

ELECTRICAL AND ELECTRONICS ENGINEERING

CATALOGUE 2016

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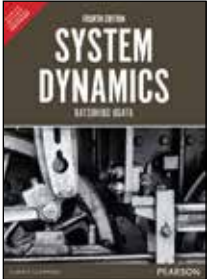
VLSI Chip Fabrication.....90

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Electrical Engineering

Advanced Control Systems



System Dynamics, 4/e

Katsuhiko Ogata

ISBN: 9789332534971

Copyright: 2013

Pages: 784

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



Advanced Control Systems Design, 1/e

Bernard Friedland

ISBN: 9789332559561

Copyright: 2016

Pages: 368

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.

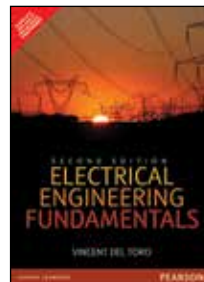
Features

- 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

Basic Electrical Engineering



Electrical Engineering Fundamentals, 2/e

Vincent Del Toro

ISBN: 9789332551763

Copyright: 1997

Pages: 940

New

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.

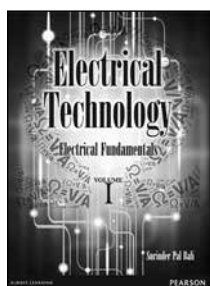
Part Five: Feedback Control Systems

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 CUNY 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.



Electrical Technology : Volume I

Surinder Bali

ISBN: 9788131785935

Copyright: 2013

Pages: 608

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 I of the book comprises of 54 Chapters covering topics in three-parts, Part A covers Electrical Fundamentals, Part B: Electric Machines & Part C: Electric Measurements.

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

Features

- Presents a comprehensive coverage on the fundamentals of the subject, such as Dielectric Materials, Electrochemical Action, Inductors, and Hysteresis.
- 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

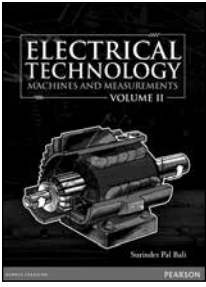
Contents

Part A: Electrical Fundamentals

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

About the Author

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



Electrical Technology: Volume II

Surinder Bali

ISBN: 9789332514416

Copyright: 2013

Pages: 456

About the Book

Electrical Technology, Volume 2 is the second offering of the book on Electrical Technology and serve the need of undergraduate students of electrical and electronics engineering. The book is divided into two parts consisting of 24 chapters. Part on Electric Machines introduces AC and DC machines and Part on Electrical Measurements discusses various electrical instruments and measurements.

The book is also packaged with DoCircuits- a web-based circuit simulator, specially created to help students practice key circuits. It works across platforms (Windows/Mac/Linux) and does not require any installation or plug-ins. Besides being used as a practice/pre-lab tool by students, it can also serve as an exciting tool for instructors to teach the circuits.

Apart from the free version, the book is also accompanied with an access code to avail the full version of DoCircuits at an exciting offer. The access details and code are given on the inside front cover.

Features

- Exhaustive coverage on rotating machines including AC, DC and special machines
- Detailed discussion on synchronous generators and motors in separate chapters
- End-of-chapter solved examples for concrete understanding of the concepts
- Web Supplements includes animations, important formulae, periodic chart, key terminology, Diagrammatic Symbols etc.
- Excellent pedagogy
 - o Learning Objectives
 - o Chapter Summary
 - o 500+ illustrations
 - o 170+ solved questions
 - o 380+ unsolved questions
 - o 270+ MCQs with answers

Contents

Part B – Electrical Machines

31. Electromechanical Energy Conversion
32. D.C. Generators
33. D.C. Motors
34. Efficiency of Direct Current Machinery
35. D.C. Motor Control
36. Single Phase Transformers
37. Three-Phase Transformers
38. Synchronous Generators (Alternators)
39. Synchronous Motors
40. Induction Motor (3 – Phase)
41. Induction Motor (Single Phase)
42. Specialized Motors
43. Servos and Synchros
44. Open - Loop and Closed – Loop
45. Converters and Inverters
46. Controlled Rectifiers
47. Per – Unit System

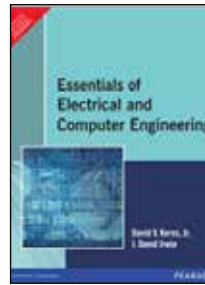
Part C – Electrical Measurements

48. Measurements and Error
49. Meter Movements

50. Ammeters, Voltmeters and Ohmmeters
51. Wattmeters and Energy Meters
52. Multimeters VOMs Analog and Digital
53. The Oscilloscope
54. Oscilloscope Techniques

About the Author

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



Essentials of Electrical and Computer Engineering

David V. Kerns Jr.
J. David Irwin

ISBN: 9788177580198

Copyright: 2004

Pages: 672

About the Book

With its clear presentation of fundamentals in the context of various applications from all engineering fields, this text by proven authors represents the best balanced general introduction to the field available. It introduces the latest technologies such as MEMS (Microelectromechanical Systems) to illustrate how modern technologies are interdisciplinary.

Features

- Large amount of examples and drill exercises and margin notes.
- Optional use of MATLAB as a computing tool.
- A lucid, readable discussion of digital technology.
- A large number of worked examples, drill exercises, and homework problems—Designed to illustrate key principles.
- Coverage of the material and information needed to prepare for the FE (Fundamentals of Engineering) exam—A prerequisite for students who want to pursue a Practicing Engineer license.

Contents

1. Introduction.
2. DC Circuits.
3. Transient Analysis.
4. AC Steady State Analysis.
5. Steady State Power Analysis.
6. Magnetically Coupled Circuits and Transformers.
7. Network Frequency Characteristics.

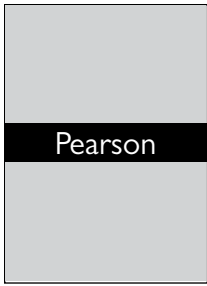
Circuits

Electronics

8. Introduction to Electronics.
9. Operational Amplifiers (OpAmps).
10. Semiconductors, Diodes, and Power Supplies.
11. Transistor Fundamentals: Switches, Large-Signal Amplifiers and Power Electronics.
12. Small Signal Transistor Amplifiers.
13. Digital Logic Circuits.
14. Digital Electronic Logic Gates.

ELECTROMECHANICAL SYSTEMS

15. DC Machines.
16. AC Polyphase Machines.



Electrical Engineering: Principles & Applications, 6/e

Allan R. Hambley

ISBN: TBA
Copyright: 2015
Pages: 916



About the Book

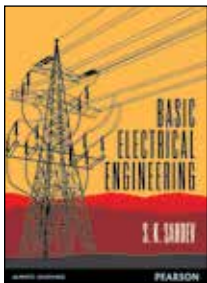
Electrical Engineering: Principles and Applications, 6e helps students learn electrical-engineering fundamentals with minimal frustration. Its goals are to present basic concepts in a general setting, to show students how the principles of electrical engineering apply to specific problems in their own fields, and to enhance the overall learning process. Circuit analysis, digital systems, electronics, and electromechanics are covered. Wide varieties of pedagogical features stimulate student interest and engender awareness of the material's relevance to their chosen profession.

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

SK Sahdev

ISBN: 9789332542167
Copyright: 2015
Pages: 768



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

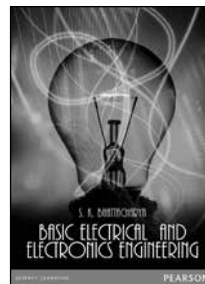
- Detailed coverage on AC Circuits and DC Circuits
- Step-by-step problem-solving methodology to hone problem-solving skills
- Extended coverage on electric machines and measurements
- Coverage on specialized motors like hysteresis motor, stepper motor, linear induction motor and universal motor
- In-depth 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

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

About the Author

Dr. SK Sahdev Associate Dean Lovely Professional University



Basic Electrical and Electronics Engineering

S. K. Bhattacharya

ISBN: 9788131754566
Copyright: 2011
Pages: 740

About the Book

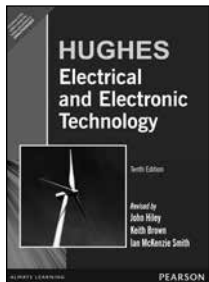
This book provides an overview of the basics of electrical and electronic engineering that are required at the undergraduate level. Efforts have been taken to keep the complexity level of the subject to bare minimum so that the students of non electrical/electronics can easily understand the basics.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

Features

- Covers syllabus prescribed by all universities.
- Easy to understand explanation of basic concepts.
- Also covers a Major Concepts from Basic Electronics – suitable for universities teaching Basic Electrical and Electronics together in one paper
- Step by step tutorial based approach.
- Excellent Pedagogy
- 238 Solved examples
- 754 Illustrations
- 526 Unsolved Review questions
- 314 Multiple choice questions

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



Hughes Electrical and Electronic Technology, 10/e

Edward Hughes
Ian McKenzie Smith
Dr John Hiley
Keith Brown

ISBN: 9788131733660
Copyright: 2010

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 Fibre optics
- Even more exercises and examples added to enhance problem solving skills

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

Control Systems



Control Systems Engineering, 3/e

S. K. Bhattacharya

ISBN: 9788131791653

Copyright: 2013

Pages: 604

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.

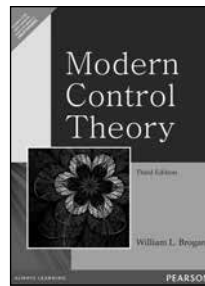
In this third edition, the treatment of topics has been made simple and lucid, with the help of extended derivations and an exhaustive number of new figures, illustrations and solved examples.

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 & Equations

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



Modern Control Theory, 3/e

William L Brogan

ISBN: 9788131761670

Copyright: 1990

Pages: 736

About the Book

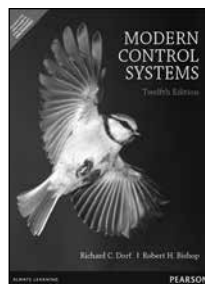
A practical text/reference on modern control applications in electrical, mechanical, and aerospace engineering.

Features

- briefly reviews system modeling and classical linear control in the transform domain
- develops the linear algebra/matrix theory needed for state variable analysis
- explores dynamical systems and their fundamental properties, design methods of pole-placement/observers, and optimal control theory
- contains numerous worked-out problems

Contents

1. Background and Preview
2. Highlights of Classical Control Theory
3. State Variables and the State Space Description of Dynamic Systems
4. Fundamentals of Matrix Algebra
5. Vectors and Linear Vector Spaces
6. Simultaneous Linear Equations
7. Eigenvalues and Eigenvectors
8. Functions of Square Matrices and the Cayley-Hamilton Theorem
9. Analysis of Continuous and Discrete Time State Equations
10. Stability
11. Controllability and Observability for Linear Systems
12. The Relationship between State Variable and Transfer Function Descriptions of Systems
13. Design of Linear Feedback Control Systems
14. An Introduction to Optimal Control Theory
15. An Introduction to Nonlinear Control Systems



Modern Control Systems, 11/e

Richard C. Dorf

Robert H. Bishop

ISBN: 9789332518629

Copyright: 2014

Pages: 1046

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.

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

Smarajit Ghosh

ISBN: 9788131758373

Copyright: 2012

Pages: 1044

About the Book

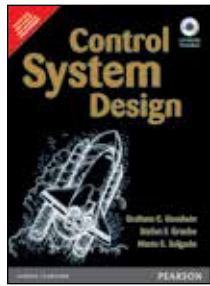
Control Systems: Theory and Applications is designed to meet the requirements of undergraduate programs in electrical, instrumentation, electronics and communication, and other allied engineering disciplines. This book presents a comprehensive treatment of the fundamentals of control system theory with 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 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:
 - 442 solved questions
 - 368 unsolved questions
 - 326 figures and illustrations
 - 500+ MCQs
 - 45+ MATLAB programs

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



Control System Design

Graham C. Goodwin
Stefan F. Graebe
Mario E. Salgado

ISBN: 9789332550520
Copyright: 2004
Pages: 908



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 plane zeros and right half plane poles, impact of actuator limitations (slew rate and amplitude constraints).

Contents

I. THE ELEMENTS.

1. The Excitement of Control Engineering.
2. Introduction to the Principles of Feedback.
3. Modeling.
4. Continuous-Time Signals and Systems.

II. SISO CONTROL ESSENTIALS.

5. Analysis of SISO Control Loops.
6. Classical PID Control.
7. Synthesis of SISO Controllers.

III. SISO CONTROL DESIGN.

8. Fundamental Limitations in SISO Control.
9. Frequency-Domain Design Limitations.
10. Architectural Issues in SISO Control.
11. Dealing with Constraints.

IV. DIGITAL COMPUTER CONTROL.

12. Models for Sampled-Data Systems.
13. Digital Control.
14. Hybrid Control.

V. ADVANCED SISO CONTROL.

15. SISO Controller Parameterizations.
16. Control Design Based on Optimization.
17. Linear State Space Models.
18. Synthesis via State Space Methods.
19. Introduction to Nonlinear Control.

VI. MIMO CONTROL ESSENTIALS.

20. Analysis of MIMO Control Loops.
21. Exploiting SISO Techniques in MIMO Control.

VII. MIMO CONTROL DESIGN.

22. Design via Optimal Control Techniques.
23. Model Predictive Control.
24. Fundamental Limitations in MIMO Control.

VIII. ADVANCED MIMO CONTROL.

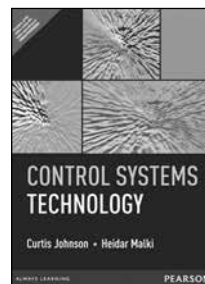
25. MIMO Controller Parameterizations.
 26. Decoupling.
- Appendix A: Notation, Symbols, and Acronyms.
Appendix B: Smith-McMillan Forms.

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 Director 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 Masters 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.



Control Systems Technology

Curtis D. Johnson
Heidar Malki

ISBN: 9788131788240
Copyright: 2012
Pages: 461

About the Book

Control Systems Technology is a comprehensive text focused on the knowledge required by practitioners to both understand and evaluate an existing control system. The text also enables readers to devise and design new control system applications.

The text presents classical and digital control systems, emphasizing careful explanations of the concepts. Multiple examples and solutions illustrate the concepts and the operations required to solve problems. The use of computers to implement practical solutions to problems is also emphasized throughout the book.

Features

- Coverage of All major topics
- 120 worked examples drawn from practical applications
 - An entire chapter devoted to Sensors
 - Coverage of Laplace Transforms
 - Essential features of Programmable Logic Controller technology
 - Over 250 chapter-end problems

Contents

1. Introduction to Control Systems
2. Measurement
3. Laplace Transforms
4. Control System Models

5. Static and Dynamic Response
 6. Stability
 7. Frequency Response Analysis
 8. Root Locus
 9. State Space Analysis
 10. Introduction to Digital Control Systems
 11. Z-Transform and the Difference Equation
 12. Discrete Control Systems
 13. Stability of Discrete Control Systems
 14. Discrete State Space
- Odd Problem Solutions

About the Authors

- **Curtis D. Johnson**, University of Houston
- **Heidar Malki**, University of Houston, College of Technology



Modern Control Engineering, 5/e

Katsuhiko Ogata

ISBN: 9789332550162

Copyright: 2015

Pages: 912



About the Book

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

The new edition includes improved coverage of Root-Locus Analysis (Chapter 6) and Frequency-Response Analysis (Chapter 8). The author has also updated and revised many of the worked examples and end-of-chapter problems.

Features

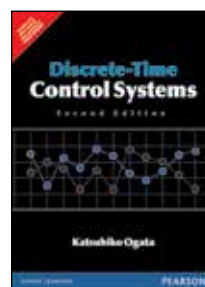
- Chapter 8 first discusses PID control in general and then presents two-degrees-of-freedom control systems — Presents a computational (MATLAB) method to determine system parameters so the system will have the desired transient characteristics.
- An improved chapter on the design of control systems in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

Contents

- 1 Introduction to Control System
- 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 Authors

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

Katsuhiko Ogata

ISBN: 9789332549661

Copyright: 2015

Pages: 768



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 control.

Features

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

Contents

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

About the Author

Katsuhiko Ogata is a prolific writer and professor Emeritus at the Department of Mechanical Engineering of the University of Minnesota. Ogata 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

Charles L. Phillips
John M. Parr

ISBN: 9789332507609
Copyright: 2013
Pages: 912

About the Book

Feedback Control Systems, 5e 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 – analog control systems, digital control systems, and nonlinear analog control systems – this text helps students understand the difference between mathematical models and the physical systems that the models represent.

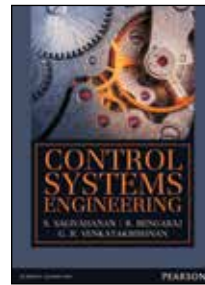
The Fifth edition provides a new introduction to modern control analysis and design for digital systems, the addition of emulation methods of design for digital control, and numerous other updates.

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 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



Control Systems Engineering

Dr. S. Salivahanan
R. Rengaraj
G. R. Venkatakrishnan

ISBN: 9789332539131
Copyright: 2015
Pages: 824



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

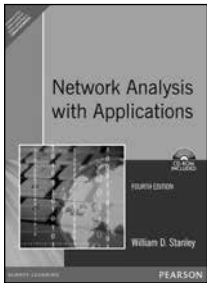
Contents

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

Circuits and Networks



Network Analysis with Applications, 4/e

William D. Stanley

ISBN: 9788131703182

Copyright: 2003

Pages :672

About the Book

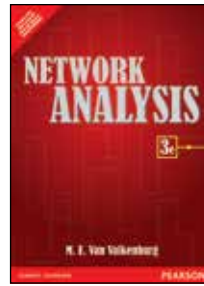
A unique feature of the book is that the first two chapters provide a mini-course in basic resistive circuit analysis for the purpose of strengthening the reader's background. It is an in-depth study of the basic circuit theorems and network analysis methods, with the treatment limited to those concepts essential for advanced study. A reader without a formal electrical background could conceivably acquire a sufficient background from these chapters to deal with the remainder of the book.

Features

- Electronics Workbench —Includes Electronics Workbench problems and their solutions, rather than PSpice.
- Application-oriented treatment of linear circuit analysis—Requires only a background in applied calculus, targeting engineering technology or applied engineering programs.
- MATLAB problems and solutions—Featured throughout.
- End-of-chapter problems—Divided into three categories: 1) Drill problems 2) Derivation problems 3) Application problems
- Text includes a EWB Circuits Data Disk which contains EWB configured circuits from the text.

Contents

1. Basic Circuit Laws.
2. Circuit Analysis Methods.
3. Capacitive and Inductive Transients and Equivalent Circuits.
4. Initial, Final, and First-Order Circuits.
5. LaPlace Transforms.
6. Circuit Analysis with LaPlace Transforms.
7. Transfer Functions.
8. Sinusoidal Steady-State Analysis.
9. Frequency Response Analysis and Bode Plots.
10. Waveform Analysis.
11. Fourier Analysis



Network Analysis, 3/e

Mac E. Van Valkenburg

ISBN: 9789332550131

Copyright: 2015

Pages: 592

New

About the Book

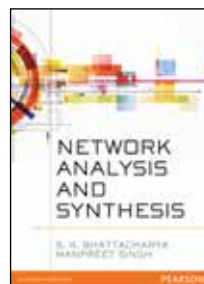
This book provides comprehensive coverage of the topics in the field of electric networks (or circuits) which are considered to be the foundation in electrical engineering, such as the Nyquist criterion, Tellegen's theorem, the Gauss elimination method, Thevenin's and Norton's theorems, the Routh Hurwitz 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

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



Network Analysis and Synthesis

**SK Bhattacharya
Manpreet Singh**

ISBN: 9789332542853

Copyright: 2014

Pages :724

New

About the Book

Network Analysis and Synthesis provides an in-depth knowledge of electrical circuit analysis, design, and synthesis.

It is an introductory text discussing the full spectrum of electrical circuit topics from Kirchoff's Laws, Mesh Analysis, Nodal Analysis, RLC Circuits and Resonance to Network Theorems and Applications, Laplace Transforms,

including Network Synthesis and Realizability, Filters and Attenuators. The book elucidates the subject by providing more than adequate solved/unsolved problems and multiple choice questions

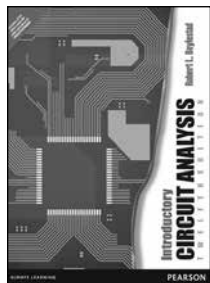
Features

- Extensive coverage on
 - o Network Topology and Graph Theory
 - o Three – phase circuits
 - o S-Domain Analysis of circuits
 - o Two Port Networks
- A separate chapter on Network Synthesis and Realizability
- An exclusive chapter on Laplace Transforms and Analysis using Fourier series
- Excellent Pedagogy
 - o 600+ Figures and Illustrations
 - o 400+ Solved Questions
 - o 400+ Unsolved Questions
 - o 250+ MCQ's

Contents

1. Basic Concepts
2. Kirchoff's Law, Mesh & Nodal Analysis
3. AC Circuits
4. R-L-C Circuits and Resonance
5. Network Theorems & Applications
6. Transient Response of Circuits using differential equations
7. Laplace Transform
8. Transient Response of Circuits using Laplace Transform
9. Three phase systems and circuits
10. Network Functions - s - Domain Analysis of Circuits
11. Two – port Network Parameters
12. Network Synthesis and Reliability
13. Filters and Attenuators

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
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



Introductory Circuit Analysis, 12/e

Robert L. Boylestad

ISBN: 9789332518612
 Copyright: 2013
 Pages: 1096

About the Book

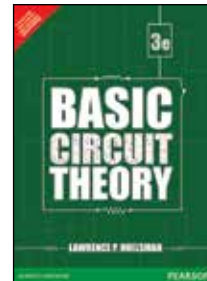
The most widely acclaimed text in the field for more than three decades, Introductory Circuit Analysis provides introductory-level students with the most thorough, understandable presentation of circuit analysis available. Exceptionally clear explanations and descriptions, step-by-step examples, practical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



Basic Circuit Theory, 3/e

Lawrence P. Huelsman

ISBN: 9789332550551
 Copyright: 2003
 Pages : 776



About the Book

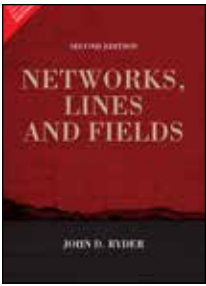
For a one-year beginning either sophomore or junior year of the undergraduate electrical or computer engineering curriculum. Written to provide an introduction to the basic concepts of modern circuit theory. This text is designed to motivate students to learn through learning objectives, review questions and discussions.

