demonstrate the relevance of probability theory to engineering practice. Discrete-time random processes are used to bridge the transition between random variables and continuous-time random processes. Additional material has been added to the second edition to provide a more substantial introduction to random processes.

Features

- Numerous examples—a wide selection of fully worked-out real-world examples.
- Problems—over 700 in all.

Contents

1. Probability Models in Electrical and Computer Engineering.
2. Basic Concepts of Probability Theory.
3. Random Variables.
4. Multiple Random Variables.
5. Sums of Random Variables and Long-Term Averages.
6. Random Processes.
7. Analysis and Processing of Random Signals.
8. Markov Chains.
9. Introduction to Queueing Theory.
   Appendix A. Mathematical Tables.
   Appendix B. Tables of Fourier Transformation.
   Appendix C. Computer Programs for Generating Random Variables.

Albert Leon-Garcia

ISBN: 9788131709177
Copyright: 1994
Pages: 616
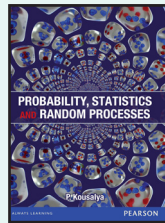
Also Available

ISBN: 9788131774526
Pages: 592

PULSE & DIGITAL CIRCUITS

Available Title
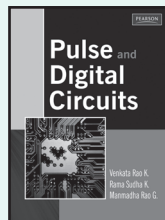
ISBN: 9788131721353
Pages:728

Satellite Communications Systems Engineering, 2/e

About the Book

Written with the working and teaching engineer in mind, this self-contained manual shows readers how to perform those types of calculations that are the bread and butter of satellite systems engineering. These calculations are then applied to the estimation of such basic communications parameters as channel capacity, picture quality, signal-to-noise ratio, bit error rate, and earth station antenna size, as well as basic spacecraft parameters, including mass, primary power and orbital lifetime, and launch vehicle payload.

Contents

1. Introduction to Satellite Communications
2. Orbits
3. Earth-Satellite Geometry
4. Launch Vehicles and Propulsion
5. Spacecraft
6. The RF Link
7. Modulation and Multiplexing
8. Multiple Access
9. Satellite Transponders
10. Earth Stations
11. Interference
12. Special Problems in Satellite Communicationsn

Wilbur Pritchard

Henri Suyderhoud

Robert A. Nelson

ISBN: 9788131702420
Copyright: 1993
Pages: 568

Semiconductor Device Fundamentals

Features

- The computer-based exercises and homework problems permit the replacement of plug-and-chug boredom with more challenging realistic problems.
- Other special features include tables that summarize the required reading, difficulty level, and suggested weighting of end-of-chapter problems, â€œecrib-sheetâ€ â€"like equation summaries in the critical beginning chapters, and direct reproductions of device data and computer-generated plots.

Contents

Part I: Semiconductor Fundamentals
1. Semiconductors - A General Introduction
2. Carrier Modeling
3. Carrier Action
4. Basics of Device Fabrication
   R1. Part I Supplement and Review

Part II: A. Pn Junction Diodes
5. PN Junction Electrostatics
6. PN Junction Diode - I-V Characteristics
7. PN Junction Diode - Small-Signal Admittance
8. PN Junction Diode - Transient Response
9. Optoelectronic Diodes

Part III: Bjts And Other Junction Devices
10. BJT Fundamentals
11. BJT Static Characteristics
12. BJT Dynamic Response Modeling
13. PNPN Devices
14. MS Contacts and Schottky Diodes
    R2. Part II Supplement and Review

Part IV: Field Effect Devices
15. Field Effect Introduction -- the J-FET and MESFET
16. MOS Fundamentals
17. MOSFETs -- The Essentials
18. Nonideal MOS
19. Modern FET Structures
    R3. Part III Supplement and Review
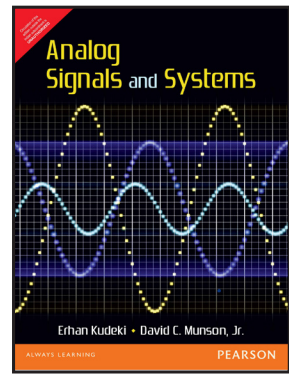
Robert F. Pierret

ISBN: 9788177589771
Copyright: 1996
Pages: 816

Analog Signals and Systems

About the Book

Analog Signals and Systems by Erhan Kudeki and David C. Munson, Jr. offers a thorough presentation of analog circuit, signal and system analysis techniques by two highly respected authors. This book has been classroom tested for eight years in a sophomore-level course that covers all of the essentials of both circuit analysis and analog signals and systems, leading directly to a junior/senior-level course on digital signal processing. This approach saves time and relates the abstract signals and systems material to circuits used for signal processing. This book focuses on the mathematical analysis and design of analog signal processing using a &ldquojust in time" approach - new ideas and topics relevant to the narrative are introduced only when needed, and no chapters are &ldquostand alone."

Features

- Review of circuits in Chapter 1.
- Review of complex numbers which are ideal for students in conjunction with Chapters 1 and 2 (Appendix C).
- Coverage of both frequency-domain and time-domain approaches.

- Five labs involving simple measurement and/or design projects to give students a taste of how signal and system theory applies in practice.

Contents

Analog Signals and Systems- The Scope and Study Plan
1. Circuit Fundamentals
2. Analysis of Linear Resistive Circuits
3. Circuits for Signal Processing
4. Phasors and Sinusoidal Steady State
5. Frequency Response H of LTI Systems
6. Fourier Series and LTI System Response to Periodic Signals
7. Fourier Transform and LTI System Response to Energy Signals
8. Modulation and AM Radio
9. Convolution, Impulse, Sampling, and Reconstruction
10. Impulse Response, Stability, Causality, and LTIC Systems

11. Laplace Transform, Transfer Function, and LTIC System Response
12. Analog Filters and Low-Pass Filter Design
Appendix A: Complex Numbers and Functions
Appendix B: Labs
Lab 1: RC-Circuits
Lab 2: Op-Amps
Lab 3: Frequency Response and Fourier Series
Lab 4: Fourier Transform and AM Radio
Lab 5: Sampling, Reconstruction, and Software RadioSignals

**Erhan Kudeki,
David C Munson Jr**

ISBN: 9788131787984
Copyright: 2012
Pages: 528

Signals and Systems, 2/e

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. e.g.: Ch. 9 on the Laplace Transform and

Ch. 10 on the Z-transform deal with the two domains separately, but often draw parallels between results in the two domains.

**Alan V. Oppenheim
Alan S. Willsky
with S. Hamid Nawab**

ISBN: 9789332550230
Copyright: 2015
Pages: 957

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- 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.
- 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. The four types of chapter-end problems are:

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

Signals, Systems, and Transforms

About the Book

This text provides a clear, comprehensive presentation of both the theory and applications in signals, systems, and transforms. It presents the mathematical background of signals and systems, including the Fourier transform, the Fourier series, the Laplace transform, the discrete-time and the discrete Fourier transforms, and the z-transform. The text integrates MATLAB examples into the presentation of signal and system theory and applications.
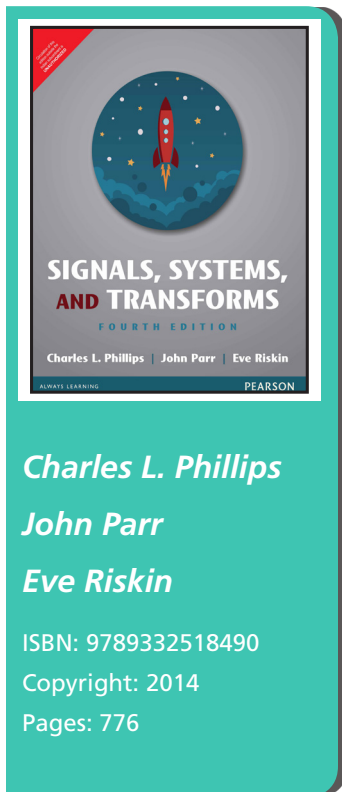
Charles L. Phillips