Contents

1. Introduction.
2. Resistors, Sources, and Simple Circuits.
3. Resistance Networks.
4. Capacitors and Inductors.
5. First-Order Circuits.
6. Second-Order and 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 Authors

Lawrence P. Huelsman, University of Arizona



Networks, Lines and Fields, 2/e

John D. Ryder

ISBN: 9789332559516

Copyright: 2016

Pages : 608



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 transmission line analogy.

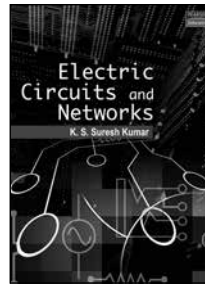
The use of exponential and the reflection factor, rather than the hyperbolic form emphasize practical concepts of energy transfer in fields so that the student has before him the expressions for the incident and the reflected waves.

Contents

1. Introduction.
2. Resistors, Sources, and Simple Circuits.
3. Resistance Networks.
4. Capacitors and Inductors.
5. First-Order Circuits.
6. Second-Order and 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 Authors

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 & Networks

K. S. Suresh Kumar

ISBN: 9788131713907

Copyright: 2008

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.

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 RI 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

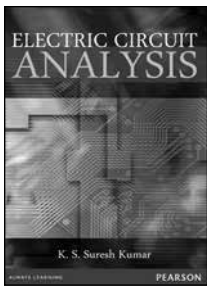
13. Dynamic Circuits with Periodic Input - Analysis by Fourier Series
14. Dynamic Circuits With a Periodic Inputs - Analysis by Fourier
15. Analysis of Dynamic Circuits by Laplace Transforms

Part VI: Introduction to Network Analysis

16. Two-Port Networks and Passive Filters
17. Introduction to Network topology

About the Authors

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

K. S. Suresh Kumar

ISBN: 9788131791554

Copyright: 2013

Pages: 728

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.

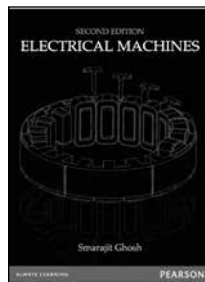
Features

- 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

Electric Machines (AC, DC and Special Machines)



Electrical Machines, 2/e

Smarajit Ghosh

ISBN: 9788131760901

Copyright: 2012

Pages: 848

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

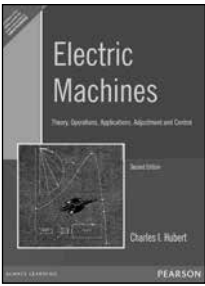
- New and improved figures, diagrams and equations
- Explicit and rigorous treatment of transformers—current, potential and welding transformers
- Auto transformers, Three Phase transformers, and Rotating machines are discussed in detail
- Detailed discussion of Polyphase Induction motors
- Covers electromechanical 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 Authors

Smarajit Ghosh is Professor, Department of Electrical and Instrumentation Engineering, Thapar University, Patiala, Punjab.



Electric Machines: Theory, Operating Applications, and Controls, 2/e

Charles I. Hubert

ISBN: 9788131708026

Copyright: 2002

Pages: 624

About the Book

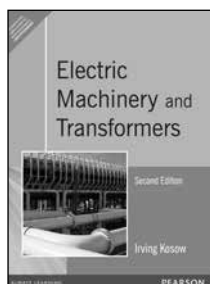
Retaining the student-friendly style of the First Edition, this unique text fills a gap in the available Electronics and Computer Technology texts by devoting more time to current industrial requirements. It presents AC machines and transformers before DC machines, motors before generators, gives more 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
- 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, & 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 Motors



Electric Machinery & Transformers, 2e

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

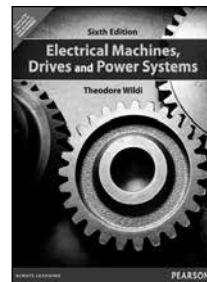
and transformers. Completely in conformity with the IEEE standards, this book is a valuable learning tool and a reliable reference for students as well as practicing engineers.

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, and 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 Kosow, Southern College of Tech-Matietta Georgia



Electrical Machines, Drives and Power Systems, 6/e

Theodore Wildi

ISBN: 9789332518537

Copyright: 2013

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.
- 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

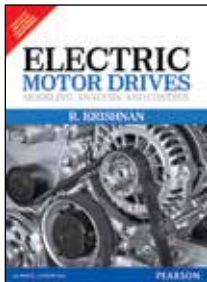
IV. ELECTRIC UTILITY POWER SYSTEMS

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 Authors

Theodore Wildi, Sperika Enterprises Ltd.

Electric Drives



Electric Motor Drives: Modeling, Analysis, and Control

R. Krishnan

ISBN: 9789332549715
Pages: 626

New

About the Book

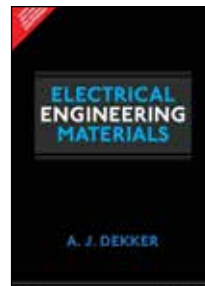
The book develops a systematic approach to motor drives. While the emphasis is on practice; extensive modeling, simulation and analysis is developed to assist readers in their understanding of the subject matter from fundamental principles. Also, each motor drive is illustrated with an industrial application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



Electrical Engineering Materials, 1/e

A.J. Dekker

ISBN: 9789332560116
Copyright: 2016
Pages: 224

New

About the Book

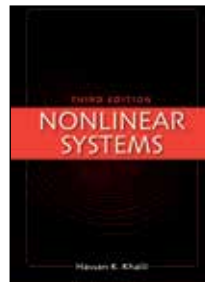
A list of general references is given at the beginning of this book, whereas references to specialized topics can be at the end of each chapter. A set of problems has been given at the end of each chapter. In a number of cases, these problems are intended to supplement the text.

Contents

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

About the Author

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



Nonlinear Systems, 3/e

Hassan k. Khalil

ISBN: 9789332542037
Copyright: 2015

New

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.

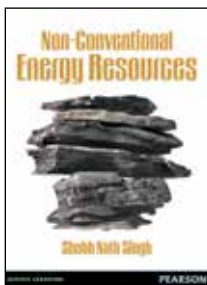
Features

- 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.

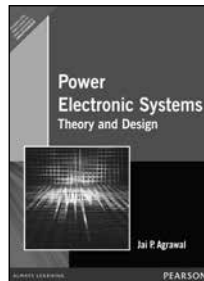
Features

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

Power Electronics



Power Electronic Systems: Theory and Design

Jai P. Agrawal

ISBN: 9788177588859

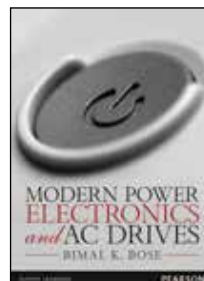
Copyright: 2006

About the Book

This undergraduate textbook features strong pedagogical support, complete with numerous examples, illustrations, problems, clearly stated objectives, and summaries. MATLAB examples are used extensively throughout the book, making math simpler. MATLAB is also used as a tool to enhance understanding of converter operation modes without the need for complex mathematical analysis. The emphasis is not on derivation of formulas but on their interpretation, implication, and application. The book integrates PSPICE circuit simulation throughout the discussion of each topic, and simulation is treated as an integral part of the analysis and design of power electronic circuits.

Contents

- I. Introduction
 1. Bird's Eye View of Power electronic Systems
- II. Power Electronic Components
 2. Understanding Components
 3. Power Diodes
 4. Transistors: Level Triggered Switching Devices
 5. Thyristors: Pulse Triggered Switching Devices
- III. Power Electronic Converter Circuits
 4. DC to Controlled DC
 5. DC to Controlled AC
 6. AC to DC: No Control
 7. AC to DC: With Control
 8. AC to Controlled AC
 9. Resonant Converters
- IV. Power Electronic Applications Systems
 11. Electric Utility Interface: Power Factor Correction and Static Var Control
 12. Converter Control
 13. Applications I: Power Supplies
 14. Applications II: Motor Drives
 15. Temperature Control, Protection and Packaging



Modern Power Electronics and AC Drives

Bimal K. Bose

ISBN: 9789332557550

Copyright: 2016

Pages: 744



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

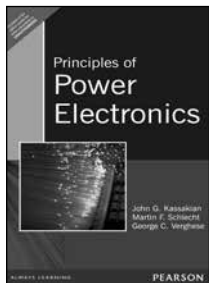
- Modern power semiconductor devices, converter circuits, and electrical machines
- High-performance control of induction and synchronous motor drives
- Energy saving control
- Estimation, identification and sensorless control of drives
- Artificial intelligence techniques such as expert system, fuzzy 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.



Principles of Power Electronics

John G. Kassakian
Martin F. Schlecht
George C. Verghese

ISBN: 9788131733202
Copyright: 2010
Pages: 740

About the Book

This textbook offers broad coverage of the subject of power electronics. Each topic is developed in sufficient depth to expose the fundamental principles, concepts, techniques, methods, and circuits necessary to understand power electronic systems. The applications are diverse enough to expose students to numerous types of systems. The authors have paid particular attention to developing examples and exercises that promote innovative ways of thinking about problems, methods of analysis, and the use of approximations.

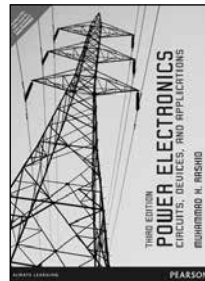
Features

- This textbook offers broad coverage of the subject of power electronics
- Each topic is developed in sufficient depth to expose the fundamental principles, concepts, techniques, methods, and circuits necessary to understand power electronic systems

Contents

1. Introduction
2. Form and Function: An Overview
3. Introduction to Rectifier Circuits

4. Bridge and Polyphase Rectifier Circuits
5. Phase-Controlled Converters
6. High-Frequency Switching dc/dc Converters
7. Isolated High-Frequency dc/dc Converters
8. Variable-Frequency dc/ac Converters
9. Resonant Converters
10. ac/ac Converters
11. Dynamics and Control: An Overview
12. State-Space Models
13. Linear and Piecewise Linear Models
14. Feedback Control Design
15. Components: An Overview
16. Review of Semiconductor Devices
17. Power Diodes
18. Power Transistors
19. Thyristors
20. Magnetic Components
21. Ancillary Issues: An Overview
22. Gate and Base Drives
23. Thyristor Commutation Circuits
24. Snubber Circuits and Clamps
25. Thermal Modeling and Heat Sinking



Power Electronics: Circuits, Devices and Applications, 3/e

Muhammad H. Rashid

ISBN: 9789332518445
Copyright: 2006
Pages: 908

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

- NEW - New chapters—including Ch. 9, “Multilevel Inverters,” Ch. 13, “Flexible AC Transmission Systems,” and Ch. 17, “Gate Drive Circuits.”
- NEW - New sections throughout—including “Semiconductor Basics,” “State-Space Analysis of Regulators,” “Vector Controls,” “Stepper Motor Control,” “Space Vector Modulation,” “Matrix Converters,” “Microelectronic Relays,” “Gate Drive IC’s,” “Magnetic Design,” and more.
- State of the art book—Covers emerging topics in power electronics.
- Well-written and easy-to-follow.
- Numerous worked-out examples.
- State-of-the-art power conversion techniques and power semiconductor devices.
- Integration of design techniques and problems.
- Computer-aided design techniques and analysis using PC.
- Integration of industry-standard software tools SPICE and MathCad.
- Chapter-end review questions and problems.
- Numerous 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.

Contents:

1. Introduction
2. Power Semiconductor Diodes and Circuits
3. Diode Rectifiers
4. Power Transistors
5. DC-DC Converters
6. Pulse-width Modulated Inverters
7. Thyristors
8. Resonant Pulse Inverters
9. Multilevel Inverters
10. Controlled Rectifiers
11. AC Voltage Controllers
12. Static Switches
13. Flexible AC Transmission Systems
14. Power Supplies
15. DC Drives
16. AC Drives
17. Gate Drive Circuits

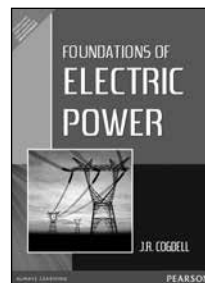
About the Author

Muhammad H. Rashid is employed by the University of West Florida as Professor of Electrical and Computer Engineering. Previously, he was employed by the University of Florida as Professor and Director of UF/UWF Joint Program. Rashid received his B.Sc. degree in electrical engineering from the Bangladesh University of Engineering and Technology, and M.Sc. and Ph.D. degrees from the University of Birmingham in UK. Dr. Rashid is currently an ABET program evaluator for electrical and computer engineering, and also for (general) engineering program.

- 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



Foundations of Electric Power

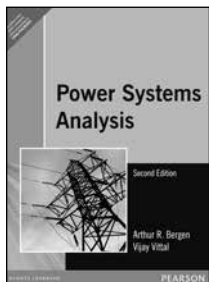
J R Cogdell

ISBN: 9788131764039

Copyright: 2011

Pages: 372

Power Systems



Power Systems Analysis, 2/e

Arthur R. Bergen
Vijay Vittal

ISBN: 9788177588194

Copyright: 2000

Pages: 632

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

About the Book

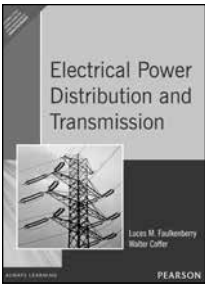
Extracted from the highly successful Foundations of Electrical Engineering by the same author, this work presents the fundamentals of electric power systems for all engineering students. The emphasis falls on the principles and characteristics of electric motors in steady-state and system applications. The presentation assumes knowledge of basic physics and calculus and is ideal for a one-semester survey of electric power systems for students knowing basic circuit theory. Relevant electrical physics and three-phase circuits are presented. Used with Foundations of Electric Circuits, this book is ideal for a one-semester course in circuits and electric power for all engineers.

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

Contents

1. Electric Power Systems
 2. The Physical Basis of Electromechanics
 3. Magnetic Structures and Electrical Transformers
 4. The Synchronous Machine
 5. Induction Motors
 6. Direct-Current Motors
 7. Power Electronic Systems
- Appendix A: Linear Systems



Electrical Power Distribution and Transmission

Luces M. Faulkenberry
Walter Coffe

ISBN: 9788131707098

Copyright: 2007

Pages: 582

About the Book

Written in a down-to-earth, easy to understand manner, this state-of-the-art text offers students a practical orientation and introduction to electrical power distribution and transmission.

Features

- Considers real-world aspects of the field, coupling theory and practice to arm students with applicable information they can use in their future career
- Organizes material in three sections easily arranged to suit course needs:
 - o Presents a brief history of the electrical power industry
 - o Discusses electrical power distributions
 - o Studies electrical power transmission
- Covers subject concepts in considerable depth and detail
- Offers up-to-date material with a historical perspective

Contents

I. Introduction to the Electrical Power System

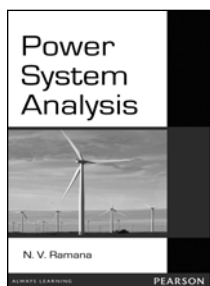
1. Introduction to Electrical Power
2. Basic Concepts, Three-Phase Review, and Per Unit

II. Electrical Power Distribution

3. Basic Considerations and Distribution System Layout
4. Distribution Transformers
5. Distribution Equipment
6. Distribution Substations
7. Distribution Line Construction

III. Electrical Power Transmission

8. Transmission System Overview
 9. Transmission Line Parameters
 10. Transmission Line Fault Current Calculation, Protection, and Bulk Power Substations
 11. Transmission Line Construction.
- Appendices: A. Three-phase Power Flow Constancy
 - B Sample REA Specifications
 - C Generalized Circuit Constants
 - D Complete Mathcad™ solution to Example 9-11



Power System Analysis

N.V. Ramana

ISBN: 9788131755921

Copyright: 2010

Pages: 456

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

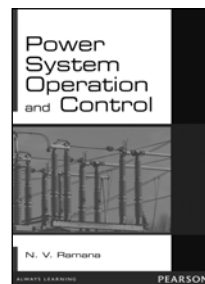
- In-depth coverage of
- Symmetrical fault analysis and unbalanced fault analysis
- Exclusive chapters on power flow studies
- A comprehensive chapter on transient stability
- Precise explanation supported by suitable examples
- The book is replete with objective questions and review questions

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

About the Authors

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 & Control

N.V. Ramana

ISBN: 9788131755914

Copyright: 2010

Pages: 185

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

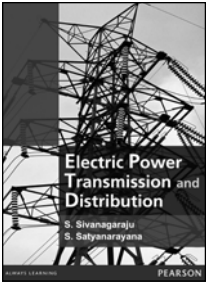
- In-depth coverage of single area and two-area load frequency control
- Exclusive chapter modelling of turbine, generators and automatic controllers
- Precise explanation supported by suitable examples
- The book is replete with objective questions and review questions

Contents

1. Economic Operation of Power System 1
 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 Authors

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



Electric Power Transmission and Distribution

S. Sivanagaraju
S. Satyanarayana

ISBN: 9788131707913

Copyright: 2008

Pages: 632

About the Book

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

Features

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

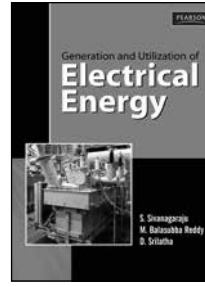
Contents

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

About the Author

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

S. Sivanagaraju
M. Balasubba Reddy
D. Srilatha

ISBN: 9788131733325

Copyright: 2010

Pages: 588

About the Book

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

Features

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

Contents

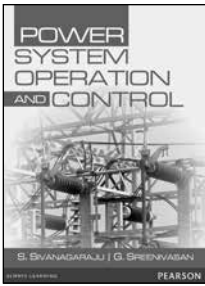
1. Conventional Power Generation
2. Non-Conventional Power Generation
3. Conservation
4. Electric Heating
5. Electric Welding
6. Fundamentals of Illumination
7. Various Illumination methods
8. Electric Drives
9. Electric Traction – I
10. Electric Traction – II
11. Electrolysis
12. Refrigeration and Air-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

About the Authors

S. Sivanagaraju 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

S. Sivanagaraju

G. Sreenivasan

ISBN: 9788131726624

Copyright: 2009

Pages: 612

About the Book

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

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

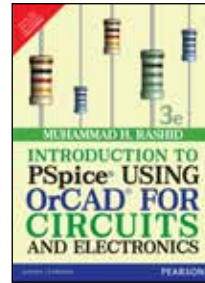
1. Economic Aspects
2. Economic Load Dispatch-I
3. Economic Load Dispatch-II
4. Optimal Unit Commitment
5. Optimal Power-Flow Problem—Solution Technique
6. Hydro-Thermal Scheduling
7. Load Frequency Control-I
8. Load Frequency Control-II
9. Reactive Power Compensation
10. Voltage Control
11. Modeling 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

PSpice



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

Muhammad H. Rashid

ISBN: 9789332555174

Copyright:

Pages: 480



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

1. Introduction.
2. Circuit Descriptions.
3. DC Circuit Analysis.
4. Transient Analysis.
5. AC Circuit Analysis.
6. Advanced SPICE Commands and Analysis.

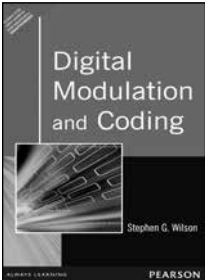
7. Semiconductor Diodes.
8. Bipolar Junction Transistors.
9. Field-Effect Transistors.
10. Op-Amp Circuits and Differential Amplifiers.
11. Difficulties.
Appendix: Drawing in PSpice Schematics.
Appendix: Drawing in Orcad Capture.
Appendix: Creating Input Circuit File.
Appendix: DOS Commands.

About the Authors

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.

Electronics & Communication Engineering

Advanced Communication Systems



Digital Modulation and Coding

Stephen G. Wilson

ISBN: 9788131721438

Copyright: 1996

Pages: 694

About the Book

Written as an extended conversation with the reader, this textbook covers all important topics in digital transmission at the intuitive level of physical systems. The presentation attempts to bridge the gap between communication practice and theory, emphasizing the interplay between modulation and coding and their receiver counterparts.

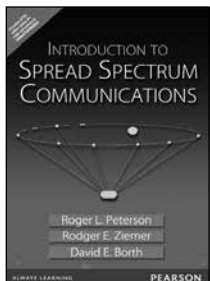
Features

Unique—presents expanded material on **lattices** not available in other texts.

- Assumes only a background of elementary probability concepts, transform calculus, and linear system theory.
- **Over 160 examples** are integrated throughout the text. And more than 380 end-of-chapter problems are provided.