John Parr

Eve Riskin

ISBN: 9789332518490

Copyright: 2014

Pages: 776

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Features

- Over 350 homework problems and over 150 examples.
- Mathematical theory of systems and signals-Relates mathematical theory to practical systems and provides students with motivation as they can readily visualize applications of the theory presented.
- MATLAB-Integrated into the examples and problems which reinforces students' understanding of concepts by implementing MATLAB examples.
- Short sections on the bilateral Laplace and z-transforms--Allows instructors to introduce these topics to their class.
- Repetition of equations referenced--Saves students time by providing an easy reference.
- Verification of results-Requires that almost all problems' results are verified by an independent procedure; this includes, but is not limited to, MATLAB.

Contents

1. Introduction
2. Continuous-Time Signals and Systems
3. Continuous-Time Linear Time-Invariant Systems
4. Fourier Series
5. The Fourier Transform
6. Applications of the Fourier Transform
7. The Laplace Transform
8. State Variables for Continuous-Time Systems
9. Discrete-Time Signals and Systems
10. Discrete-Time Linear Time-Invariant Systems
11. The z-Transform
12. Fourier Transforms of Discrete-Time Signals
13. State Variables for Discrete-Time Systems

Appendix A: Solution of Differential Equations
Appendix B: Partial-Fraction Expansions
Appendix C: Review of Matrices
Appendix D: Answers to Selected Problems
Appendix E: Signals and Systems References
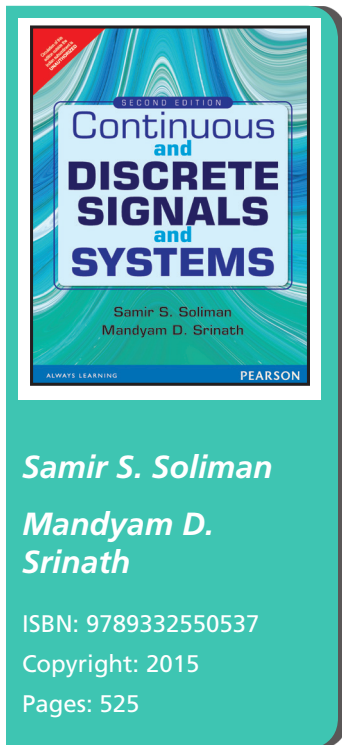
Samir S. Soliman

Mandyam D. Srinath

ISBN: 9789332550537

Copyright: 2015

Pages: 525

Continuous and Discrete Signals and Systems, 2/e

About the Book

This introductory text assists students in developing the ability to understand and analyze both continuous and discrete-time systems. The authors present the most widely used techniques of signal and system analysis in a highly readable and understandable fashion.

Features

- Covers the most widely used techniques of signal and system analysis.
- Separate treatment of continuous-time and discrete-time signals and systems.
- Extensive treatment of Fourier analysis.
- A flexible structure making the text accessible to a variety of courses.
- Makes extensive use of mathematics in an engineering context.
- Uses an abundance of examples to illustrate ideas and apply the theoretical results.

Contents

1. Representing Signals
2. Continuous - Time Systems
3. Fourier Series
4. The Fourier Transform
5. The Laplace Transform
6. Discrete-Time Systems
7. Fourier Analysis of Discrete-Time Systems
8. The Z-Transform
9. The Discrete Fourier Transform
10. Design of Analog and Digital Filters

Signals and Systems: Continuous and Discrete, 4/e

About the Book

A market leader in previous editions, this book continues to offer complete, separate treatment survey of continuous and discrete linear systems. It utilizes a systems approach to solving practical engineering problems, rather than using the framework of traditional circuit theory. Numerous examples from circuit theory appear throughout, however, to illustrate the various systems techniques introduced. The Fourth Edition has been thoroughly updated to effectively integrate the use of computers and to accurately reflect the latest theoretical advances.

Also Available
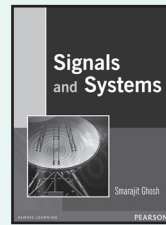
ISBN: 9788177583809
Pages: 486
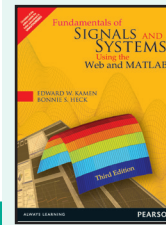
ISBN: 9789332534988
Pages: 648

Rodger E. Ziemer

William H. Tranter

D. Ronald Fannin

ISBN: 9789332542044
Copyright: 2015
Pages: 640

TELECOMMUNICATION

Telecommunication Switching, Traffic and Networks

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.

The book fills the gap between texts in telecommunications that only treat networks in a cursory manner and advanced texts that are too specialized for undergraduates. It will therefore become important reading for final year undergraduates and M.Sc. students in departments of electrical and electronic engineering.

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

J.E. Flood

ISBN: 9788131705025
Copyright: 1999
Pages: 328

About the Author

Professor J. E. 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 Grou on Telecommunications Networks and Systems.

A VHDL Primer, 3/e

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

J. Bhasker

ISBN: 9789332557161
Copyright: 2016
Pages: 416

VHDL: Basics to Programming

About the Book

VHDL: Basics to Programming is a methodological guide to VHDL and its applications. The book is written to teach fundamentals of VHDL to students at the beginner's level, but advanced users will also benefit from the complex embedded-system designs, included with simulation and synthesis. Presented in simple, easy-to-understand language, it proceeds gradually from HDLs to VHDL and its applications in the real world. Several examples are given for commonly used digital circuits. A few selected case studies have also been provided that can serve as minor projects for undergraduate and postgraduate students.

Features

- Exclusive chapters on embedded system and synthesis to help students in developing projects.
- Synthesis vs simulation explained thoroughly.
- All VHDL features explained through design examples.
- Introduction to VHDL-AMS (for analog design).
- Tutorial on use of Xilinx.
- Additional system design questions

Contents

1. Digital Design Flow
2. Introduction to VHDL
3. Basic Language Elements
4. Behavioral Modeling
5. Dataflow Modeling
6. Structural Modeling
7. Subprograms and Overloading
8. Configurations and Packages
9. Advanced Programming Concepts
10. Testbenches
11. Circuit Synthesis
12. Embedded Design Using vhdl
13. Microcomputer Design
14. Programmable Logic Devices
15. Case Study – Genetic Algorithm Processor
Additional Case Studies
Appendix A: Xilinx 9.1 Tutorial
Appendix B: Synthesizable Constructs in VHDL '93 and VHDL'2008
Appendix C: VHDL 2008: New Features
Appendix D: VHDL –Ams
Appendix E: Unsolved Design Problems

About the Author

Dr. Gaganpreet Kaur is an Assistant Professor and Head of the Department, Electronics and Communication Engineering at Rayat-Bahra College of Engineering and Biotechnology for Women, Punjab.

Gaganpreet Kaur

ISBN: 9788131732113
Copyright: 2011
Pages:340

Available Title

CMOS/BiCMOS ULSI
Low Voltage, Low Power

Kiat-Seng Yeo
Samir S. Rofail
Wang-Ling Goh

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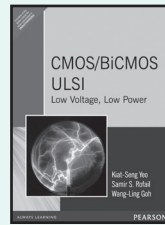
ISBN: 9788131708262
Pages:624

VLSI DESIGN

CMOS VLSI Design: A Circuits and Systems Perspective, 4/e

About the Book

The fourth edition of the best-selling text details the modern techniques for the design of complex and high-performance CMOS systems on a chip. Covering the fundamentals of CMOS design from the digital systems level to the circuit level, this book explains the fundamental principles and is a guide to good design practices.

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.