Contents

1. An Overview
2. Fundamentals of Probability and Information Theory
3. Modulation and Detection
4. Channel Coding and Its Potential
5. Block Coding
6. Trellis Coding



Introduction to Spread Spectrum Communications,

Rodger E. Ziemer,

Roger L. Peterson,

David E. Borth

ISBN: 9789332500228

Copyright: 2013

Pages: 700

About the Book

Self-contained, this text offers a thoroughly up-to-date, accurate and insightful examination of spread spectrum system analysis and applications. It presents one of the most complete treatments of spectrum spreading

sequences available, covering the construction of code generators as well as the analysis of such codes for m-sequences, Gold codes and nonlinear codes, among others. Includes a handy, time-saving extensive table giving feedback connections for m-sequence generators. It also contains a comprehensive treatment of the code acquisition and tracking process that includes several means for acquisition and tracking, giving students valuable insight into this practical aspect of implementing spread spectrum systems.

Features

- Includes in-depth material on the effects of jamming on spread spectrum communications systems as well as on the use of coding/interleaving to combat the detrimental effects of jamming
- Offers a current look at the design of code division multiple access systems for cellular-mobile communications applications
- Discusses the design of spread spectrum systems for low probability of intercept, offering students insight into design approaches that incorporate this crucial factor
- Provides the most extensive use of pedagogical features of any book in the field.
- An unmatched array of examples appear throughout, illustrating specific analysis/design situations while reinforcing the text material and making it more easily assimilated.
- Numerous references are included at the end of each chapter.
- Extensive problem sets appear at the end of each chapter. The solutions to all problems

Contents

1. Basic Digital Communications Concepts
 2. Introduction to Spread Spectrum Systems
 3. Binary Shift Register Sequences for Spread Spectrum Systems
 4. Code Tracking Loops
 5. Initial Synchronization of the Receiver Spreading Code
 6. Performance of Spread Spectrum Systems in Jamming Environments
 7. Performance of Spread-Spectrum Systems with Forward Error Correction
 8. Code Division Multiple Access Digital Cellular Systems
 9. Low Probability of Intercept Methods
- Appendix A: Phase-Lock Loop Fundamentals
Appendix B: The Gaussian Probability Function
Appendix C: Power Spectral Densities for Sequences of Random Binary Digits and Random Tones
Appendix D: Calculation of the Power Spectrum of the Product of Two m-Sequences
Appendix E: Evaluation of Phase Discriminator Output Autocorrelation Functions and Power
Appendix F: Numerical Approximations for the Chi-Square Probability Distribution and Marcum's Q-Function

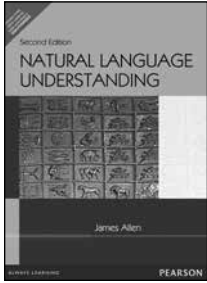
About the Authors

Rodger E. Ziemer, University of Colorado at Colorado Springs

Roger L. Peterson, Motorola, Inc.

David E. Borth, Motorola, Inc

Advanced Digital Signal Processing



Natural Language Understanding, 2/e

James Allen

ISBN: 9788131708958

Copyright: 1995

Pages: 676

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

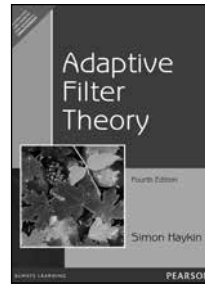
- A uniform framework based on feature-based context-free grammars and chart parsers that are used for syntactic and semantic processing
- An enhanced discussion of basic algorithms within the single framework of chart parsing
- An expanded discussion of unification-based approaches, scoping constructs,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

James Allen is the John H. Dessaure 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.



Adaptive Filter Theory, 4/e

Simon Haykin

ISBN: 9788131708699

Copyright: 2002

Pages: 936

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
- 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 & Language Processing

Daniel Jurafsky
James H. Martin

ISBN: 9789332518414
Copyright: 2014
Pages: 908

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.

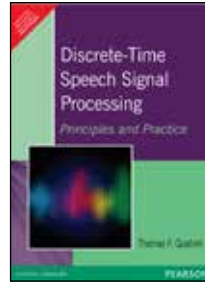
Contents

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 Probabilistic 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

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.



Discrete-Time Speech Signal Processing : Principles and Practice

Thomas F. Quatieri

ISBN: 9788177587463
Copyright: 2002
Pages: 908

About the Book

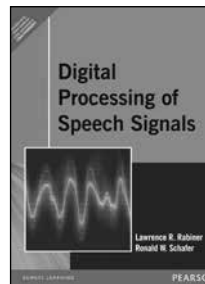
This book provides an up-to-date, intensive introduction to the fundamental theory of discrete-time speech signal processing while presenting the state-of-the-art in speech processing research, its applications to speech modification and enhancement, speech coding, and speaker recognition, as well as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

Features

- Topics that are not included in current speech text books—Such as sinusoidal speech processing, advanced time-frequency analysis, and nonlinear, aeroacoustic speech production modeling.
- Most up-to-date applications of speech processing technology.
- Clear distinction between stochastic and deterministic problems.
- Numerous examples and MATLAB exercises—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.



Digital Processing of Speech Signals

Lawrence R. Rabiner
Ronald W. Schafer

ISBN: 9788131705131
Copyright: 1979
Pages: 528

About the Book

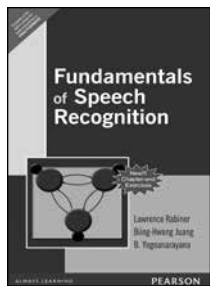
The purpose of this text is to show how digital signal processing techniques can be applied to problems related to speech communication. The book gives an extensive description of the physical basis for speech coding including fourier analysis, digital representation and digital and time domain models 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.



Fundamentals of Speech Recognition

Lawrence Rabiner

ISBN: 9788177585605

Copyright: 2008

Pages: 496

About the Book

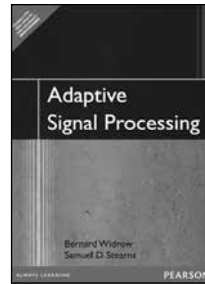
Provides a complete description of the basic knowledge and ideas that constitute a modern system for speech recognition by machine.

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 relative 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 exercises

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 Techniques



Adaptive Signal Processing

Bernard Widrow
Samuel D. Stearns

ISBN: 9788131705322

Copyright: 1985

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

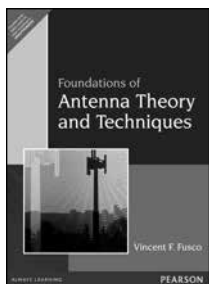
Part-III: Adaptive Algorithms and Structures

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

Antenna Theory



Foundations of Antenna Theory and Techniques

Vincent Fusco

ISBN: 9788131711255

Copyright: 2007

Pages: 246

About the Book

Foundations of Antenna Theory and Techniques takes a step-by-step mathematical approach to provide assisted access to a subject considered difficult or impenetrable. This new practical, accessible approach has been specially developed to help students grasp the mathematics, terminology and techniques associated with antenna behaviour, characterisation and system insertion relation issues.

Features

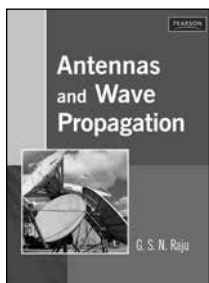
- The author uses intermediary steps in the elaboration of key concepts to facilitate a better understanding of the physical principles associated with antennas – makes the text accessible to those who have not studied advanced vector calculus
- Details the operation of arrays of basic wire antennas in order to enhance their collective radiation characteristics
- The final chapter provides a brief introduction to the key antenna structures deployed widely in industry, as well as a summary of some modern antenna types which are currently occupying research literature – including Fractal antennas, the Planar Inverted F antenna and the Reflectarray
- SI units used throughout

Contents

1. Basic concepts
2. Electromagnetic wave propagation and power flow
3. Linear dipole antennas
4. Antenna array techniques
5. Systems and characterisation considerations
6. Antenna-matching techniques

About the Authors

Vincent Fusco is a Fellow of the Royal Academy of Engineering, Fellow of the Institute of Electrical Engineers IEE, Fellow of the Institute of Electrical and Electronic Engineers IEEE. In 1986 he was awarded a British Telecommunications Fellowship and 1997 he was awarded the NI Engineering Federation Trophy for outstanding industrially relevant research.



Antennas and Wave Propagation

G. S. N. Raju

ISBN: 9788131701843

Copyright: 2004

Pages: 512

About the Book

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

Features

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

Contents

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

Basic Electronics



Basic Electronics

Debashis De

Kamakhya Prasad Ghatak

ISBN: 9788131710685

Copyright: 2010

About the Book

Basic Electronics, meant for the core science and technology courses in engineering colleges and universities, has been designed with the key objective of enhancing the students' knowledge in the field of electronics. Solid state electronics being a rapidly-evolving field of study, each topic has been extensively researched for the latest updates, and the authors have supplemented the chapters with customized pedagogical features. The required knowledge in mathematics has been developed throughout the book and no prior grasp of physical electronics has been assumed as an essential requirement for understanding the subject. Detailed mathematical derivations illustrated by solved examples enhance the understanding of the theoretical concepts. With its simple language and clear-cut style of presentation, this book presents an intelligent understanding of a complex subject like electronics.

Features

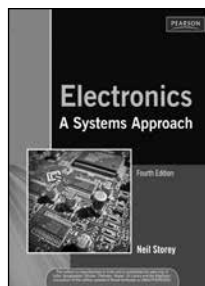
- Outline and Objectives provide a brief look at the chapter, and help the students and the instructors prepare for class.
- Figures and Tables illustrate the major concepts providing a perspective into the real-life applications.
- Solved Examples after every key topic and mathematical derivation help

the students develop a strong foundation in analysis.

- For Advanced Readers identify and analyse the vital concepts to support advanced learning.
- Points to Remember recreate the chapter for fast recapitulation.
- Objective Questions, Review Questions and Practice Problems allow the students to evaluate themselves on a chapter-by-chapter basis.

Contents

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



Electronics: A Systems Approach

Neil Storey

ISBN: 9788131734124

Copyright: 2009

About the Book

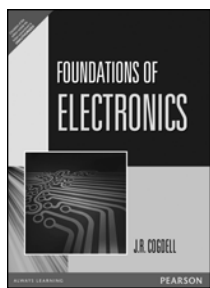
The fourth edition of Electronics: A Systems Approach is an outstanding introduction to this fast-moving, important field. Fully updated, it covers the latest changes and developments in the world of electronics. It continues to use Neil Storey's well-respected systems approach, firstly explaining the 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. Field-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



Foundations of Electronics

J R Cogdell

ISBN: 9788131764046

Copyright: 2011

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

Contents

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

25. Digital Devices
26. Implementing Digital Designs
27. Data Acquisition and Conversion
28. System Design

About the Authors

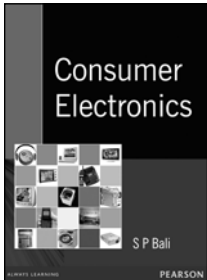
Dr. Neil Storey is a member of the School of Engineering at the University of Warwick, where he has many years of experience in teaching electronics to undergraduate, post-graduate and professional engineers. He is also the author of *Electrical and Electronic Systems* and *Safety-Critical Computer Systems*,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

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

Consumer Electronics



Consumer Electronics

S.P. Bali

ISBN: 9788131717592

Copyright: 2005

Pages: 752

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.

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

Communication Systems (Analog and Digital)



Digital Communications: Design for the Real World

Andy Bateman

ISBN: 9788131726785

Copyright: 2009

Pages: 248

About the Book

Digital Communications: Design for the Real World introduces readers to the fundamentals of digital communications through an applications-driven approach.

Devised specifically to serve as a first stage text for undergraduate students, this textbook + CD package relates theory to real-world products and emphasizes the design choices facing professional communications engineers, thereby bringing this exciting subject vividly to life. Students encountering communications topics for the first time, practising engineers and managers will all appreciate the stimulating and motivational treatment of the subject.

Features

- Uses animated figures to aid understanding.
- Provides internal hyperlinks for ease of navigation and external hyperlinks to further information.
- Includes MATLAB code and ready to run simulations.
- Contains answers to problems from the printed text.
- Provides an easy way to generate electronic transparencies.

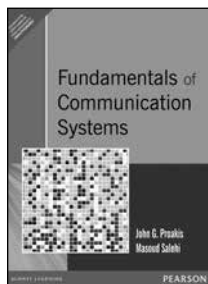
Contents:

1. Background material.
2. Data transmission fundamentals.
3. Baseband data transmission.
4. Sources and examples of channel degradation.
5. Bandpass digital modulation.
6. Multi-level digital modulation.
7. Coding theory and practice.
8. Multi-user digital modulation techniques.

About the Authors

Andy Bateman is a leading authority in this field. Until recently he was Professor of Signal Processing at the University of Bristol and is he now a Director of Wireless Systems International Ltd. The book is based on his undergraduate teaching at Bristol and his training courses for professionals. He has extensive practical experience in the 'real-world' having performed consultancies with organisations such as the Canadian Department of Communications, Renishaw UK, British Telecom, Australia Telecom, Hewlett-Packard, Philips, Plessey Avionics, Bell Operating Company USA, Nokia Mobile Communications, and Uniden Japan. He has published eighty papers and has registered thirteen patents.

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



Fundamentals of Communication Systems

John G. Proakis
Masoud Salehi

ISBN: 9788131705735
Copyright: 2007
Pages: 876

About the Book

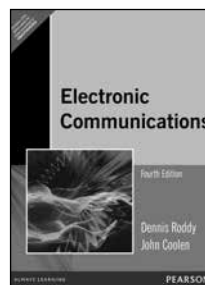
This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite 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



Electronic Communications, 4/e

Dennis Roddy
John Coolen

ISBN: 9788177585582
Copyright: 2008
Pages: 736

About the Book

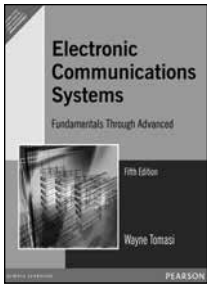
This comprehensive introduction to Electronic Communications explores fundamental concepts and their state-of-the-art application in radio, telephone, facsimile transmission, television, satellite, and fiber optic communications. It provides an explanatory as well as descriptive approach, avoids lengthy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

Features

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

Contents

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



Electronic Communications System: 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

Wayne Tomasi

ISBN: 9789332549685

Copyright: 2008

Pages: 672

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

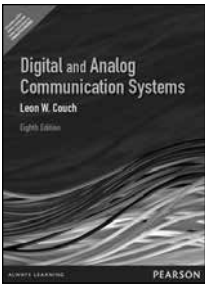
- NEW - Chapter 10—Dedicated entirely to cellular and PCS telephone systems.
- NEW - Optical fiber communications has been moved from Chapter 10 to Chapter 1—Includes new sections on light sources, optical power, optical sources and link budget.
- NEW - Material—Includes trellis encoding, CCITT modem 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 Authors

Wayne Tomasi, DeVry Institute of Technology - Phoenix



Digital & Analog Communication Systems, 7/e

Leon W. Couch

ISBN: 9789332518582

Copyright: 2014

Pages: 676

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

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 Authors

Leon W. Couch graduated from Duke University in 1963 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.



Digital Communications, 2/e

Ian Glover

Peter Grant

ISBN: 9788131717141

Copyright: 2007

Pages: 1046

About the Book

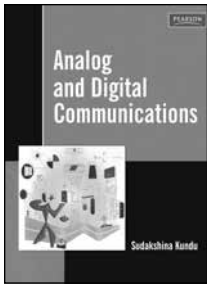
The second edition of Digital Communications is updated to include current techniques and systems used in the rapidly expanding field of fixed and mobile communications. The text has comprehensive coverage of digital communications without going into unnecessary detail or irrelevant topics. Its main aims are to develop the mathematical theory behind signal processing and use this knowledge to develop fixed and mobile data communications systems.

Features

- An introduction to the basic concepts of modulation, switching and transmission
- Discussion of how the performance of a system can be simulated before construction
- Describes modern systems including satellite communications and cellular radio
- Includes network design, including information on access techniques and ISDN.
- A good balance of theory, practical examples and case-studies.
- SI units used throughout.

Contents

- Part I: Signals and Systems Theory**
1. Digital Communications Overview
 2. Periodic and Transient Signals
 3. Random Signals and Noise
 4. Linear Systems
- Part II: Digital Communications Principles**
5. Sampling, Multiplexing, and PCM
 6. Bandbased Transmission and Line Coding
 7. Decision Theory
 8. Optimum Filtering for Transmission and Reception
 9. Information Theory and Source Coding
 10. Error Control Coding
 11. Bandpass Modulation of a Carrier Signal
 12. System Noise and Communications Link Budgets
 13. Communication Systems Simulations
- Part III: Applications**
15. Fixed Point Microwave Communications
 16. Mobile and Cellular Radio
 17. Video Transmission and Storage
- Part IV: Networks**
18. Queuing Theory for Packet Networks
 19. Network Topology and Protocols
 20. Public Networks and the Integrated Services Digital Network (ISDN)



Analog and Digital Communications

Sudakshina Kundu

ISBN: 9788131731871

Copyright: 2010

Pages: 384

About the Book

Analog and Digital Communications will help students, irrespective of their level of study, to grasp the fundamental aspects of electronic communication by starting from the basics and working up the rungs gradually and in a structured form. The book is designed to make a student think consistently and grasp the concepts in steps to ensure understanding and retention. The coverage of fundamental ideas allows the student to easily learn the future developments that come up in these areas.

Features

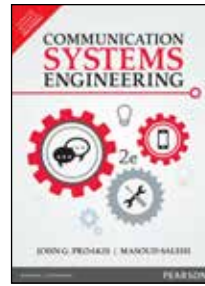
- Good balance between mathematical derivation and physical explanations
- Learning Objectives in the beginning of each chapter highlights the structure and flow of every individual chapter
- References at the end of each chapter for readers wishing to learn advanced concepts
- Summary helps in recapitulating the concepts learned in the chapter
- Self Test Questions at the end of each chapter helps readers to test their grasp of the concepts learned in the chapter
- Hints and answers to selected chapter-end questions

Contents

1. Introduction to Electronic Communication – Analog and Digital
2. Signals and Their Transforms:
3. Communication Systems
4. Filters
5. Random Signals and Noise:
6. Principles of Analog Modulation
7. Amplitude Modulation Techniques – Generation and Detection
8. Angle Modulation Techniques
9. Receivers
10. Multiplexing
11. Generation and Modulation of Digital Signals
12. Information Theory & Coding
13. Important Applications in Communication

About the Authors

Dr. Sudakshina Kundu is the HOD of Computer Science Engineering Department of West Bengal University of Technology, Kolkata. She has 17 yrs of post PhD. research experience in Radio Physics and Electronics and has been teaching students in the field of Communication Electronics, Computer Networking and Solid State Devices.



Communication Systems Engineering, 2/e

John G. Proakis

ISBN: 9789332555136

Copyright: 2015

Pages: 801



About the Book

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

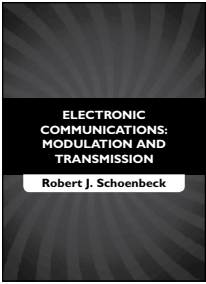
With an emphasis on digital communications, *Communication Systems Engineering, Second Edition* introduces the basic principles underlying the analysis and design of communication systems. In addition, this text gives a solid introduction to analog communications and a review of important mathematical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

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.



Electronic Communications: Modulation and Transmission, 2/e

Robert J. Schoenbeck

ISBN: TBA

Pages: 672



About the Book

A very practical comprehensive introduction to all currently used forms of modulation and recovery of electronic signals with an emphasis on their applications.

Features

- offers a solid foundation in general communication basics, as well as a current examination of specific branches of the field — AM, FM, and SSB; radar, satellite, and microwave communication; cellular communication and fiber optics.
- first explains what tools and techniques are being used in the industry today, then explores how these methods accomplish specific goals, and why they are so successful.
- explains major concepts both verbally and numerically.

Contents

1. Amplitude Modulation Principles.
2. AM Transmitters.
3. Sideband Transmission.
4. AM Radio Receivers.
5. Frequency Modulation Principles.
6. Frequency-Modulated Transmitters.
7. FM Receivers.
8. Transmission Lines.
9. Smith Charts.
10. Antennas.
11. Wave Propagation.
12. Microwave Systems and Devices.
13. The Communications Satellite.
14. Fiber Optics.
15. Digital Modulation.
16. Television.



Electronic Communication Systems: A Complete Course

William Schweber

ISBN: TBA

Copyright: 2010

Pages: 832



About the Book

For one/two-term courses in Basic Electronic Communications or in-house seminars/workshops in professional settings.

This book conveys the reality of today's communication systems by balancing traditional elements with the three more recent, radical developments that have had the most dramatic effects on the field—the widespread use of integrated circuits, microprocessors and software, digital techniques, and signals. It covers the latest tools, techniques, and standards to help prepare students for systems of today and the next-generation systems.

Features

Contents

A. Spectrum, Noise, And Modulation.

1. The Electromagnetic Spectrum.
2. Fourier and Spectrum Analysis.
3. Decibels and Noise.
4. Amplitude Modulation.
5. Receivers for AM.
6. Frequency and Phase Modulation.

B. Media, Transmission Lines, And Wave Propagation.

7. Wire and Cable Media.
8. Transmission Lines.
9. Propagation and Antennas.

C. Digital Systems.

10. Digital Information.
11. Digital Communication Fundamentals.
12. Digital Communication Systems.
13. Digital Modulation and Testing.

D. Communication Systems And Applications.

14. TV/Video and Facsimile.
15. Frequency Synthesizers and Direct Conversion.
16. The Telephone System.
17. The RS-232 Interface Standard, Modems, and High-Speed POTS Links.
18. Local and Wide Area Networks; Special-Purpose Links.
19. Satellite Communication, Navigation, and the Global Positioning System.
20. Cellular Telephone and Advanced Wireless Systems.
21. Radar Systems.

E. Broadband Systems.

22. Multiplexing.
23. Microwave Equipment and Devices.
24. Fiber Optics.



Digital Communications: Fundamentals & Applications, 2/e

Bernard Sklar
Pabitra Kumar Ray

ISBN: 9788131720929
Copyright: 2009
Pages: 1164

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

About the Authors

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.

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

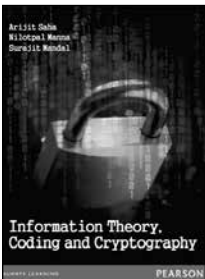
9. Cryptography and Cryptosystems

About the Authors

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

NilotPal Manna is an Assistant Professor in Electronics and Instrumentation Engineering Department, J I S College of Engineering.

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



Information Theory, Coding and Cryptography

Arijit Saha,
NilotPal Manna,
Surajit Mandal

ISBN: 9788131797495
Copyright: 2013
Pages: 456

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

Digital Electronics/Digital Design



Advanced Digital Design with the Verilog HDL

Michael D. Ciletti

ISBN: TBA

Pages: 984



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 practical treatment of timing analysis, fault simulation, testing, and design for testability, with examples
- 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
- Lists an index of all models developed in the examples
- Includes a set of FPGA-based, lab-ready exercises linked to the book (e.g. arithmetic and logic unit (ALU), programmable lock, a keypad scanner with a FIFO, a serial communications link with error correction, an SRAM controller, and first in, first out (FIFO) memory, RISC CPU, and FIFO)
- Supported by an ongoing Companion Web site <http://www.eas.uccs.edu/ciletti/> containing:
 - Source files of all models developed in the examples
 - Source files of testbenches for simulating all of the examples
 - An Instructor's Classroom Kit containing transparency files for a complete course based on the subject matter is available for instructors only
 - Solutions to selected problems is available for instructors only
 - Additional worked problems
 - Jump-start tutorials helping students get immediate results with selected software tools (e.g. simulator)
 - Answers to frequently asked questions (FAQs)

New features for this edition

- The System Application Activities (formerly Digital System Applications) have been thoroughly revised.
- More end-of-chapter problems
- A true/false quiz at the end of every chapter
- Boolean simplification coverage now includes the Quine-McClusky method in an appendix
- Coverage of the cyclic redundancy code (CRC)
- Introduction to multi-core processors

Contents

- 1 Introduction to Digital Design Methodology I
- 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
- A Verilog Primitives
- B Verilog Keywords
- C Verilog Data Types
- D Verilog Operators
- E Verilog Language Formal Syntax
- F Verilog Language Formal Syntax
- G Additional Features of Verilog

About the Authors

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. He is the author of *Advanced Digital Design with the Verilog HDL* and the co-author of *Digital Design, 4e*.



Digital Fundamentals, 10/e

Thomas L. Floyd

ISBN: 9788131734483

Copyright: 2011

Pages: 668

About the Book

This best-selling text, recognized as the authority on digital fundamentals for over 30 years, provides thorough, current coverage from basic concepts to advanced topics. Coverage includes programmable logic, digital signal processing, and integrated circuit theories. Celebrated for its clear writing style and numerous examples, exercises, and problems, this text emphasizes applications and troubleshooting to assist readers in developing the practical skills that will be needed in their professional careers.

Features

- Core Fundamentals are presented without being intermingled with advanced or peripheral topics
- Chapter 12 provides optional coverage of IC technology (inside-the-chip circuitry)
- Introduction and objectives are at the beginning of each section within a chapter
- Check up exercises conclude each section of a chapter
- Each worked example has a Related Problem
- Summaries at the end of each chapter aid in recapitulation.
- Multiple-choice self-test at the end of each chapter
- Coverage of CMOS and bipolar IC technologies

New features for this edition

- The System Application Activities (formerly Digital System Applications)

- have been thoroughly revised.
- More end-of-chapter problems
- A true/false quiz at the end of every chapter
- Boolean simplification coverage now includes the Quine-McCluskey method in an appendix
- Coverage of the cyclic redundancy code (CRC)
- Introduction to multi-core processors

Contents

1. Introductory 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 and Flip-Flops
 8. Counters
 9. Shift Registers
 10. Memory and Storage
 11. Programmable Logic and Software
 12. Integrated Circuit Technologies
- Appendix A: Karnaugh Map POS Minimization
 Appendix B: The Quine-Mccluskey Method
 Answers to Odd-Numbered Problems



An Engineering Approach to Digital Design

W. Fletcher

ISBN: 9789332555228
 Pages: 768



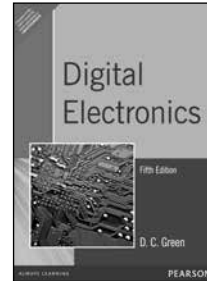
About the Book

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.

Contents

- Preface
 Introductory Digital Design Concepts
 Digital Design Fundamental
 Minimization and Design of Combinational Circuits
 MSI and LSI Circuits and their Applications
 Sequential Machine Fundamentals

- Traditional Approaches to Sequential Analysis and Design
 Introduction to Multi-input System Controller Design
 System Controllers Utilizing Combinational MSI/LSI Circuits
 Introduction to Programmable System Controllers
 Asynchronous Finite State Machines
 Appendix A: Drafting and Documentation Standards Manual
 Appendix B: Boozer Program
 Index



Digital Electronics, 5/e

D.C. Green

ISBN: 9788177580686
 Copyright: 1999
 Pages: 408

About the Book

Digital Electronics provides a comprehensive introduction to the principles of modern digital electronic from basic logic elements to analogue—digital converters. This new edition of Digital Electronics for Technicians has been revised to bring it up-to-date with current devices and includes many practical exercises.

Features

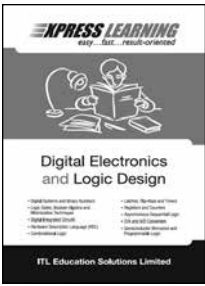
- Comprehensive introduction to digital electronics
- Fully-worked examples
- Refers to practical devices throughout
- Exercises with worked answers to numerical questions
- Includes practical exercises for the student to carry out
- Latest IEC symbols are used and explained

Contents:

1. Digital signals and systems
2. Binary and hexadecimal arithmetic
3. Logic gates
4. Simplification of Boolean equations
5. The Karnaugh map
6. NAND and NOR logic
7. Logic technologies
8. MSI combinational logic circuits
9. Latches and flip-flops
10. Counters
11. Shift registers
12. Memories
13. Programmable logic devices
14. Visual displays
15. Analogue-to-digital and digital-to-analogue converters
16. Electronics Workbench

About the Authors

D.C. Green worked for many years as an engineer for British Telecom and the Ministry of Defence, and a Senior Lecturer in Telecommunication Engineering at Willesden College of Technology. He is also author of Higher Electrical Principles, Electronics 2, Electronics 3, Electronics 4, Data Communication, Transmission Principles for Technicians and Radio Systems for Technicians.



Express Learning – Digital Electronics and Logic Design

ITL ESL

ISBN: 9788131787045
Copyright: 2013
Pages: 352

About the Book

Express Learning is a series of books designed as quick reference guides to important undergraduate and postgraduate computer courses. The organized and accessible format of these books allows students to learn important concepts in an easy-to-understand, question-and-answer format. These portable learning tools have been designed as one-stop references for students to understand and master the subjects by themselves.

Features

- Presented in a question and answer format following the examination pattern
- Covers all key topics in the syllabus
- Designed to make learning fast and effective
- Precise and up-to-date
- Helps students excel in their examinations

Contents:

1. Digital Systems and Binary Numbers
2. Logic Gates, Boolean Algebra and Minimization Techniques
3. Digital Integrated Circuits
4. Combinational Logic
5. Latches, Flip – Flops and Timers
6. Registers and Counters
7. DA and AD Converters
8. Semiconductor Memories and Programmable Logic

About the Authors

ITL Education Solutions Limited (ITL ESL) is a part of the ITL group, which has operations all over the world with a significant presence in education and IT-enabled services. It specializes in handling educational projects in IT domains with a dedicated R&D wing of industry experts that helps in designing and developing content.



High Speed Digital Design: A Handbook of Black Magic

Howard Johnson
Martin Graham

ISBN: 9788131714126
Copyright: 1993
Pages: 464

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 digital machines (above 10 megahertz).
- Includes 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 layers 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



Digital Circuits & Design

DP Kothari
JS Dhillon

ISBN: 9789332543539
Copyright: 2015
Pages: 1080

New

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:

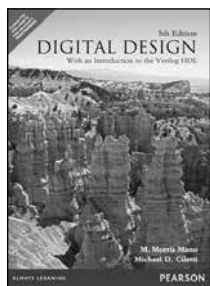
- 1: Introduction
- 2: Number Systems
- 3: Digital Logic

- 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

About the Authors

D P Kothari, Director Research, GPGL, 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



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

M. Morris Mano
Michael D. Ciletti

ISBN: 9788131794746

Copyright: 2013

Pages: 696

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. The revisions and updates to the text include:
- 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

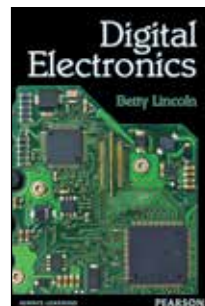
Contents

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
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 Electronics

Betty Lincoln

ISBN: 9789332522299

Copyright: 2014

Pages: 460

About the Book

Digital Electronics is a course offered for undergraduate computer science students during the first or second semesters. This textbook provides a fundamental insight to the basic concepts of electronics with adequate examples and illustrations. Spread across sixteen chapters, the book provides a solid introduction to digital systems, number systems, logic gates, Boolean algebra and Karnaugh mapping and then dwells into key topics of logic implementation, integrated circuits interfacing, logic circuits, registers, counters, convertors and display devices. A separate chapter is allotted for electronic experiments. Supported with numerous examples and exercises this textbook is an ideal classroom companion for students.

Features

- In-depth coverage of logic gates and Boolean algebra.
- Includes topics under display devices, memory storage devices and flip flops.
- Over 150 solved examples
- Over 200 multiple choice questions
- Over 300 end of chapter exercises

Contents

1. Digital Systems
2. Numbering Systems
3. Logic Gates
4. Boolean Algebra
5. Karnaugh Mapping
6. Implementation of universal gates
7. Integrated circuits and logic families
8. Combinational logic circuits
9. Flip Flops
10. Registers
11. Counters
12. Memory
13. Display devices
14. Converters
15. Computer fundamentals
16. Electronics exercises

About the Author

Betty Lincoln, Sri Ramachandra University, Chennai



Digital Logic & Computer Design

M. Morris Mano

ISBN: 9788177584097

Copyright: 1979

Pages: 624

About the Book

The 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 provides various methods and techniques suitable for a variety of digital system design applications and covers all aspects of digital systems from the electronic gate circuits to the complex structure of a microcomputer system. It also includes applications of the read only memory (ROM) and programmable logic array (PLA).

The flexible organization of the book permits it to be used in a variety of ways to suit the needs of courses in digital systems taught in electrical, electronics, computer science and engineering departments.

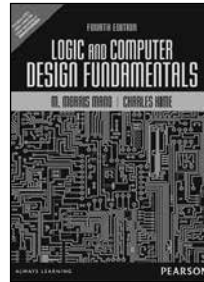
Features

- It covers all aspects of digital systems from the electronic gate circuits to the complex structure of microprocessor systems
- Presents the classical techniques for the logic design of combination and sequential circuits
- It also 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 & Computer Design Fundamentals

M. Morris Mano

ISBN: 9789332518728

Copyright: 2014

Pages: 700

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-world 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
9. Computer Design Basics
10. Instruction Set Architecture
11. Memory Systems
12. Input-Output and Communication
13. RISC and CISC Processors

About the Authors

M. Morris Mano, California State University, Los Angeles

Charles Kime



Digital Integrated Circuits, 2/e

Jan M. Rabaey
Anantha Chandrakasan
Borivoje Nikolic

ISBN: TBA
Copyright: 2016
Pages: 1064 (T)



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-submicron realm.

Features

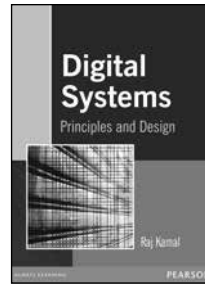
- Interconnect material takes a more predominant position and is moved forward in the presentation.
- Bipolar and non-silicon circuits have been removed—The sections on these approaches will be kept available to the occasional user through the web page.
- A number of the circuit techniques have been removed or updated or newer approaches have been introduced—Reflects the changes in design approaches over the last decade.
- A chapter on manufacturing technology has been introduced (Chapter 2)—Design methodologies are introduced throughout the text in synchronicity with the circuit content.
- Design methodology inserts—Discuss design automation.

Contents

- 1 Introduction
- 2 The Manufacturing Process
- 3 The Devices
- 4 The Wire
- 5 The CMOS Inverter
- 6 Designing Combinational Logic Gates in CMOS
- 7 Designing Sequential Logic Circuits
- 8 Implementation Strategies for Digital ICS
- 9 Coping with Interconnect
- 10 Timing Issues in Digital Circuits
- 11 Designing Arithmetic Building Blocks
- 12 Designing Memory and Array Structures

About the Authors

Jan M. Rabaey, University of California, Berkeley
Anantha Chandrakasan, Massachusetts Institute of Technology, Cambridge
Borivoje Nikolic, University of California, Berkeley



Digital Systems: Principles and Design

Raj Kamal

ISBN: 9788177585704
Copyright: 2007
Pages: 544

About the Book

Digital Systems is designed as an essential textbook for students of electronics and communication engineering, electrical engineering, instrumentation engineering, information technology and computer engineering. It provides students with a solid foundation of digital fundamentals through worked-out examples and facilitates a firm understanding of the subject.

Features

- Illustrates the functioning of circuits using truth tables, state tables, timing diagrams and state diagrams
- Includes advanced topics like the Quine–McCluskey method, computer-based minimization techniques, synchronous and asynchronous mode circuits, fundamental-mode circuit analysis, pulse-mode sequential circuits, and FPGAs
- Each chapter focuses on a single aspect of digital systems and highlights areas for the student to keep in mind
- Contains over 200 diagrams, 250 worked-out examples, and a large number of problems for practice

Contents

1. Basic Digital Concepts
2. Number Systems
3. Binary Arithmetic and Two's Complement Arithmetic
4. Boolean Algebra and Theorems, Minterms and Maxterms
5. Karnaugh Map and Minimization Procedures
6. Logic Gates
7. Interfacing Circuits between the Logic Gates of Same Family, Different Families and Types
8. Open Collector, Open Drain and Tristate Gates
9. Problem Formulation and Design of the Combinational Circuits
10. Binary Arithmetic and Decoding and Mux Logic Units
11. Code Converters, Comparators and Other Logic Processing Circuits
12. Implementation of Combinational Logic by Standard ICs and Programmable ROM Memories
13. Implementation of Combinational Logic by Programmable Logic Devices
14. Sequential Logic, Latches and Flip-Flops
15. Sequential Circuits Analysis, State-Minimization, State-Assignment and Circuit Implementation
16. Sequential Circuits for Registers and Counters
17. RAM, Address and Data Buses, Memory Decoding, Semiconductor Memories
18. Fundamental Mode Sequential Circuits
19. Hazards and Pulse Mode Sequential Circuits
20. ADC, DAC and Analog-Digital Mix Interfaces
21. CPLDs and FPGAs

About the Author

Raj Kamal received his M.Sc. at the age of 17, published his first research paper in an international journal at 18 and completed his Ph.D. at 22. With over 34 years of teaching and research experience, he has guided nine Ph.D.s, published eight books, and written over 80 research papers for international and national journals. He is the best-selling author of Microcontrollers, also published by Pearson Education.



Digital Systems, 10/e

Ronald J. Tocci
Neal S. Widmer
Gregory L. Moss

ISBN: 9788131727249
Copyright: 2009
Pages: 599

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 VDL
13. Programmable Logic Device Architectures
14. Digital System Projects Using VHDL



Digital Design: Principles and Practices, 4/e

John F. Wakerly

ISBN: 9788131713662
Copyright: 2008
Pages: 599

About the Book

Blends academic precision and practical experience in an authoritative introduction to basic principles of digital design and practical requirements.

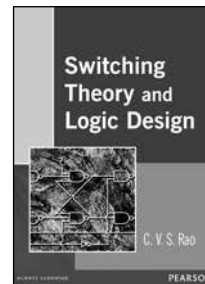
With over 30 years of experience in both industrial and university settings, the author covers the most widespread logic design practices while building a solid foundation of theoretical and engineering principles for students to use as they go forward in this fast moving field.

Features

- Now covers all popular HDLs (hardware description 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.
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

C. V. S. Rao

ISBN: 9788131701836
Copyright: 2005
Pages :336

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.

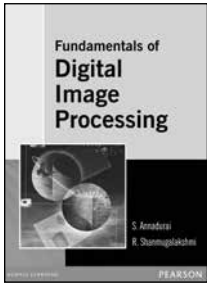
Features

- 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

Digital Image Processing



Fundamentals of Digital Image Processing

**S. Annadurai
R. Shanmugalakshmi**

ISBN: 9788177584790
Copyright: 2007
Pages: 440

About the Book

This book clearly discusses the five fundamental aspects of digital image processing namely, image enhancement, transformation, segmentation, compression and restoration. Presented in a simple and lucid manner, the book aims to provide the reader a sound and firm theoretical knowledge on digital image processing. It is supported by large number of colored illustrations.

Features

- In-depth coverage of image enhancement, transformation, segmentation, compression and restoration
- Algorithms implemented in C++
- A chapter on statistical and neural network based classifiers for semantic networks
- Detailed explanations on lossy and lossless image compression techniques

Contents

1. Fundamentals of Digital Image Processing
2. Digital Image Representation
3. Image Transforms
4. Image Enhancement
5. Image Compression
6. Image Segmentation
7. Image Restoration
8. Image Representation and Description
9. Pattern Classification Methods

About the Author

S. Annadurai, Principal and Professor, Department of Computer Science, Government College of Engineering, Tirunelveli, Tamil Nadu. He received his B.E. degree in electronics and communication engineering and M.E. degree in power systems and computer science from Bharathiar University. He received his Ph.D. from Anna University. He was design engineer for two years in a leading electrical company and has more than 25 years of experience in teaching.

R. Shanmugalakshmi, Lecturer, Department of Computer Science, Government College of Technology, Coimbatore, Tamil Nadu.



Digital Image Processing

Kenneth R. Castleman

ISBN: 9788131712863
Copyright: 2007
Pages: 686

About the Book

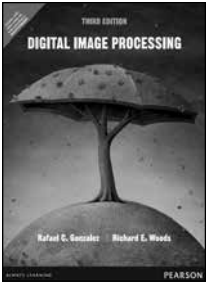
Ideal for those who do not possess an advanced background in electrical engineering, this broad introduction to the fundamental concepts of digital imaging shows how the various techniques can be applied to solve real-world problems (e.g., in biology, astronomy, forensics, etc.). It helps students develop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



Digital Image Processing, 3/e

Rafael C. Gonzalez
Richard E. Woods

ISBN: 9789332518469
Copyright: 2014
Pages: 928

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.
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

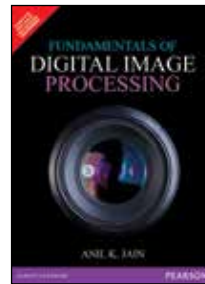
About the Authors

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

Anil K. Jain

ISBN: 9789332551916
Copyright: 1989
Pages: 592



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.

Digital Signal Processing



Digital Signal Processing, 2/e

Emmanuel Ifeachor
Barry Jervis

ISBN: 9788131708248
Copyright: 2002
Pages: 976

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 telecommunication 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.



Introduction to Digital Signal Processing

Johnny R. Johnson

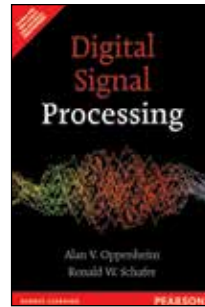
ISBN: 9789332560130

Copyright: 1989

Pages: 432

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

Alan V. Oppenheim

Ronald W. Schaffer

ISBN: 9789332550339

Copyright: 1974

Pages: 784

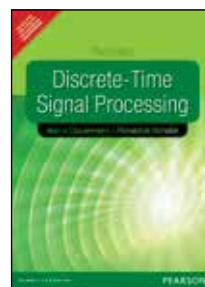
About the Book

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, discrete random signals, effects of finite register length, homomorphic signal processing, and power spectrum estimation. The authors closely integrate over 200 carefully prepared homework problems, many of which extend the fundamentals 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 signals, including Laplace and Fourier transforms as taught in most electrical and mechanical engineering courses.