Fourth Edition
CMOS VLSI Design
A CIRCUITS AND SYSTEMS PERSPECTIVE

Neil H. E. Weste | David Money Harris

ALWAYS LEARNING   PEARSON

Neil H. E. Weste

David Money Harris

ISBN: 9789332542884
Copyright: 2015
Pages:864

Contents

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.
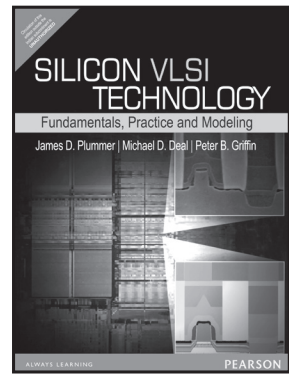
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Neil Weste is a member of the faculty at the Department of Electronic Engineering, Macquarie University; Adjunct Professor of Electrical Engineering at The University of Adelaide; and Director, Engineering at Cisco's Wireless Networking Business Unit. He is a Fellow of the IEEE for his contributions to custom IC design, and a peer elected member of the IEEE Solid State Circuits Society. In 1997 he cofounded Radiata Communications (with David Skellern) which designed the first chip sets for the IEEE 802.11a WLAN standard; in 2001 Radiata was acquired by Cisco. 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.

Silicon VLSI Technology: Fundamentals, Practice, and Modeling

About the Book

Unique in approach, this text provides an integrated view of silicon technology—with an emphasis on modern computer simulation. It describes not only the manufacturing practice associated with the technologies used in silicon chip fabrication, but also the underlying scientific basis for those technologies.

Features

- Extensive use of modern computer simulation methods and examples— Integrated into each chapter.
- Early, broad exposure to a complete chip manufacturing process.
- Examples of modern manufacturing practice.

- Historical perspective and introduction.
- An integrated view of silicon technology—with an emphasis on modern computer simulation.

Contents

1. Introduction and Historical Perspective
2. Modern CMOS Technology
3. Crystal Growth, Wafer Fabrication and Basic Properties of Silicon Wafers
4. Semiconductor Manufacturing— Clean Rooms, Wafer Cleaning and Gettering
5. Lithography
6. Thermal Oxidation and the Si/SiO2 Interface
7. Dopant Diffusion
8. Ion Implantation
9. Thin Film Deposition
10. Etching
11. Backend Technology

Application-Specific Integrated Circuits

About the Book

This comprehensive text on application-specific integrated circuits (ASICs) describes the methods in VLSI design. The book covers both semicustom and programmable ASIC types. After describing the fundamentals of digital logic design and the physical features of each ASIC type, the book turns to ASIC logic design-design entry, logic synthesis, simulation, and test-and then to physical design-partitioning, floor planning, placement, and routing. You will find here, in practical, well- explained detail, everything students need to know to understand the design of ASIC, and everything students must do to begin and to complete their own design. Separate chapters and appendices on both Verilog and VHDL, including material from IEEE standards, serve as a complete reference for high-level, ASIC-design entry.

Features

- Broad coverage includes, in one information-packed volume, cell-based ICs, gate arrays, field-programmable gate arrays (FPGAs), and complex

- programmable logic devices (PLDs).
- Examples throughout the book have been checked with a wide range of

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James D. Plummer
Michael D. Deal
Peter B. Griffin

ISBN: 9788131726044
Copyright: 2009
Pages:817
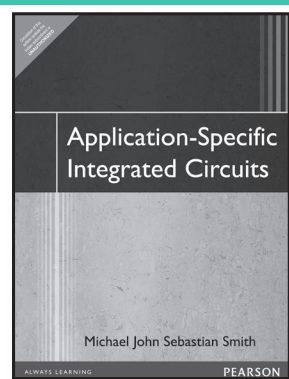
Michael John Sebastian Smith

ISBN: 9788177584080
Copyright: 1997
Pages: 1040

«««

commercial tools to ensure their accuracy and utility.

• Separate chapters and appendixes on Both Vertilog and VHDL, including

material from IEEE standards, serve as a complete references for high-level, ASIC-design entry.