Contents

1. Introduction
2. Discrete-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



Discrete-Time Signal Processing, 3/e

Alan V. Oppenheim

Ronald W. Schaffer

ISBN: 9789332535039

Copyright: 2013

Pages: 1060

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

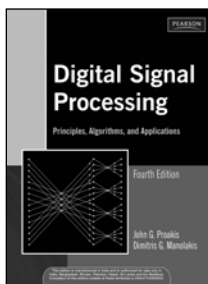
- Two new chapters — Parametric Signal Modeling and Cepstrum Analysis and Homomorphic Deconvolution
- Material on:
 - Multi-rate filtering banks
 - The discrete cosine transform
 - Noise-shaping sampling strategies
- Includes several dozen problem-solving examples that not only illustrate key points, 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

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
 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, Ronald W. Schafer



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

**John G. Proakis
Dimitris G Manolakis**

ISBN: 9788131710005

Copyright: 2007

Pages: 1156



About the Book

This fourth edition covers the fundamentals of discrete-time signals, systems, and modern digital signal processing. Appropriate for students of electrical

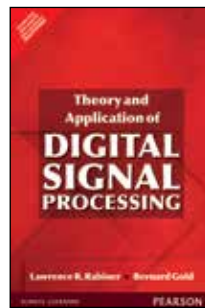
engineering, computer engineering, and computer science, the book is suitable for undergraduate and graduate courses and provides balanced coverage of both theory and practical applications.

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



Theory and Application of Digital Signal Processing, 1/e

**Lawrence R. Rabiner
Bernard Gold**

ISBN: 9789332560123

Copyright: 1975

Pages: 778

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:

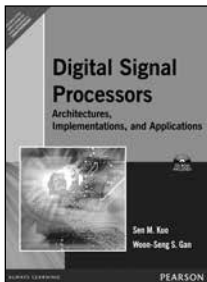
1. Introduction
2. Theory of Discrete-Time Linear Systems
3. The Theory and Approximation of Finite Duration Impulse Response Digital Filters
4. The Theory and Approximation of Infinite Duration Impulse Response Digital Filters
5. Finite Word Length Effects in Digital Filters
6. Spectrum Analysis and 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

- 12. Applications of Digital Signal Processing to Speech
- 13. Applications to Radar

About the Author

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

Digital Signal Processors



**Digital Signal Processors:
 Architectures,
 Implementations, and
 Applications**

Sen M. Kuo
Woon-Seng S. Gan
 ISBN: 9788131717936
 Copyright: 2005
 Pages: 620

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.

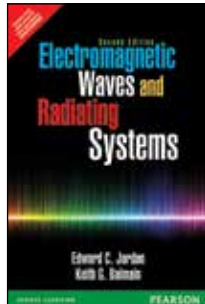
Features

- •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.

Electromagnetics



**Electromagnetic Waves &
 Radiating Systems, 2/e**

Edward C. Jordan
Keith G. Balmain

ISBN: 9789332551770
 Copyright: 1969
 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

About the Authors

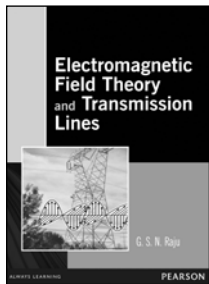
Edward C. Jordan was a distinguished academic and writer.

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

G. S. N. Raju

ISBN: 9788131701713

Copyright: 2005

Pages: 584

About the Book

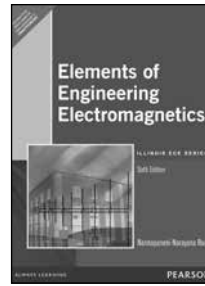
Electromagnetic Field Theory and Transmission Lines is an ideal textbook for a single semester, first course on Electromagnetic Field Theory (EMFT) at the undergraduate level. This book uses plain and simple English, diagrammatic representations and real life examples to explain the fundamental concepts, 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 Topics



Elements of Engineering Electromagnetics, 6/e

Nannapaneni Narayana Rao

ISBN: 9788131703991

Copyright: 2006

Pages: 900

About the Book

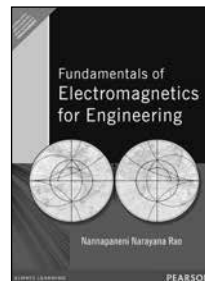
This successful text with its versatile approach includes thorough coverage of statics with an emphasis on the dynamics of engineering electromagnetics. It integrates practical applications, numerical details, and completely covers all relevant principles.

Features

- **NEW** - More emphasis on time-varying fields.
- Comprehensive coverage of field and line topics—Begins with p-n junction and circuit elements, progresses through transmission-line time-domain analysis, goes to interconnections between logic gates, and culminates in crosstalk on transmission lines.
- Coverage of principles of guided waves—Gives a treatment for one-dimensional wave guides comprising parallel-plate metallic waveguides followed by dielectric slab waveguides.
- Focus on numerical methods—Includes the finite-difference method; the method of moments; the finite-element method; and the finite-difference time-domain method.
- Practical application discussions and experiment demonstrations.

Contents:

- I. **Essential Elements For Electrical And Computer Engineering**
 1. Vectors and Fields.
 2. Maxwell's Equations in Integral Forms.
 3. Maxwell's Equations in Differential Form and Uniform Plane Waves in Free Space.
 4. Fields and Waves in Material Media.
 5. Electromagnetic Potentials and Topics for Devices, Circuits, and Systems.
 6. Transmission-Line Essentials for Digital Electronics.
- II. **Essential/Elective Elements**
 7. Transmission Lines for Communications.
 8. Guided Wave Principles for Electronics and Optoelectronics.
 9. Several Topics for Electronics and Photonics.
 10. Principles of Radiation and Antennas.
 11. Several Solution Techniques.



Fundamentals of Electromagnetics for Engineering

Nannapaneni Narayana Rao

ISBN: 9788131724156

Copyright: 2008

Pages: 480

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

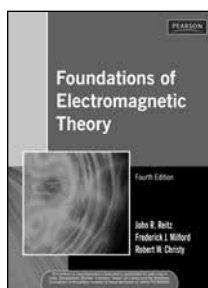
differential form), and also introduces waves at the outset. Building on these core concepts, Dr. Rao treats each category of fields as solutions to Maxwell's equations, highlighting the frequency behavior of physical structures. Next, he systematically introduces the topics of transmission lines, waveguides, 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.

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
Robert W. Christy
Frederick J. Milford

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. Electrostatics.
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

Yaduvir Singh

ISBN: 9788131760611
Copyright: 2011
Pages: 600

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, 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.

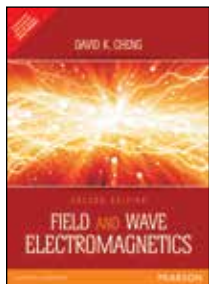
Features

- 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



Field and Wave Electromagnetics, 2/e

David K. Cheng

ISBN: 9789332535022

Copyright: 2014

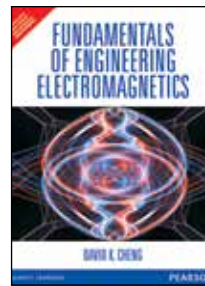
Pages: 720

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 Problems



Fundamentals of Engineering Electromagnetics, 1/e

David K. Cheng

ISBN: 9789332535138

Copyright: 2014

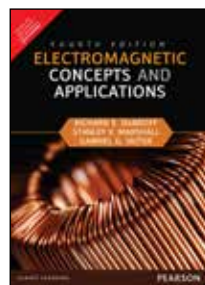
Pages: 510

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.

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



Electromagnetic Concepts and Applications, 4/e

Richard E. DuBroof

Stanley V. Marshall

Gabriel G. Skitek

ISBN: 9789332559462

Copyright: 2016

Pages: 756

New

About the Book

This text provides an in-depth and applications oriented approach to introductory electromagnetics, but at the same time offers student-friendly features that keep students interested and that develop confidence and competence by clearly and continually drawing and building on material that is usually addressed in prerequisite physics courses.

Features

- Uses an informal writing style — with occasional analogies and cartoons.
- Discusses vector analysis early and in one place — to reinforce students' previous coursework and to provide a sufficiently general stand-alone overview that can be applied in different contexts.

- Features a fairly detailed treatment of static fields geared toward average students, but with more substantive coverage as an option for those desiring more depth.
- Provides early introduction to flux lines, as a means of visualizing the abstract concepts of divergence and curl.
- Offers a detailed explanation of the limiting process of divergence and curl.
- First obtains the formula for divergence and curl in rectangular coordinates by considering boxes and rectangles — then (in appendices) shows how the same formulas can be obtained from a consideration of more general shapes.
- Introduces the electrostatic field starting from Coulomb's law and then obtaining Gauss's law and other properties of the static electric field.
- Explains the magnetostatic field beginning with Ampere's force law and the Biot Savart law (based upon experimental observation). Then derives all of the other properties of the static magnetic field, including Ampere's circuital law.
- Includes a discussion of the conditions which allow one to infer the equality of integrals from the equality of integrands, and uses these results in obtaining boundary conditions as well as point forms of Maxwell's equations.
- Contains a discussion of bound currents and bound charges that combines the mathematical steps with illustrations.
- NEW—adds sections on:
 - Multiple sections of quarter-wave transmission line matching transformers.
 - Expansion of lossy transmission analysis.
 - Derivations of gain and beamwidth for aperture antennas.
- NEW—includes “Comments” — brief discussions of the important points covered by many of the examples.
- Includes worked-out examples throughout.
- Provides problems (with selected answers).

Contents:

1. Coordinate Systems and Integrals.
2. Gradient, Divergence, and Curl.
3. Static Electric Fields.
4. Static Magnetic Fields.
5. Potential.
6. Materials.
7. Energy, Force, and Torque.
8. Faraday's Law, Time-Varying Fields, Maxwell's Equations, Potential Functions, and Boundary Relations.
9. Propagation and Reflection of Plane Waves.
10. Transmission Lines.
11. Waveguides.
12. Antennas.

Appendix A: Formula for Divergence Using a Tetrahedral Volume.

Appendix B: Formula for Curl Using a Triangular Surface.

Appendix C: Ampere's Circuital Law.

Appendix D: Averaging Property of Solutions of Laplace's Equation.

Appendix E: The Helmholtz Theorem.

Appendix F: Separation of Variables in Cylindrical Coordinates.

Appendix G: Mutual Capacitance and Conductance.

Appendix H: Frequency Bands.

Appendix I: Symbols Used in Text.

Suggested References for Further Reading.

Answers to End of Section Problems.

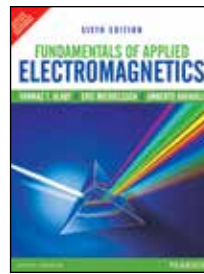
Index.

About the Author

Richard E. DuBroff, the University of Missouri, Rolla

Stanley V. Marshall, the University of Missouri, Rolla

Gabriel G. Skitek, the University of Missouri, Rolla



Fundamentals of Applied Electromagnetics, 6/e

Fawwaz T. Ulaby
Eric Michielssen
Umberto Ravaioli

ISBN: 9789332535145

Copyright: 2014

Pages: 480

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

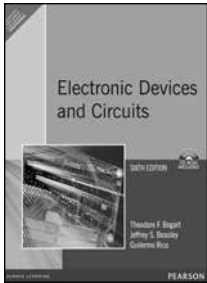
New To This Edition

- 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.

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

Electronic Devices & Circuits



Electronic Devices and Circuits, 6/e

Theodore F. Bogart
Jeffrey S. Beasley
Guillermo Rico

ISBN: 9788177588873
Copyright: 2004
Pages: 894

About the Book

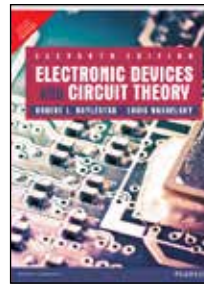
Using a structured, systems approach, this text provides a modern, thorough treatment of electronic devices and circuits. Topical selection is based on the significance of each topic in modern industrial applications and the impact that each topic is likely to have in emerging technologies. Integrated 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.
- Spice 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.



Electronic Devices and Circuit Theory, 11e

Robert L. Boylestad
Louis Nashelsky

ISBN: 9789332542600
Copyright: 2015
Pages: 952

New

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

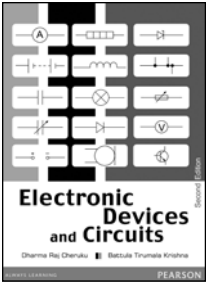
- Using a systems approach, this edition represents an exhaustive effort to enhance the material that introduces the concept of systems engineering
- Ample photographs and examples enhances students' understanding of important topics
- Practical applications in every chapter that cover the latest examples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

Contents

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

About the Author

Robert L. Boylestad, Queensborough Community College Louis Nashelsky, Queensborough Community College



Electronic Devices and Circuits, 2/e

Dharma Raj Cheruku
Battula Tirumala Krishna

ISBN: 9788131700983
Copyright: 2008
Pages: 664



About the Book

This second edition of *Electronic Devices and Circuits* provides a firm grounding in the fundamental concepts governing the field of electronics. The narrative style of the book, its clear illustrations, ample number of worked-out examples and review questions will aid the student in quick recapitulation and better understanding. Designed as a text book for undergraduate students, it will serve as an ideal text for students of electronics and its allied fields, besides providing a good source of reference to those in the electronics industry.

Features

- Content presented in a simple and concise manner
- Detailed, step-by-step presentation of derivations
- A rich repository of solved problems given at the chapter-ends
- Clear illustrations for enhanced understanding
- An exhaustive pedagogy that includes a large number exercises

Contents

1. Introduction
2. Semiconductors
3. Semiconductor Diodes
4. Diode Circuits
5. Bipolar Junction Transistors
6. Transistor Biasing
7. Transistor Amplifier Circuits
8. Field Effect Transistors
9. Thyristors
10. Feedback Amplifiers
11. Sinusoidal Oscillators
12. Power Amplifiers
13. Operational Amplifiers
14. Cathode-ray Oscilloscope

About the Authors

Dharma Raj Cheruku is Director of Academic Affairs and Professor of Electronics and Communication Engineering, College of Engineering, GITAM University, Vishakapatnam, India.

Battula Tirumala Krishna is Associate Professor, Department of Electronics and Communication Engineering, College of Engineering, GITAM University, Vishakapatnam, India.



Electronic Devices: Conventional Current Version, 9/e

Thomas L. Floyd

ISBN: 9789332545496
Copyright: 2016
Pages: 976

About the Book

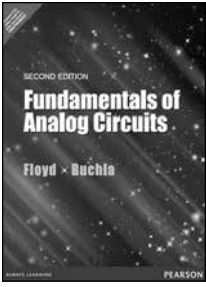
Electronic Devices (Conventional Current Version), Ninth Edition, provides a solid foundation in basic analog electronics and a thorough introduction to analog integrated circuits and programmable devices. The text identifies the circuits and components within a system, helping students see how the circuit 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.

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

Thomas L. Floyd,

David Buchla

ISBN: 9788131787960

Copyright: 2012

Pages: 928

About the Book

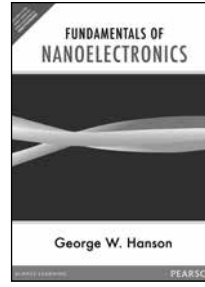
Fundamentals of Analog Circuits, Second Edition, presents an introduction to discrete linear devices and circuits, followed by comprehensive coverage of operational amplifiers and other linear integrated circuits. This new edition has been expanded and improved to include up-to-date coverage of these 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 devices—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 Problems



Fundamentals of Nanoelectronics

George W. Hanson

ISBN: 9788131726792

Copyright: 2009

Pages: 400

About the Book

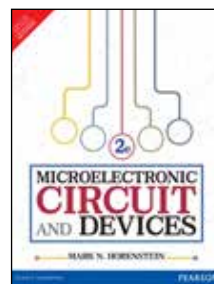
This is the first actual nanoelectronics textbook for undergraduate engineering and applied sciences students. It provides an introduction to Nanoelectronics, as well as a self-contained overview of the necessary physical concepts – taking a fairly gentle but serious approach to a field that will be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

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



Microelectronic Circuit and Devices, 2/e

Mark N. Horenstein

ISBN: 9789332550186

Copyright: 2008

Pages: 1126

New

About the Book

For courses in Introductory Electronics for students majoring in electrical, computer, and related engineering disciplines. Using an innovative approach, this introduction to microelectronic circuits and devices views a circuit as an entire electronic system, rather than as a collection of individual devices. It provides students with the tools necessary to make intelligent choices in the design of analog and digital systems.

Features

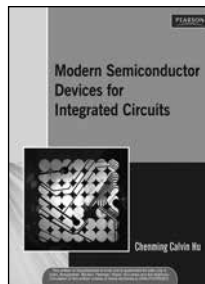
- Focuses on the function of the circuit and its role in the overall electronic system.
- Considers the properties of specific devices only after the primary

function of the circuit has been addressed.

- Introduces the MOSFET, BJT, and JFET in a single chapter on device properties. Subsequent chapters address the functions of important circuit configurations, then show examples of how these circuits can be synthesized using any of these semiconductor devices.
- reorganization of BJT and MOSFET coverage designed to allow instructors to tailor presentation to meet classroom needs. BJTs and FETs may be covered together, or in the traditional manner by introducing BJTs first, followed by MOSFETs and JFETs.
- covers the non-ideal properties on op-amps — including offset voltage, bias current, offset current, slew rate, and frequency limitations — using an approach that can be understood by those with little prior knowledge of transistor theory.
- contains an optional discussion of photonic devices, including the photodiode, phototransistor, light-emitting diode, and laser diode.
- includes a discussion of the MOSFET body effect and expands treatment of CMOS circuits.
- digital regime as a limiting case is presented in Chapter 6, at the same time as analog concepts are introduced. Digital material is further expanded in Chapters 14 and 15.
- greatly expanded coverage of feedback including discussions of the four classic feedback topologies, input mixing, output sampling, and feedback examples of BJT and MOSFET circuits.
- condenses coverage of biasing and incorporates it with small-signal modeling into a single chapter—to highlight more clearly the interrelationship between these two concepts.
- expands coverage of active filters and oscillators to include material on the various classical filter configurations, including the biquad, Butterworth, and Chebyshev filters.
- features a new chapter that presents an overview of the electronic design process and provides numerous open-ended design problems that require students to integrate key topics from throughout the text and to use them in the synthesis of electronic circuits or systems.
- includes four analog IC design problems.
- contains numerous design examples and exercises throughout.
- provides separate (optional) SPICE examples at the end of each chapter and an Appendix on SPICE.
- contains over 2,000 graded, chapter-end problems — one-quarter of which are design-oriented.

Contents

1. Review of Linear Circuit Theory.
 2. Operational Amplifiers.
 3. Introduction to Nonlinear Circuit Elements.
 4. Signal Processing and Conditioning with Two-terminal Nonlinear Devices.
 5. Three Terminal Devices.
 6. Basic Circuits Containing Three-Terminal Devices.
 8. Differential Amplifiers. 8. Differential Amplifiers.
 9. Frequency Response and Time-Dependent Circuit Behavior.
 10. Feedback and Stability.
 11. Multistage and Power Amplifiers.
 12. Analog Integrated Circuits.
 13. Active Filters and Oscillators.
 14. Digital Circuits.
 15. Fundamentals of Digital Systems.
 16. Electronic Design.
- Appendix A: Physics of Semiconductor Devices.
Appendix B: Semiconductor Device and Integrated Circuit Fabrication.



Modern Semiconductor Devices for Integrated Circuits

Chenming C. Hu

ISBN: 9788131730249

Copyright: 2009

About the Book

Modern Semiconductor Devices for Integrated Circuits, First Edition introduces students to the world of modern semiconductor devices with an emphasis on integrated circuit applications. Written by an experienced teacher, researcher, and expert in industry practices, this succinct and forward-looking text is appropriate for both undergraduate and graduate students, and serves as a suitable reference text for practicing engineers.

Features

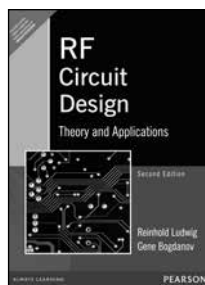
- Two information-packed chapters (Ch. 6 & 7) on modern MOSFETs
- Timely topics like solar cells and light emitting diode/solid-state lighting
- Interesting topics that break up long passages of text
- Liberal use of sidebars to keep student interested and introduce useful information

Contents

1. Electrons and Holes in Semiconductors
2. Motion and Recombination of Electrons and Holes
3. Device Fabrication Technology
4. PN and Metal—Semiconductor Junctions
5. MOS Capacitor
6. MOS Transistor
7. MOSFETs in ICs—Scaling, Leakage, and Other Topics
8. Bipolar Transistor

About the Author

Chenming Calvin Hu holds the TSMC Distinguished Professor Chair of Microelectronics at University of California, Berkeley. He is a member of the US Academy of Engineering and a foreign member of the Chinese Academy of Sciences.



RF Circuit Design : Theory & Applications, 2/e

Reinhold Ludwig
Gene Bogdanov

ISBN: 9788131762189

Copyright: 2009

Pages: 720

About the Book

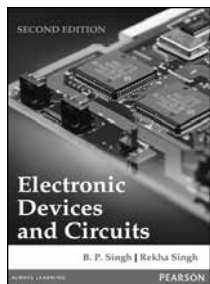
Taking a circuits perspective approach to circuit design fundamentals, this practical and comprehensive text covers all important RF design concepts—with a focus on methodology fundamentals and discussion of theoretical concepts. The Second Edition introduces RF design tools such as the Smith Chart, 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.

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, 2e

B.P. Singh
Rekha Singh

ISBN: 9788131760895
Copyright: 2012
Pages: 1104

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, DVCCS/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 Institute of Technology and Sciences at Lakshmanagarh. 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

Ben G. Streetman
Sanjay Kumar Banerjee

ISBN: 9789332555082
Copyright: 2016
Pages: 624

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 a level of understanding that will enable them to read much of the current literature on new devices and applications.

Features

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

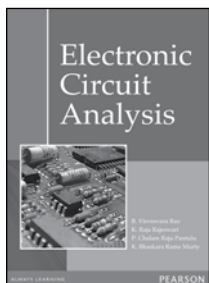
Contents

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

About the Author

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

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



Electronic Circuit Analysis

B. Visvesvara Rao

K. Bhaskara Rama Murty

K. Raja Rajeswari

P. Chalam Raju Pantulu

ISBN: 9788131754283

Copyright: 2012

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.

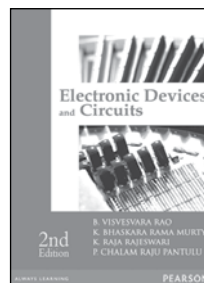
Features

- 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 Devices



Electronic Devices and Circuits, 2/e

B. Visvesvara Rao,

K. Bhaskara Rama Murty,

K. Raja Rajeswari,

P. Chalam Raju Pantulu

ISBN: 9788131705858

Copyright: 2007

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

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

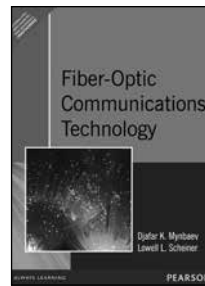
About the Authors

B. Visvesvara Rao is Academic Advisor at Dadi Institute of Engineering and Technology, Anakapalli, Visakhapatnam

K. Bhaskara Rama Murty is Professor and Head, Department of Electronics and Communication Engineering, Pragati Engineering College, Peddapuram, Andhra Pradesh.

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

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



Fibre-Optics Communications Technology

Djafar K. Mynbaev
Lowell L. Scheiner

ISBN: 9788177584189

Copyright: 2001

Pages : 756

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.

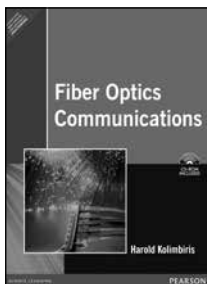
Features

- **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.

Fiber Optics Communication



Fiber Optics Communications

Harold Kolimbris

ISBN: 9788131715888

Copyright: 2004

Pages : 664

About the Book

One of the most comprehensive textbooks about this subject on the market, Fiber Optics Communications includes a broad and complete selection of topics, descriptive detail, and a well-structured presentation.

Features

- Introductory chapter—Gives a comprehensive overview of optics and quantum physics.
- Fundamentals of semiconductor theory—Included in a special chapter.
- New multiplexing techniques—Includes unique chapters on experimental high-speed networks.
- Extensive pedagogy—Includes well-defined chapter objectives, key terms, summaries, 710 formulas, 608 figures, 165 tables, 151 examples, 900 questions, and 100 problems.

Contents

I. INTRODUCTORY CONCEPTS.

1. Elements of Optics and Quantum Physics.
2. Fundamentals of Semiconductor Theory.

II. ELECTRO-OPTICS.

3. Optical Sources.
4. Optical Detectors.
5. Optical Amplifiers.
6. Optical Transmitters.
7. Optical Receivers.
8. Optical Trans receivers.

III. OPTICS.

9. Optical Fibers.
10. Optical Modulation.

IV. SYSTEMS.

11. Multiplexing.
12. Optical Systems.
13. Networks.



Fiber Optic Communications, 5/e

Joseph C. Palais

ISBN: 9788131717912

Copyright: 2008

Pages : 456

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

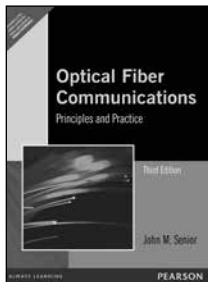
design as well as operating principles, characteristics, and application of the components that comprise fiber-optic systems.

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.
9. Distribution Networks and Fiber Components.
10. Modulation.
11. Noise and Detection.
12. System Design.



Optical Fiber Communications: Principles and Practice, 3/e

John M. Senior

ISBN: 9788131732663
Copyright: 2009
Pages : 1128

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

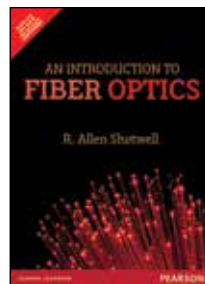
Contents

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.



An Introduction to Fiber Optics

R. Allen Shotwell

ISBN: 9789332550544
Copyright: 2009
Pages : 173



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.

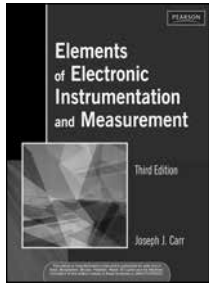
Features

- Covers all major areas of fiber optics.
- Uses an algebra-based approach and leaves out much of the high-level mathematics.
- 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.

Electronic Instrumentation and Measurement



Elements of Electronic Instrumentation and Measurement, 3/e

Joseph J. Carr

ISBN: 9788131712115

Copyright: 1996

Pages : 614

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. Secondly, 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.



Introduction to Biomedical Equipment Technology, 4/e

Joseph J. Carr

John M. Brown

ISBN: 9788177588835

Copyright: 2001

Pages: 768

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 field. It is also valuable reference work for engineers and technologies who design biomedical equipment.

Features

- New and/or revised in this edition
- 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 incorporated to address current issues and important technological advances.

Contents

1. The Human Body: An Overview
2. The Heart and Circulatory System
3. Introduction to Biomedical Instrumentation and Measurement
4. Basic Theories of Measurement
5. Signals and Noise
6. Electrodes, Sensors, and Transducers
7. Bioelectric Amplifiers
8. Electrocardiographs
9. Physiological Pressure and Other Cardiovascular Measurements and Devices
10. The Human Respiratory System and its Measurement
11. Respiratory Therapy Equipment
12. The Human Nervous System
13. Instrumentation for Measuring Brain Function
14. Intensive and Coronary Care Units
15. Operating Rooms
16. Medical Laboratory Instrumentation
17. Medical Ultrasonography
18. Electrosurgery Generators
19. Care and Feeding of Battery-Operated Medical Equipment
20. Waveform Display Devices
21. Electro-Optics (Fiber Optics and Lasers)
22. Computers in Biomedical Equipment
23. Radiology and Nuclear medicine Equipment
24. Electromagnetic Interference to Medical Electronic Equipment
25. Quality Assurance and Continuous
26. Quality Improvement
27. Medical Equipment Maintenance: Management, Facilities, and Equipment
28. Requirements Management.



Biomedical Instrumentation And Measurements, 2/e

Leslie Cromwell
Fred J. Weibell
Erich A. Pfeiffer

ISBN: 9789332556911
Copyright: 2009
Pages : 528

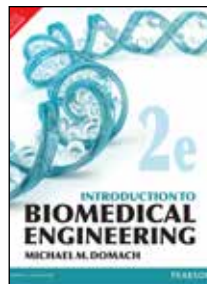


About the Book

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.

Contents

Preface to the First Edition.
Preface to the Second Edition.
1. Introduction to Biomedical Instrumentation.
2. Basic Transducer Principles.
3. Sources of Bioelectric Potentials.
4. Electrodes.
5. The Cardiovascular System.
6. Cardiovascular Measurements.
7. Patient Care and Monitoring.
8. Measurements in the Respiratory System. Noninvasive Diagnostic Instrumentation.
9. The Nervous System.
10. Instrumentation for Sensory Measurements and the Study of Behavior.
11. Biotelemetry.
12. Instrumentation for the Clinical Laboratory.
13. X-Ray and Radioisotope Instrumentation.
14. The Computer in Biomedical Instrumentation.
15. Electrical Safety of Medical Equipment.
Appendices:
A. Medical Terminology and Glossary.
B. Physiological Measurements Summary.
C. SI Metric Units and Equivalencies.
D. Problems and Exercises.
Index.



Introduction to Biomedical Engineering, 2/e

Michael M. Domach

ISBN: 9789332555266
Copyright: 2010
Pages : 312



About the Book

For freshman and limited calculus-based courses in Introduction to Biomedical Engineering or Introduction to Bioengineering.

Substantial yet reader-friendly, this introduction examines the living system from the molecular to the human scale—presenting bioengineering practice via some of the best engineering designs provided by nature, from a variety of perspectives. Domach makes the field more accessible for students, helping them to pick up the jargon and determine where their skill sets may fit in. He covers such key issues as optimization, scaling, and design; and introduces these concepts in a sequential, layered manner. Analysis strategies, science, and technology are illustrated in each chapter.

Features

- Presentation of basic engineering ideas explains modes of analysis, synthesis, and design, and stands equally with bioengineering content.
- Integration of simulation and web-based materials exposes students to links that illustrate the magnitude and importance of technology.
- Both descriptive and example/problem-based chapters are provided, giving students a clear delineation of each chapter's learning goals.
- An accompanying Solutions Manual offers instructors valuable course support.
- The text's Companion Website (www.prenhall.com/domach) gives students a chapter-based online resource that provides enhanced text explanations, links for further study, and animations.

Contents

Part I: Overview Of Bioengineering And Modern Biology
What Is Bioengineering
1 Cellular, Elemental, and Molecular Building Blocks of Living Systems
Part II: System Principles Of Living Systems
2 Mass Conservation, Cycling, and Kinetics
3 Requirements and Features of a Functional and Coordinated System
4 Bioenergetics
Part III: Biomolecular And Cellular Fundamentals And Engineering Applications
5 Molecular Basis of Catalysis and Regulation
6 Analysis of Molecular Binding Phenomena
7 Applications and Design in Biomolecular Technology
8 Cellular Technologies and Bioinformatics Basics
Part IV: Medical Engineering
9 Primer on Organs and Function
10 Biomechanics
11 Biofluid Mechanics
12 Biomaterials
13 Pharmacokinetics
14 Noninvasive Sensing and Signal Processing

About the Author

Michael M. Domach received a BS in chemical engineering from the University of Massachusetts at Amherst in 1978. His elective studies focused on organic and environmental chemistry. Immersion in life science and bioengineering occurred during his Ph.D. work at Cornell University under the supervision of Professor Michael L. Shuler. His academic career began in 1983 and has been spent at Carnegie Mellon University. His industrial experience includes working with organic chemists at General Electric to develop new product

synthesis routes and cofounding a company involved in directing the growth and differentiation of stem cells. Professor Domach currently is a member of the chemical and biomedical engineering departments at Carnegie Mellon. Additionally, he served as the department head of biomedical engineering for 8.5 years and worked twice as a program director at the National Science Foundation (2000—2001; 2004—2005). The author's research focuses on cell sensing, biocomputation, and cell engineering. In 2000, an article that was published in 1984, based on work from his Ph.D. thesis, was voted to be among the top 20 most influential publications that have appeared over the last 40



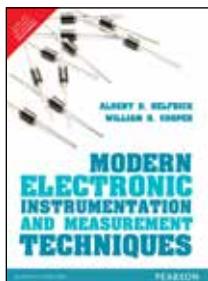
Process Control Instrumentation Technology, 8/e

Curtis D. Johnson

ISBN: 9789332549456

Pages : 704

New



Modern Electronic Instrumentation and Measurement Techniques

Albert D. Helfrick
William D. Cooper

ISBN: 9789332556065

Copyright: 2016

Pages : 424

New

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 clarification 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

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

About the Author

Albert D. Helfrick

William D. Cooper

About the Book

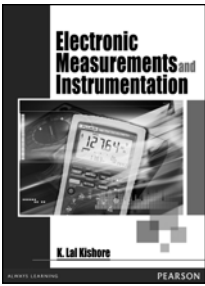
This text is designed to provide students with an understanding and appreciation of some of the essential concepts behind control system elements and operations, without the need of advanced math and theory. It also presents some of the practical details of how elements of a control system are designed 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 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

K. Lal Kishore

ISBN: 9788131721995

Copyright: 2009

Pages: 448

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

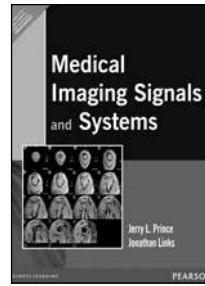
- Clear illustrations and circuit diagrams for enhanced comprehension
- Points to remember that help students grasp the essence of each chapter
- Objective-type questions, review questions, and unsolved problems provided at the end of each chapter, which help students prepare for competitive examinations.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

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.



Medical Imaging Signals and Systems

Jerry L. Prince

Jonathan Links

ISBN: 9788131721360

Copyright: 2008

Pages: 496

About the Book

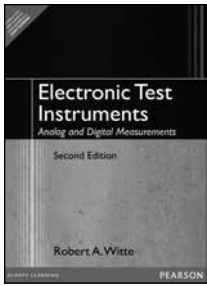
With signal processing as its foundation, this text covers the most important imaging modalities in radiology: projection radiography, x-ray computed tomography, nuclear medicine, ultrasound imaging, and magnetic resonance imaging. Organized into parts to emphasize key overall conceptual divisions, Medical Imaging is most appropriate for engineering students who have taken the prerequisite signals and systems courses as well as elementary probability.

Features

- **A wealth of images and diagrams** - Medical imaging is very visual, and although signals and systems tend to be very mathematical in nature, there are many advantages offered through visualization.
- **Motivational example problems** - these capture students' attention and reveal interesting features for discussion or study.
- **Biologically relevant examples** - A special effort is made to share an appreciation for the important context of medical imaging.

Contents

- Part I: Basic Imaging Principles**
1. Introduction
 2. Signals and Systems
 3. Image Quality
- Part II: Radiographic Imaging**
4. Physics of Radiography
 5. Projection Radiography
 6. Computed Tomography
- Part III: Nuclear Medicine Imaging**
7. The Physics of Nuclear Medicine
 8. Planar Scintigraphy
 9. Emission Computed Tomography
- Part IV: Ultrasound Imaging**
10. The Physics of Ultrasound
 11. Ultrasound Imaging Systems
- Part V: Magnetic Resonance Imaging**
12. Physics of Magnetic Resonance
 13. Magnetic Resonance Imaging



Electronic Test Instruments: Analog and Digital Measurements, 2/e

Robert A. Witte

ISBN: 9788177587487

Copyright: 2002

Pages: 388

About the Book

Electronic Test Instruments: Analog and Digital Measurements, Second Edition offers a thorough, unified, up-to-date survey of the entire field of electronic instrumentation: instruments and techniques, digital and analog.

This new second edition has been updated throughout, reflecting the latest technologies and presenting extensive new coverage of digital oscilloscopes and power supplies.

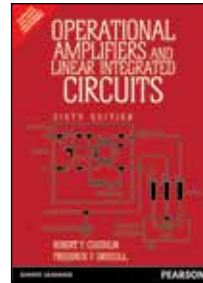
Features

- Introduces essential measurement theory and explains its relationship to practical measurements
- Covers all mainstream test instruments, including meters, signal sources, oscilloscopes, frequency counters, power supplies, spectrum analyzers, network analyzers, logic probes, and logic analyzers
- Presents circuit models and conceptual block diagrams that clarify the behavior of complex circuits and instruments
- Explains key commonalities and differences between digital and analog instrumentation from the user's standpoint
- Introduces advanced circuit concepts and techniques that help users achieve higher quality measurements
- Illuminates important concepts such as loading effect, grounding, and bandwidth

Contents

1. Measurement Theory.
 2. Voltmeters, Ammeters, and Ohmmeters Meters.
 3. Signal Sources.
 4. The Oscilloscope Concept.
 5. Basic Waveform Measurements.
 6. Electronic Counters.
 7. Power Supplies.
 8. Spectrum and Network Analyzers.
 9. Logic Analyzers.
 10. Circuits for Electronic Measurements.
- Appendix A: Table of Electrical Parameters, Units, and Standard Abbreviations.
Appendix B: Mathematical Derivations of Equations.
Appendix C: Binary, Hexadecimal, Decimal, and ASCII Table.

Linear IC Applications



Operational Amplifiers And Linear Integrated Circuits, 6/e

Robert F. Coughlin
Frederick F. Driscoll

ISBN: 9789332550483

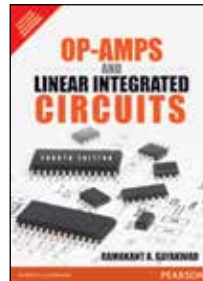
Copyright: 2007

Pages: 564



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

Ram Gayakwad

ISBN: 9789332549913

Pages: 543



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.



Applications and Design with Analog Integrated Circuits, 2/e

J. Michael Jacob

ISBN: TBA
Pages: 544

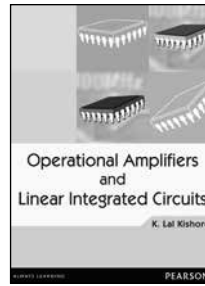


About the Book

The book contains an expansion of topical coverage across many areas within analog integrated circuits, linear and non-linear. The marked distinction of the book is its clear explanation without an over-reliance on advanced mathematics. An abundance of illustrations and practical examples keep the text targeted to its audience. The second edition maintains its in-text learning assistance.

Contents

1. Introduction to the Operational Amplifier Integrated Circuit.
2. Amplifiers and Feedback.
3. Power Supplies, and Integrated Circuit Regulators.
4. Operational Amplifier Characteristics.
5. Single Supply Amplifiers.
6. Waveform Generators.
7. Active Filters.
8. Nonlinear Circuits.



Operational Amplifiers and Linear Integrated Circuits

K. Lal Kishore

ISBN: 9788177585667
Copyright: 2007
Pages: 440

About the Book

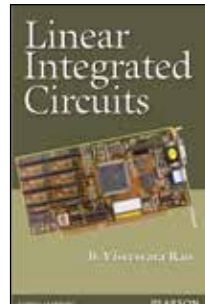
An extremely well written book for a complete course on Operational Amplifiers and Linear Integrated Circuits. The book scores with a detailed treatment of design of circuits using Op Amps and its practical applications in industry.

Features

- Balanced Presentation of theory and Practice
- Design oriented solved problems to help students to design circuits
- Specification and Practical aspects available in industry.
- Functioning of circuits explained with the analysis of its output waveforms

Contents

1. Operational Amplifiers-Basics
2. Op-Amp Applications
3. Active Filters and Oscillators
4. Timer and Phase Locked Loop ICs
5. Digital-to-Analog Converters and Analog to Digital Convertors
6. Voltage Regulators



Linear Integrated Circuits

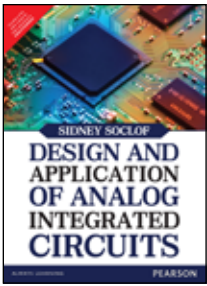
B. Visvesvara Rao

ISBN: 9789332534124
Copyright: 2015



About the Book

This book provides (a) students with good in-depth and complete study material that is easy to learn and gain mastery of the subject of 'LIC', subscribing fully to university course syllabus and later in their professional career, (b) teaching faculty find complete subject material easy to impart in the classrooms and build strong foundation for the students, and (c) practitioners in the area who need to refer back to a seemingly simple concept that needs clarity and reinforcement while working on live projects



Design and Application of Analog Integrated Circuits

Sidney Soclof

ISBN: 9789332556928

Copyright: 1991

Pages: 840



About the Book

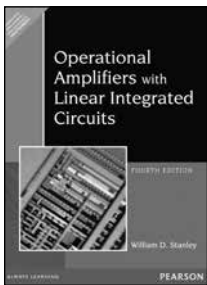
A comprehensive overview of the analysis and design of the full range of analog integrated circuits.

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.



Operational Amplifiers with Linear Integrated Circuits, 6/e

William D. Stanley

ISBN: 9788131708453

Copyright: 2002

Pages: 692

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

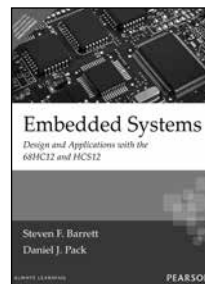
- NEW - Chapter-end Electronics Workbench®/Multisim software example problems.
- NEW - Updated information regarding new devices.
- NEW - Revised chapter-end problems—Divided into three categories: drill, derivation, and design.
- NEW - Added laboratory exercises—Total 52 in Chs. 2-8.
- An emphasis on 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.

Microcontrollers / Embedded Systems



Embedded Systems: Design and Applications

Steven F. Barrett

Daniel J. Pack

ISBN: 9788131720233

Copyright: 2008

Pages: 672

About the Book

Designed for a senior- or graduate-level embedded systems design course, Embedded Systems Design and Applications with the 68HC12 introduces readers to unique issues associated with designing, testing, integrating, and implementing microcontroller/microprocessor-based embedded systems.

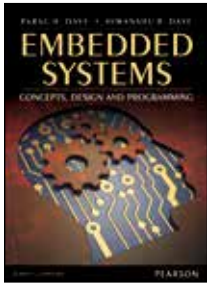
Features

- This guide helps readers acquire fundamental microcontroller-associated programming skills using both the C programming language and assembly language.
- Explains the functional hardware components of a microcontroller and helps readers gain the skills needed to interface various external devices with microcontrollers.
- Examples based on real-world applications—Address concerns such as microcontroller top-down/bottom-up implementation system design skills, noise and timing considerations, and troubleshooting techniques.
- A variety of complete embedded system project examples.
- Thorough review of C, structured programming techniques, and the 68HC12/HCS12 microprocessor.

Contents

1. Introduction to Embedded Systems
2. Microcontroller Programming and Structured Design
3. C Microcontrollers Programming Skills
4. 68HC12/HCS12 System Description and Programming

5. Basic Input/Output Interfacing Concepts
6. Welcome to the Real World!
7. Embedded Controller Systems
8. Real-time Operating Systems (RTOS)
9. Distributed Processing Systems-Networking



Embedded Systems: Concepts, Design and Programming

Himanshu B Dave
Parag Dave

ISBN: 9789332543522
Copyright: 2015
Pages: 568

About the Book

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

Features

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

Contents

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



8051 Microcontroller: Internals, Instructions, Programming & Interfacing, 2e

Subrata Ghoshal

ISBN: 9789332535756
Copyright: 2014
Pages: 608

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

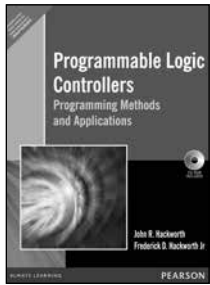
Contents

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, IIT Pune. He obtained his Ph.D from IIT Bombay. He was Professor

and Head of the IT department at the Sikkim Manipal Institute 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.