Contents

1. Introduction to ASICs
2. CMOS Logic
3. ASIC Library Design
4. Programmable ASICs
5. Programmable ASIC Logic Cells
6. Programmable ASIC I/O Cells
7. Programmable ASIC Interconnect
8. Programmable ASIC Design Software
9. Low-Level Design Entry
10. VHDL
11. Verilog HDL
12. Logic Synthesis
13. Simulation
14. Test
15. ASIC Construction
16. Floorplanning and Placement
17. Routing
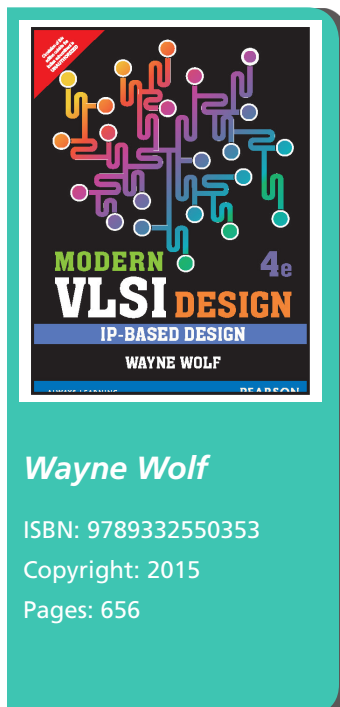
Modern VLSI Design: IP-Based Design, 4/e

About the Book

Modern VLSI Design, Fourth Edition, offers authoritative, up-to-the-minute guidance for the entire VLSI design process—from architecture and logic design through layout and packaging. Wayne Wolf has systematically updated his award-winning book for today's newest technologies and highest-value design techniques. Wolf introduces powerful new IP-based design techniques at all three levels: gates, subsystems, and architecture. He presents deeper coverage of logic design fundamentals, clocking and timing, and much more. No other VLSI guide presents as much up-to-date information for maximizing performance, minimizing power utilization, and achieving rapid design turnarounds.

Contents

1. Digital Systems and VLSI
2. Fabrication and Devices
3. Logic Gates
4. Combinational Logic Networks
5. Sequential Machines
6. Subsystem Design
7. Floorplanning
8. Architecture Design
Appendix A: A Chip Designer's Lexicon
Appendix B: Hardware Description Languages

About the Authors

Wayne Wolf is Rhesa "Ray" S. Farmer Jr. Distinguished Chair in Embedded Computing Systems and Georgia Research Alliance Eminent Scholar at the Georgia Institute of Technology. Before joining Georgia Tech, he was with Princeton University from 1989 to 2007 and AT&T Bell Laboratories from 1984 to 1989. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from Stanford University in 1980, 1981, and 1984, respectively. His research interests include VLSI systems, embedded computing, cyber-physical systems, and embedded computer vision. He has chaired several conferences, including CODES, EMSOFT, CASES, and ICCD. He was founding editor-in-chief of ACM Transactions on Embedded Computing Systems and founding co-editor-in-chief of Design Automation for Embedded Systems. He is a Fellow of the ACM and IEEE. He received the ASEE/CSE and HP Frederick E. Terman Award in 2003 and the IEEE Circuits and Systems Education Award in 2006.

Wayne Wolf

ISBN: 9789332550353

Copyright: 2015

Pages: 656

FPGA-Based System Design

About the Book

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-

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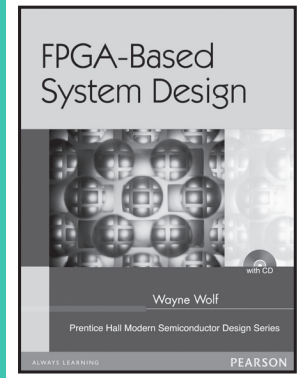
Wayne Wolf

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Pages:544

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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

Modern Wireless Communications

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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David Koilpillai

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Wireless Communications: Principles and Practice, 2/e

About the Book

The leading book on wireless communications offers a wealth of practical information on the implementation realities of wireless communications. This book also contains up-to-date information on the major wireless communications standards from around the world. Covers every fundamental aspect of wireless communications, from cellular system design to networking, plus world-wide standards, including ETACS, GSM, and PDC. Theodore Rappaport is Series Editor for the Prentice Hall Communication, Engineering, and Emerging Technologies Series.