Programmable Logic Controllers: Programming Methods and Applications

John R. Hackworth
Frederick D. Hackworth Jr.

ISBN: 9788177587715

Copyright: 2003

Pages: 318

About the Book

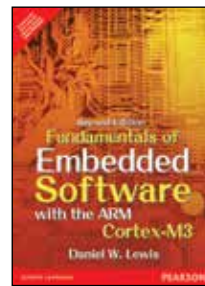
This volume is designed to help readers develop a good general working knowledge of programmable controllers with concentration on relay ladder logic techniques and how a PLC is connected to external components in an operating control system. The text uses real world programming problems that students 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.



Fundamentals of Embedded Software with the ARM Cortex-M3

Daniel W. Lewis

ISBN: 9789332549937

Copyright: 2003

Pages: 256



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.
- 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 Book

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

I Scott MacKenzie
Raphael Chung-Wei Phan

ISBN: 9788131720189
Copyright: 2008
Pages: 560

About the Book

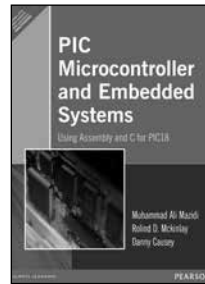
MacKenzie's 8051 Microcontroller text emphasizes the programming of the 8051 by illustrating the two most widely used programming methods; Assembly Language and C programming. This text assumes no prior knowledge of the subject and progressively introduces 8051 Microcontroller concepts while reinforcing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



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

Muhammad Ali Mazidi
Rolin McKinlay
Danny Causey

ISBN: 9788131716755
Copyright: 2008
Pages: 800

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

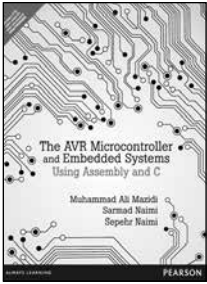
1. The PIC Microcontrollers: History and Features
2. PIC Architecture & Assembly Language Programming
3. Branch, Call, and Time Delay Loop
4. PIC I/O Port Programming
5. Arithmetic, Logic Instructions, and Programs
6. Bank Switching, Table Processing, Macros, and Modules
7. PIC Programming in C
8. PIC18F 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 DSI306 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.



AVR Microcontroller and Embedded Systems : Using Assembly and C

Muhammad Ali Mazidi,
Sarmad Naimi,
Sepehr Naimi

ISBN: 9789332518407

Copyright: 2012

Pages: 729

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, Optoisolators, 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

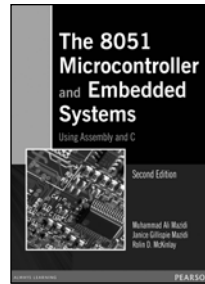
0. Introduction to Computing
 1. The AVR Microcontrollers: History and Features
 2. AVR Architecture & Assembly Language Programming
 3. Branch, Call, and Time Delay Loop
 4. AVR I/O Port Programming
 5. Arithmetic, Logic Instructions, and Programs
 6. AVR Advanced Assembly Language Programming
 7. AVR 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

About the Authors

Muhammad Ali Mazidi, DeVry University

Sarmad Naimi

Sepehr Naimi



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

Muhammad Ali Mazidi
Janice Gillispie Mazidi
Rolin 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, it provides readers with an in-depth understanding of the 8051 architecture. From Chapter 7, this book uses both Assembly and C to show the 8051 interfacing with real-world devices such as LCDs, keyboards, ADCs, sensors, real-time-clocks, and the DC and Stepper motors. The use of a large number of examples helps the reader to gain mastery of the topic rapidly and move on to the topic of embedded systems project design.

Features

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

Contents

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

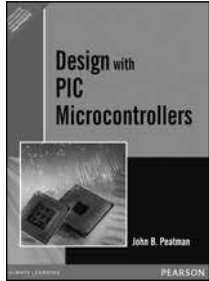
About the Author

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 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

John B. Peatman

ISBN: 9788177585513
Copyright: 1998
Pages: 280

About the Book

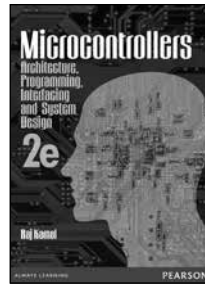
This book is directed towards students of electrical engineering and computer engineering at the senior level and toward practicing engineers. The text develops design techniques for using microcontrollers (i.e., single-chip microcomputers). It emphasizes microcontroller versus microprocessor (e.g.,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

Features

- Presents expansion with I2C 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
3. MPASM Assembler 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

Raj Kamal

ISBN: 9788131759905
Copyright: 2012
Pages: 888

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

New features for this edition

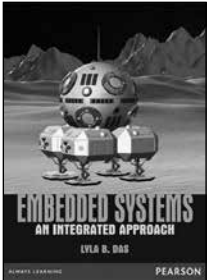
- Newly added examples in the chapters for a better understanding of the architecture, instructions and internal resources in the 8051 microcontroller and for the real time operating system
- Interfacing of touch screen displays and controllers
- Two new chapters for programming examples in assembly-language 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

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

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



Embedded Systems *An Integrated Approach*

Lyla B. Das

ISBN: 9788131787663
 Copyright: 2013
 Pages: 784

About the Book

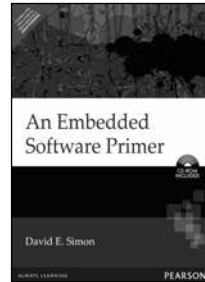
Embedded Systems—An Integrated Approach is exclusively designed for the undergraduate courses in electronics and communication engineering as well as computer science engineering. This book is well-structured and covers all the important processors and their applications in a sequential manner. It begins 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

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 -



An Embedded Software Primer

David E. Simon

ISBN: 9788177581546
 Copyright: 1999
 Pages : 444

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 Book

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.



Programmable Logic Controllers: Principles and Applications, 5/e

John W. Webb
Ronald A. Reis

ISBN: 9789332555129
Pages: 460



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.
- 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

I. Plc Basics.

1. An Overall Look at Programmable Logic Controllers.
2. The PLC: A Look Inside.
3. General PLC Programming Procedures.
4. Devices to Which PLC Input and Output Modules Are Connected.

II. Basic Plc Programming.

5. Programming On-Off Inputs to Produce On-Off Outputs.
6. Relation of Digital Gate Logic to Contact/Coil Logic.
7. Creating Ladder Diagrams from Process Control Descriptions.

III. Basic Plc Functions.

8. Register Basics.
9. PLC Timer Functions.
10. PLC Counter Functions.

IV. Intermediate Functions.

11. PLC Arithmetic Functions.
12. PLC Number Comparison Functions.
13. Numbering Systems and PLC Number Conversion Functions.

V. Data Handling Functions.

14. The PLC SKIP and MASTER CONTROL RELAY Functions.
15. Jump Functions.
16. PLC Data Move Systems.
17. Other PLC Data Handling Functions.

VI. Plc Functions Working With Bits.

18. PLC Digital Bit Functions and Applications.
19. PLC Sequencer Functions.
20. Controlling a Robot with a PLC.
21. PLC Matrix Functions.

VII. Advanced Plc Functions.

22. Analog PLC Operation.
23. PID Control of Continuous Processes.
24. Networking PLCs.

VIII. Related Topics.

25. Alternative Programming Languages.
26. PLC Auxiliary Commands and Functions.
27. PLC Installation, Troubleshooting, and Maintenance.
28. Selecting a PLC.

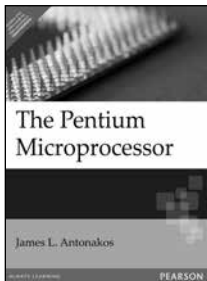
Appendix A: PLC Manufacturers.

Appendix B: Operational Simulation and Monitoring.

Appendix C: Commonly Used Circuit Symbols.

Appendix D: Major PLC Instruction, Function, and Word Codes by Typical Manufacturers.

Microprocessors



The Pentium Microprocessor

James L. Antonakos

ISBN: 9788177582765

Copyright: 1997

Pages: 556

About the Book

Focusing on Advanced Programming Applications, Assembly Language Programming, and Computer Architecture, this text details every aspect of the Pentium microprocessor. Equally appropriate for beginners, advanced students, and professionals, this text instructs and informs.

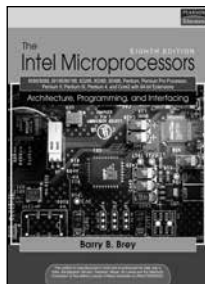
This book helps remove the Mystery surrounding the Pentium Microprocessor by detailing every face of its hardware and software and providing examples of many different applications.

Features

- Programming examples demonstrating a variety of applications.
- Hardware and software aspects of the Pentium microprocessor.
- Companion diskette designed for real-mode operation promotes learning.
- Detailed analysis of the Pentium architecture, illustrating the state-of-the-art microprocessor design.
- Appendix covering binary numbers and arithmetic for students who would like a quick review.

Contents

1. Microprocessor-Based Systems
2. An Introduction to the Pentium Microprocessor
3. Pentium Instructions, Part 1: Addressing Modes, Flags and Data Transfer and String Instructions
4. Pentium Instructions Part 2: Arithmetic, Logical, Bit Manipulation, Program Transfer, and Processor Control Instructions
5. Interrupt Processing
6. An Introduction To Programming The Pentium
7. Programming With Dos And Bios Function Calls
8. Advanced Programming Applications
9. Using Disks And Files
10. Hardware Details Of The Pentium
11. Protected Mode Operation



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

Barry B. Brey

ISBN: 9788131726228

Copyright: 2008

Pages: 944

About the Book

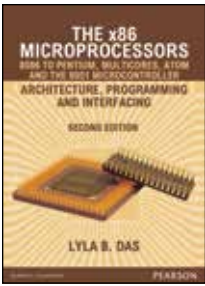
The Intel Microprocessors: 8086/8088, 80186/80188, 80286, 80386, 80486, Pentium, Pentium Pro Processor, Pentium II, Pentium III, Pentium 4, and Core2 with 64-bit Extensions, 8e, provides a comprehensive view of programming and interfacing of the Intel family of Microprocessors from the 8088 through the 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



The X86 Microprocessor: Architecture and Programming (8086 to Pentium), 2e

Lyla B Das

ISBN: 9789332536821

Copyright: 2014

Pages: 744



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
- **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, Kerala



ARM System-on-Chip Architecture, 2e

Furber

ISBN: 9789332555570

Copyright: 2015

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.

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.

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

Yu-Cheng Liu
Glenn A. Gibson

ISBN: 9789332550087



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.

- Provides numerous examples of hardware interfaces — and the software to drive them.
- Emphasizes the hardware/software tradeoffs which exist for implementation of most functions in microprocessor-based systems.

Contents

1. Random Access Semiconductor Memories.
2. Microprocessor Architecture and Operation.
3. Data Transfer, Logic Operations, and Branching.
4. Program Assembly and Testing.
5. The Stack and Subroutines.
6. Arithmetic Operations.
7. Program Controlled I/O.
8. Interrupts and DMA.
9. Digital Data Entry and Display.
10. Analog Data Input and Output.
11. Programmable Logic Devices.
12. Main and Mass Memory Alternatives.
13. Microprocessor System Design.



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

Walter A. Triebel
Avtar Singh
N.K. Srinath

ISBN: 9788177584813

Copyright: 2007

Pages: 864

About the Book

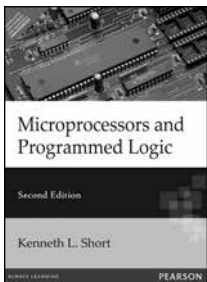
Future designers of microprocessor-based electronic equipment require a systems-level understanding of the 80x86 microcomputer. This widely acclaimed edition provides balanced and comprehensive coverage of both the software and hardware of the 8088 and 8086 microprocessors. The book examines how to assemble,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

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



Microprocessors and Programmed Logic, 2/e

Kenneth L. Short

ISBN: 9788131709160

Copyright: 1987

Pages: 640

About the Book

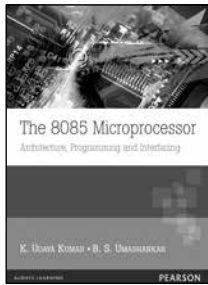
This book provides a comprehensive examination of the fundamental hardware and software concepts necessary for the design of microprocessor-based systems, and specific devices and the practical considerations and design techniques necessary to effectively design systems using them.

Features

- Uses a single popular microprocessor — the 8085A — as the primary instructional example.

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

24. Intel 8257- Programmable DMA Controller
25. Intel 8253- Programmable Interval Timer
26. Intel 8251A-Universal Synchronous Asynchronous Receiver Transmitter
27. Zilog Z80 Microprocessor
28. Motorola M6800 Microprocessor
29. 8051 Microcontroller
30. Advanced Topics in 8051



The 8085 Microprocessor: Architecture, Programming and Interfacing

K. Udaya Kumar
B.S. Umashankar

ISBN: 9788177584554
Copyright: 2008
Pages : 624

About the Book

Designed for an undergraduate course on the 8085 microprocessor, this text provides comprehensive coverage of the programming and interfacing of the 8-bit microprocessor. Written in a simple and easy-to-understand manner, this book introduces the reader to the basics and the architecture of the 8085 microprocessor. It presents balanced coverage of both hardware and software concepts related to the microprocessor.

Features

- Instruction sets described in a very concise form
- Exclusive chapters that focus on assembly language programs
- Detailed coverage of the Z-80 and Motorola 6800, as well as the 8751 microcontroller
- Comprehensive coverage of peripheral chips

Contents:

1. Evolution of Microprocessors
2. Fundamentals of a Computer
3. Number Presentation
4. Fundamentals of Microprocessor
5. First Assembly Language Program
6. Data Transfer Group of Instructions
7. Arithmetic Group of Instructions
8. Logical Group of Instructions
9. NOP and Stack Group of Instructions
10. Branch Group of Instructions
11. Chip Select Logic
12. Addressing of I/O Ports
13. Architecture of 8085
14. Simple Assembly Language Programs
15. Use of PC in Writing and Executing 8085 Programs
16. Additional Assembly Language Programs
17. More Complex Assembly Language Programs
18. Interrupts in 8085
19. 8212 Non Programmable 8-bit I/O Port
20. 8255 Programmable Peripheral Interface Chip
21. Programs Using Interface Modules
22. Interfacing I/O Devices
23. Intel 8259A- Programmable Interrupt Controller

About the Authors

K. Udaya Kumar is Principal, B.N.M. Institute of Technology, Bangalore. He completed his M.Tech. from the Indian Institute of Science, Bangalore and received his Ph.D. from the University of Ljubljana, Yugoslavia. He was a deputy engineer with Bharath Electronics Limited (BEL) for about four years before entering teaching—his calling for the past thirty years.

B.S. Umashankar is Professor, Department of Computer Science Engineering, B.N.M. Institute of Technology, Bangalore. An engineering graduate from Bangalore University, he proceeded to complete his master's degree from Gulbarga University. He has about 20 years of teaching experience.



80x86 Family, The: Design, Programming, and Interfacing, 3/e

John Uffenbeck

ISBN: TBA
Pages: 678

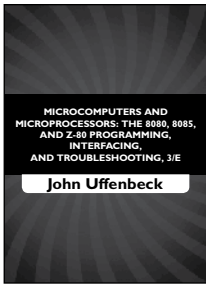


About the Book

Much praised for its clearly written, easy-to-read/understand style, this text provides thorough, current, single-volume coverage of all Intel 80x86 microprocessors relative to their application in the PC, and is as much an introduction to the PC itself as to Intel chips. Coverage ranges from chip architecture to programming and memory and I/O interfacing—i.e., microprocessor chips, memory chips, I/O devices, and the logic circuits needed to “glue” these parts together.

Contents

1. Microcomputers and Microprocessors.
2. Computer Codes, Programming, and Operating Systems.
3. 80x86 Processor Architecture.
4. Introduction to 80x86 Programming.
5. 80x86 Programming Techniques.
6. 80x86 Assembly Language Programming.
7. Memory Chips and Memory Interfacing.
8. Input/Output Techniques: Programmed I/O.
9. Input/Output Techniques: Interrupts and DMA.
10. Data Communications.
11. Personal Computer Architecture and Bus Systems.
- Appendix A. 8086 Instruction Set Reference.
- Appendix B. MS-DOS BIOS Services and Functions.
- Appendix C. PC/XT/AT Parallel Port.



Microcomputers and Microprocessors: The 8080, 8085, and Z-80 Programming, Interfacing, and Troubleshooting, 3/e

John Uffenbeck

ISBN: TBA
Pages: 729



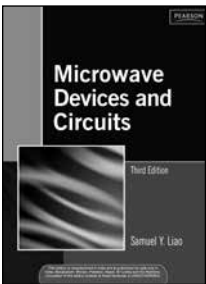
About the Book

Providing a solid foundation in the technology of microcomputers, this “hands-on” text helps students develop an understanding of the hardware components of a microcomputer system and the role of the software to control that hardware. Full of valuable troubleshooting tips, it focuses on three compatible 8-bit microprocessor chips—the Intel 8080 and 8085, and the Zilog Z-80—and uses them as models to help students learn the differences between RAM and ROM and how these two types of memory are interfaced to the microprocessor; to understand how an input or output port works; and to explore the construction of a serial interface.

Contents

1. Introduction to the Microprocessor.
 2. Introducing the 8080, 8085, and Z-80 Microprocessors.
 3. Programming the Microprocessor.
 4. Building the Microcomputer, Part 1: The Buses.
 5. Building the Microcomputer, Part 2: Adding Memory.
 6. Building the Microcomputer, Part 3: Input/Output.
 7. Special-Purpose Support Devices: The 8080/85 Family.
 8. Special-Purpose Support Devices: The Z-80 Family.
 9. Serial I/O Techniques.
 10. Floppy- and Hard-Disk Drives.
 11. Microcomputer Control Applications and Troubleshooting Techniques.
 12. Introduction to the 8086 16-Bit Microprocessor.
- Answers to Odd-Numbered Problems.

Microwave Engineering



Microwave Devices and Circuits, 3/e

Samuel Y. Liao

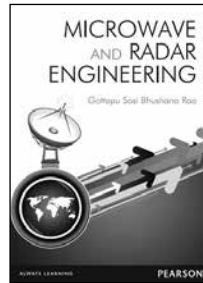
ISBN: 9788177583533
Copyright: 1990

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.



Microwave and Radar Engineering

Gottapu Sasibhushana Rao

ISBN: 9788131799444
Copyright: 2014
Pages : 664

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

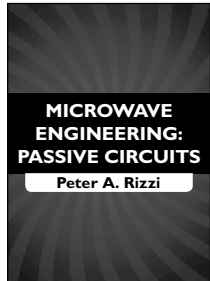
Contents:

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

About the Author

Gottapu Sashibhushana Rao is the Professor and Head, Department of Electronics and communication Engineering, Andhra University college of Engineering.



Microwave Engineering: Passive Circuits

Peter A. Rizzi

ISBN: TBA
Copyright: TBA
Pages: TBA



About the Book

Rarely, have microwave devices and circuits, their theory, analysis, and design been so readily understandable, so clearly applicable as they are in this fine new book. Drawing on over 30 years experience in industry and teaching, Peter Rizzi brings readers a real alternative to superficial and unclear treatments of microwave engineering. Students enrolled in engineering and engineering technology programs and practicing engineers embarked on a course of self-study will benefit from:

Contents

Preface.
Foreward.
Introduction.
Elementary Fields and Waves.
Microwave Transmission Lines.
Coaxial and Stripline Components.
Wave guide Components.
Reciprocal Multi port Junctions.
Microwave Resonators and Filters.
Appendices
A. List of Symbols and Units.
B. Material Constants.
C. Transmission Matrices.
D. The Scattering Matrix.
E. Hyperbolic Functions.
F. Point-to-point Transmission.
Answers to Problems.
Index.

MATLAB



MATLAB and Its Applications in Engineering, 2/e

Raj Kumar Bansal
Ashok Goel
Manoj Kumar Sharma

ISBN: 9788131716816
Copyright: 2016
Pages: 560



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

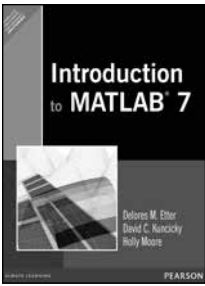
- 1 Introduction to MATLAB®
- 2 Constants, Variables and Expressions
- 3 Vectors and Matrices
- 4 Polynomials
- 5 Input Output Statements
- 6 MATLAB Graphics
- 7 Control Structures
- 8 Writing Programs and Functions
- 9 Ordinary Differential Equations and Symbolic Mathematics
- 10 Simulink® Basics
- 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 Mathematics

About the Author

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

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

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



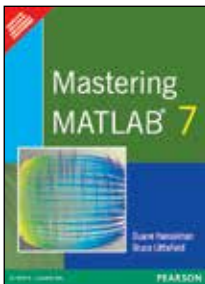
Introduction to Matlab 7

Dolores Etter
David Kuncicky
Holly Moore

ISBN: 9788131723135
Copyright: 2008
Pages: 304

Contents

1. Fundamentals of Speech Recognition
2. The Speech Signal: Production, Perception
3. Signal-Processing Methods For Speech Recognition
4. Pattern-Comparison Techniques
5. Speech Recognition System Design and Implementation Issues
6. Theory and Implementation Of Hidden Markov Models
7. Speech Recognition Based on Connected Word Models
8. Large Vocabulary Continuous Speech Recognition



Mastering MATLAB 7

Duane C. Hanselman
Bruce L. Littlefield

ISBN: 9788131707432
Pages: 678

About the Book

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

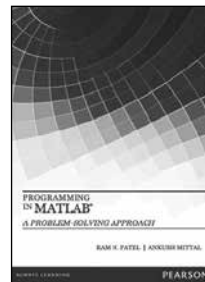
Features

- 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 MATLAB’s power and flexibility in dealing with external algorithms, datasets, and operating system capabilities.
- Thorough coverage of indexing, vectorizing, and linear algebra— Increases students’ problem-solving productivity and dramatically increases algorithm speed.
- Abundant examples throughout—Also includes a chapter that specifically covers extensive examples.