Features

- Complete information on all of the world's most important standards—For cellular, cordless telephone, and personal communications systems, including AMPS, ETACS, U.S. Digital Cellular, GSM, CDMA, DECT, WACS, CT-2, PDC, and CDPD.
- All new end of chapter solved example problems—On topics ranging from cellular system design to networking.
- Hundreds of figures, tables, and diagrams—With clear explanations of all major concepts.

Contents

1. Introduction to Wireless Communication Systems
2. Modern Wireless Communication Systems
3. The Cellular ConceptÑSystem 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
8. Speech Coding
9. Multiple Access Techniques for Wireless Communications
10. Wireless Networking
11. Wireless Systems and Standards
    Appendix A. Trunking Theory

Theodore S. Rappaport

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Appendix B. Noise Figure Calculations for Link Budgets

Appendix C. Rate Variance Relationships for Shape Factor Theory

Appendix D. Approximate Spatial Autocovariance Function for Shape Factor Theory

Appendix E. Gaussian Approximations for Spread Spectrum CDMA

Appendix F. Q, erf & erfc Functions

Appendix G. Mathematical Tables, Functions, and Transformsn

William Stallings

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Pages:608

Wireless Communications & Networks, 2/e

About the Book

Best-selling author, William Stallings, gives an up-to-date coverage of both wireless communications and wireless networks with new expanded coverage of Wi-Fi and Wimax. Designed for students and professionals, this text explores the key networking topics with a unique approach covering: technology and architecture, network design approaches, and types of networks and applications.

Features

- Provides an entire chapter on spread spectrum, which is pervasive in wireless technology today.
- Also provides an entire chapter on satellite communications. This topic remains an important area within wireless communications.
- Thorough coverage of cordless systems.
- Extensive coverage of fixed wireless access, also known as wireless local loop, and IEEE 802.16 standards.
- Devotes a whole chapter on Mobile IP Wireless Application Protocol (WAP).
- Complete coverage of Wireless LANs, including IEEE 802.11 and Bluetooth.

Contents

1. Introduction

Part I: Technical Background

2. Transmission Fundamentals
3. Communication Networks
4. Protocols and the TCP/IP Suite

Part II: Wireless Communication Technology

5. Cellular Wireless Networks
6. Antennas and Wave Propagation
7. Modulation Techniques
8. Wireless Link Improvement Techniques
9. Multiple Access in Wireless System

Part III: Wireless Networking

10. Satellite Communications
11. Wireless System Operations and Standards
12. Mobile IP and Wireless Application Protocol

Part IV: Wireless Lans

13. Wireless LAN Technology
14. Wi-Fi and the IEEE 802.11 Wireless LAN Standard
15. Bluetooth and IEEE 802.15

About the Author

William Stallings has made a unique contribution to understanding the broad sweep of technical developments in computer networking and computer architecture. He has authored 17 titles, plus revised editions, for a total of 41 books on various aspects of these subjects. Dr. Stallings has seven times received the award for best Computer Science Textbook of the Year from the Text and Academic Authors Association. He is also an independent consultant whose clients have included computer and networking manufacturers and customers, software development firms, and leading-edge government research institutions. Dr. Stallings holds a Ph.D.degree in Computer Science from M.I.T and a B.S. from Notre Dame in electrical engineering.

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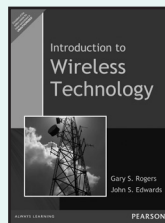
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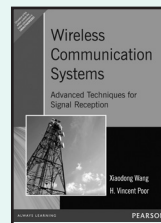
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133

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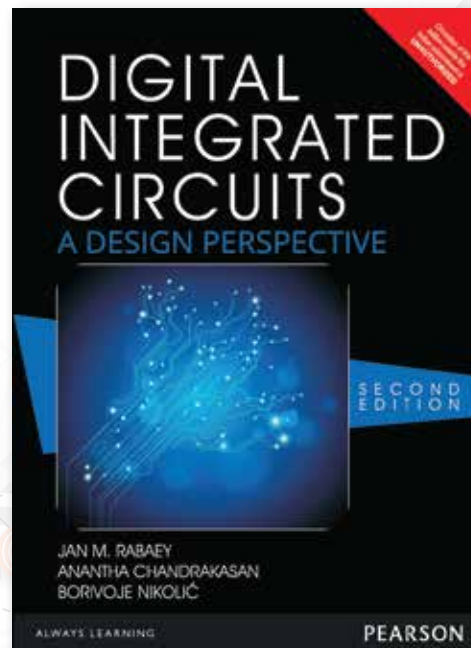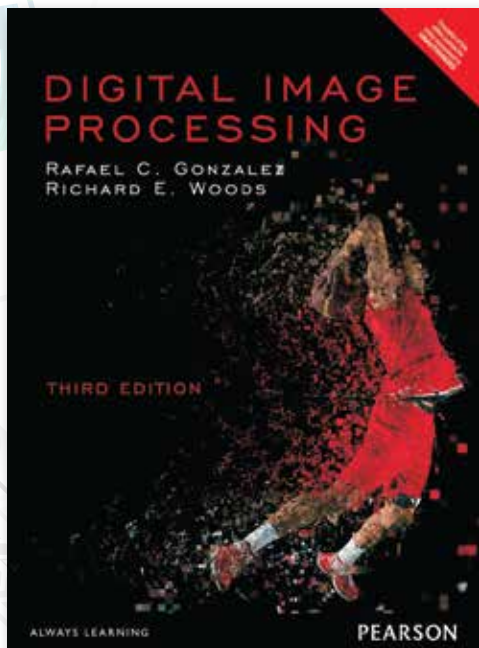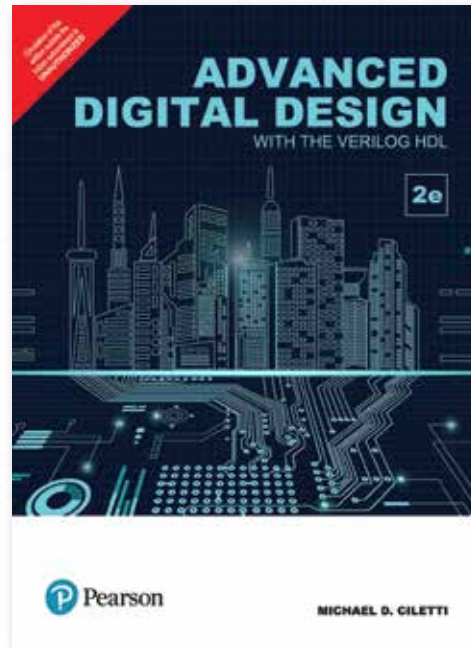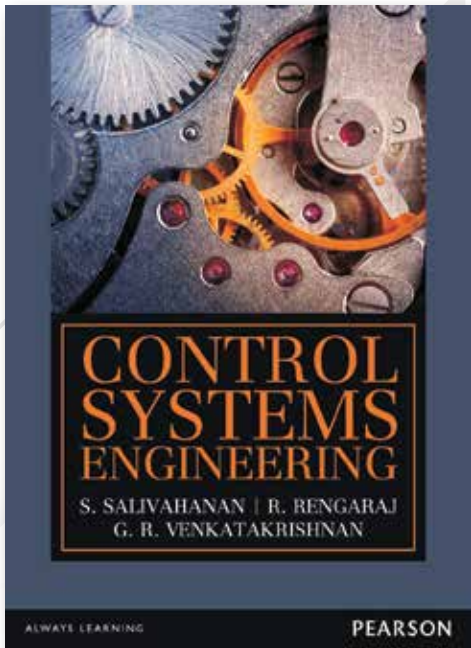**Sankar Krishnakumar**
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