Contents

1. Getting Started.
2. Basic Features.
3. The MATLAB Desktop.
4. Script M-Files.
5. Arrays and Array Operations.
6. Multidimensional Arrays.
7. Cell Arrays and Structures.
8. Character Strings.
9. Relational and Logical Operations.
10. Control Flow.
11. Function M-Files.
12. M-File Debugging and Profiling.
13. File and Directory Management.
14. Set, Bit, and Base Functions.

15. Time Computations.
 16. Matrix Algebra.
 17. Data Analysis.
 18. Data Interpolation.
 19. Polynomials.
 20. Cubic Splines.
 21. Fourier Analysis.
 22. Optimization.
 23. Integration and Differentiation.
 24. Differential Equations.
 25. Two-Dimensional Graphics.
 26. Three-Dimensional Graphics.
 27. Using Color and Light.
 28. Images, Movies, and Sound.
 29. Printing and Exporting Graphics.
 30. Handle Graphics.
 31. Graphical User Interfaces.
 32. Dialog Boxes.
 33. MATLAB Classes and Object-Oriented Programming.
 34. MATLAB Programming Interfaces.
 35. Extending MATLAB with Java.
 36. Windows Application Integration.
 37. Getting Help.
 38. Examples, Examples, Examples.
- Appendix A: Common Handle Graphics Properties.
Appendix B: Axes Object Properties.
Appendix C: Figure Object Properties.
Appendix D: Image Object Properties.
Appendix E: Light Object Properties.
Appendix F: Line Object Properties.
Appendix G: Patch Object Properties.
Appendix H: Rectangle Object Properties.
Appendix I: Root Object Properties.
Appendix J: Surface Object Properties.
Appendix K: Text Object Properties.
Appendix L: Uicontextmenu and Uimenu Object Properties.
Appendix M: Uicontrol Object Properties.



Programming in MATLAB®: A Problem-Solving Approach

Ram N Patel
Ankush Mittal

ISBN: 9789332524811
Copyright: 2014
Pages: 544

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

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

Ramnarayan 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.

Multimedia Communications



Multimedia Communication Systems: Techniques, Standards, and Networks

K. R. Rao
Dragorad A. Milovanovic

ISBN: TBA
Copyright: 2016
Pages:



About the Book

"Multimedia Communication Systems" provides a comprehensive coverage of various surveys of the current issues relating to multimedia communications. This book addresses the fundamentals of the major topics of the multimedia communication systems: audio-visual integration, multimedia processing in communications, distributed multimedia systems, multimedia communication standards and multimedia communications over networks.

Contents

Acknowledgments.

List of Acronyms.

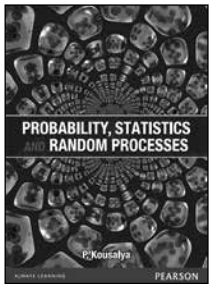
1. Multimedia Communications
2. Audio-Visual Integration
3. Multimedia Processing in Communications
4. Distributed Multimedia Systems.
5. Multimedia Communication Standards
6. Multimedia Communications Across Networks

About the Author

K. R. RAO is Professor of Electrical Engineering at the University of Texas at Arlington. He has authored or co-authored several additional leading texts in the field, including Techniques and Standards for Image/Video/Audio Coding, and Packet Video Communications over ATM Networks (Prentice Hall PTR). In 1975, with two other researchers, he introduced the Discrete Cosine Transform, one of today's most powerful digital signal processing techniques. He is a Fellow of the IEEE.

ZORAN S. BOJKOVIC and **DRAGORAD A. MILOVANOVIC** are members of the Traffic & Transport and Electrical Engineering faculty at the University of Belgrade, Yugoslavia.

Probability Theory and Stochastic Process



Probability, Statistics and Random Processes

Pappu Kousalya
ISBN: 9788131774526
Copyright: 2013
Pages : 592

About the Book

This book is designed to meet the requirements of students and is intended for beginners to help them understand the concepts from the first principles. Spread across 16 chapters, it discusses the theoretical aspects that have been refined and updated to reflect the current developments in the subjects. It expounds on theoretical concepts that have immense practical applications, giving adequate proofs to establish significant theorems.

Features

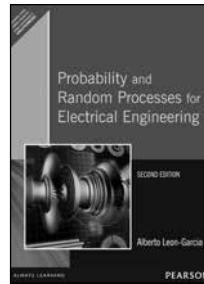
- Detailed coverage of Correlation and regression.
- Curve fitting is covered in-depth with examples.
- List of definitions and List of formulae is added at the end of each chapter.
- Over 340 examples and 315 exercises has been included

Contents

1. Probability
2. Random Variables (discrete and continuous)
3. Mathematical Expectation
4. Standard Discrete Distributions
5. Standard Continuous Distributions
6. Sampling Theory & Distributions
7. Testing of Hypothesis (Large Samples)
8. Testing of Hypothesis (Small samples)
9. Estimation
10. Curve Fitting
11. Correlation
12. Regression
13. Queuing theory
14. Design of Experiments
15. Random Processes
16. Advanced Random Processes

About the Authors

Dr. Pappu Kousalya is Professor of Mathematics, Vignana Bharathi Institute of Technology, Hyderabad. She has over 17 years of teaching experience, teaching to both Under graduate and post graduate courses.



Probability and Random Processes for Electrical Engineering, 2/e

Alberto Leon-Garcia

ISBN: 9788131709177
Copyright: 1994

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.

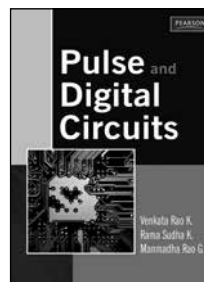
Features

- 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.

Pulse & Digital Circuits



Pulse and Digital Circuits

Venkata Rao K
Rama Sudha K
Manmadha Rao G

ISBN: 9788131721353
Copyright: 2010
Pages :728

About the Book

The book is designed to cater to the needs of undergraduate students of electronics and communication engineering. Written in a lucid, student-friendly style, it covers key topics in the area of pulse and digital circuits. This is an introductory text that discusses the basic concepts involved in the design, operation and analysis of waveshaping circuits.

The book includes a preliminary chapter that reviews the concepts needed to understand the subject matter. Each concept in the book is accompanied by self-explanatory circuit diagrams. Interspersed with numerous solved problems, the text presents detailed analysis of key concepts. Multivibrators and sweep generators are covered in great details in the book.

Features

- Simplified circuit diagrams clearly explain concepts
- Exhaustive mathematical treatment of concepts
- Comprehensive coverage of multivibrators
- In-depth analysis of sweep generators
- Includes 157 solved problems

Contents

1. An Introduction to Pulse Waveforms
2. Linear Waveshaping: High-pass Circuits
3. Linear Waveshaping: Low-pass Circuits, Attenuators and RLC Circuits
4. Non-linear Waveshaping: Clipping Circuits and Comparators
5. Non-Linear Waveshaping: Clamping Circuits
6. Switching Characteristics of Devices
7. Astable Multivibrators
8. Monostable Multivibrators
9. Bistable Multivibrators
10. Logic Gates
11. Sampling Gates
12. Voltage Sweep Generators
13. Current Sweep Generators
14. Blocking Oscillators
15. Synchronization and Frequency Division
16. OP-amps, 555 Timers and Negative Resistance Devices in Switching Applications
17. Combinational Circuits: Implementation and Design
18. Sequential Circuits: Flip-flops and Counters

About the Authors

Venkata Rao K is Director, PG Programmes at Chaitanya Engineering College, Visakhapatnam.

Rama Sudha K is Professor, Department of Electrical Engineering, Andhra University.

Manmadha Rao G is associate professor in the electronics and communication engineering department of GMR Institute of Technology, Rajam.

Satellite Communications



Satellite Communications Systems Engineering, 2/e

Wilbur Pritchard
Henri Suyderhoud
Robert A. Nelson

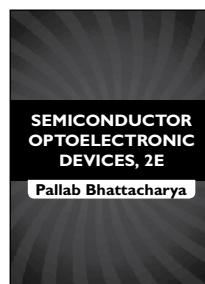
ISBN: 9788131702420
Copyright: 1993
Pages :672

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 Communications.



Semiconductor Optoelectronic Devices, 2e

Pallab Bhattacharya

ISBN: TBA
Copyright: TBA
Pages :TBA



About the Book

Semiconductor Optoelectronic Devices by Pallab Bhattacharya is designed to provide helpful information to all students as well as professionals in the field of engineering and technology. This book provides the reader with an overview of optoelectronic devices and also provides him with all its basic principles. It also includes all the recent developments that fall under this field.

Contents

1. Elemental and Compound Semiconductors.
2. Electronic Properties of Semiconductors.
3. Optical Processes in Semiconductors.
4. Junction Theory.
5. Light Emitting Diodes.
6. Lasers: Operating Principles.

7. Lasers: Structures and Properties.
8. Photo detectors.
9. Special Detection Schemes.
10. Solar Cells.
11. Optoelectronic Modulation and Switching Devices.
12. Optoelectronic Integrated Circuits.
13. Light wave Networks.



Semiconductor Devices

Kanaan Kano

ISBN: TBA

Copyright Year: TBA

Pages :TBA



About the Book

This is a mainstream semiconductor device book, striking a balance in orientation between a strong physics and strong applications approach. The text focuses on three major categories of devices - the junction diode, the bipolar junction transistor, and field-effect transistor in its various forms. Appropriate for undergraduate courses in semi-conductor devices in electronic/electrical and computer engineering departments, each chapter of the book includes Review Questions, Highlights and Exercises.

Contents

Preface.

1. Atomic Structure and Quantum Mechanics.
 2. Energy Bands and Current Carriers in Semiconductors.
 3. Intrinsic and Extrinsic Semiconductors.
 4. Carrier Processes: Drift, Diffusion and Generation-Recombination.
 5. The PN Junction Diode.
 6. Fabrication Technology.
 7. Limitations to Ideal Diode Theory.
 8. Bipolar Transistors I: Characteristics and First Order Model.
 9. Bipolar Transistors II: Limitations, Switching and Models.
 10. Junction Field-Effect Transistors.
 11. Metal-Semiconductor Junctions and Devices.
 12. Metal-Oxide-Silicon Systems.
 13. Metal-Oxide-Semiconductor Field-Effect Transistor.
 14. Optoelectronics.
- Appendices.
Index.



Semiconductor Device Fundamentals

Robert F. Pierret

ISBN: 9788177589771

Copyright: 1996

About the Book

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, “œcrib-sheet” 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.

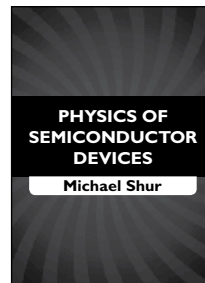
5. PN Junction Electrostatics.
6. PN Junction Diode -- I-V Characteristics.
7. PN Junction Diode -- Small-Signal Admittance.
8. PN Junction Diode -- Transient Response.
9. Optoelectronic Diodes.

Part III: Bjts And Other Junction Devices.

10. BJT Fundamentals.
 11. BJT Static Characteristics.
 12. BJT Dynamic Response Modeling.
 13. PNP 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.



Physics of Semiconductor Devices

Michael Shur

ISBN: TBA

Pages: 638



About the Book

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

Features

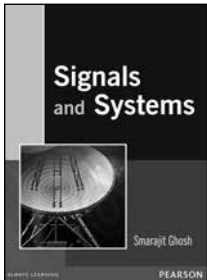
- implements all theories and models discussed in microcomputer programs — providing readers with a useful “toolbox” for the modeling and simulation of semiconductor devices.
- includes detailed appendices with useful information on semiconductor parameters which help readers to solve practical problems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

Contents:

1. Basic Semiconductor Physics.

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

Signal and Systems



Signals and Systems

Smarajit Ghosh

ISBN: 9788177583809

Copyright: 2006

Pages: 486

About the Book

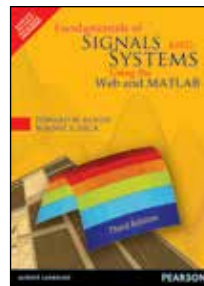
This book provides comprehensive coverage of all topics within the 'signals and systems' paper offered to undergraduates of electrical and electronics engineering.

Features

- Computer-aided learning environment, including thoroughly tested MATLAB programs of problems with output and an appendix on MATLAB fundamentals
- Solved numerical problems within and at the end of every chapter
- Short-answer and multiple-choice questions, with answers
- Unsolved numerical problems with hints and answers

Contents

1. Fundamentals of Signals and Systems
2. Fourier Series
3. Fourier Transform
4. Laplace Transform
5. System Modelling
6. Z Transform
7. Convolution
8. Stability
9. State Variable Approach (Continuous Systems)
10. State Variable Methods (Discrete Case)
11. Discrete Fourier Transform and Fast Fourier Transform
12. Structures and Design of Digital Filters



Fundamentals of Signals and Systems Using the Web and MATLAB, 3/e

Edward W. Kamen

Bonnie S Heck

ISBN: 9789332534988

Copyright: 2014

Pages: 648

About the Book

This new edition delivers an accessible yet comprehensive analytical introduction to continuous-time and discrete-time signals and systems. It also incorporates a strong emphasis on solving problems and exploring concepts, using demos, downloaded data, and MATLAB® to demonstrate solutions for a wide range of problems in engineering and other fields such as financial data analysis. Its flexible structure adapts easily for courses taught by semester or by quarter.

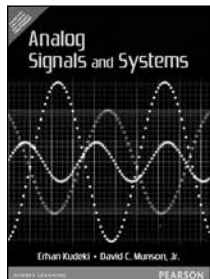
Features

- Extensive use of online demos – Utilizes demos for data analysis to allow students to view results firsthand.
- Use of MATLAB (Version 7.0) to generate computer implementations of the techniques for signal and system analysis and design – Gives students the opportunity to verify theories and experiment with applications of the techniques studied.
- Wide range of examples and problems on different areas in engineering – Touches on areas from electrical circuits and mechanical systems to electromechanical devices, such as a dc motor.
- Chapters on feedback control, digital filtering, and state representation – Prepare students for senior electives in these topics.
- Time-domain aspects of signals and systems (Chs. 1 and 2) – Discusses the basic properties of signals and systems, the discrete-time convolution model, the input/output difference equation model, the input/output differential equation model, and the continuous-time convolution model.
- Frequency-domain aspects of signals and systems – Begins with signals that are a sum of sinusoids, then addresses the Fourier series representation of periodic signals, the Fourier transform of nonperiodic signals, and the use of the Fourier transform in the study of signal modulation.
- Fourier analysis of discrete-time signals – Focuses on the discrete-time Fourier transform (DTFT) and the discrete Fourier transform (DFT).
- Fourier theory applied to the study of both continuous-time and discrete-time systems – Reviews applications to ideal analog filtering, sampling, signal reconstruction, and digital filtering.
- Study of the Laplace transform – Begins with the definition and properties, as well the transfer function representation of linear time-invariant continuous-time systems.
- Introduction of the z-transform and the transfer function representation of linear time-invariant discrete-time systems – Completes the discussion of the frequency response function first considered in Chapter 5.
- Analysis of linear time-invariant continuous-time systems – Uses the transfer function representation to carry out this analysis.
- Transfer function framework – Applied to the problem of control (Ch. 9).
- Laplace and z-transform frameworks – Applied to the design of digital filters and controllers (Ch. 10).
- Fundamentals of the state description of linear time-invariant continuous-time and discrete-time systems – Discussed in Ch. 11.

Contents

1. Fundamental Concepts
2. Time-Domain Models Of Systems
3. The Fourier Series And Fourier Transform
4. Fourier Analysis Of Discrete-Time Signals
5. Fourier Analysis Of Systems

6. The Laplace Transform And The Transfer Function Representation
7. The Z-Transform And Discrete-Time Systems
8. Analysis Of Continuous-Time Systems Using The Transfer Function Representation
9. Application To Control
10. Design Of Digital Filters And Controllers
11. State Representation
- Appendix A: Brief Review Of Matrices



Analog Signals and Systems

**Erhan Kudeki,
David C Munson Jr**

ISBN: 9788131787984
Copyright: 2012

About the Book

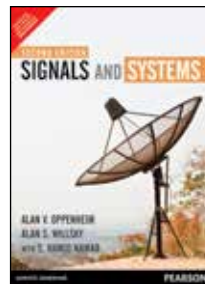
Analog Signals and Systems by Erhan Kudeki and David C. Munson, Jr. offers a thorough presentation of analog circuit, signal and system analysis techniques by two highly respected authors. This book has been classroom tested for eight years in a sophomore-level course that covers all of the essentials 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 “just in time” approach - new ideas and topics relevant to the narrative are introduced only when needed, and no chapters are “stand 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

0. 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 $H(\omega)$ 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 Radio



Signals and Systems, 2/e

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

ISBN: 9789332550230
Pages: 957



About the Book

For undergraduate-level courses in Signals and Systems.

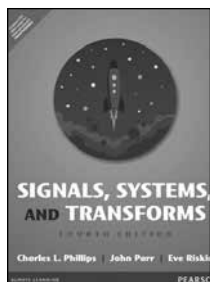
This comprehensive exploration of signals and systems develops continuous-time and discrete-time concepts/methods in parallel -- highlighting the similarities and differences -- and features introductory treatments of the applications of these basic methods in such areas as filtering, communication, 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.
- 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, 4/e

Charles L. Phillips
John Parr
Eve Riskin

ISBN: 9789332518490
Copyright: 2008

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.

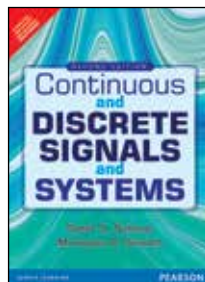
Features

- 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



Continuous and Discrete Signals and Systems, 2/e

Samir S. Soliman
Mandyam D. Srinath

ISBN: 9789332550537
Pages: 525



About the Book

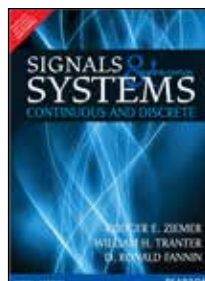
This introductory text assists students in developing the ability to understand and analyze both continuous and discrete-time systems. The authors present the most widely used techniques of signal and system analysis in a highly readable and understandable fashion.

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

Rodger E. Ziemer

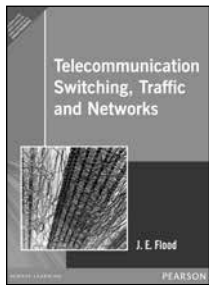
ISBN: 9789332542044
Copyright: 2015

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.

Telecommunication



Telecommunication Switching, Traffic and Networks

J.E. Flood

ISBN: 9788131705025

Copyright: 1999

Pages: 328

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

About the Author

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

VHDL



A VHDL Primer, 3/e

J. Bhasker

ISBN: 9789332557161

Pages: 416

New

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



VHDL: Basics to Programming

Gaganpreet Kaur

ISBN: 9788131732113

Copyright: 2011

Pages :340

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

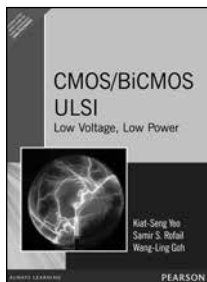
Contents

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 Authors

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.

VLSI Chip Fabrication



CMOS/BiCMOS ULSI Low Voltage Low Power

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

ISBN: 9788131708262
Copyright: 2002
Pages :624

About the Book

This book presents the fundamentals of Complementary Metal Oxide Semiconductor (CMOS) and Bipolar compatible Complementary Metal Oxide Semiconductor (BiCMOS) technology, as well as the latest technological advances in the field. CMOS/BiCMOS ULSI: Low-Voltage Low-Power is an essential resource for every professional moving toward lower voltage, lower power, and higher performance VLSI circuits and subsystems design.

Features

- Comprehensive coverage of low-voltage, low-power digital VLSI design—Including process integration, device modeling and characterization, as well as techniques and concepts for digital circuits and subsystems design

in a low-voltage, low-power environment.

- Latest developments in CMOS/BiCMOS VLSI design—With an in-depth analyses on the fabrication technologies for realization of low-voltage, low-power CMOS/BiCMOS structures.
- Latest BJT models—Such as HICUM, METRAM, and VBIC and MOS models such as EKV and BSIM4.
- Integration of SOI technology and the latest copper metallization scheme—With CMOS/BiCMOS technology ultra high-speed applications.

Contents

1. Introduction.
2. MOS/BiCMOS Process Technology and Integration.
3. Device Behavior and Modeling.
4. Low-Voltage Low-Power Logic Circuits.
5. Low-Voltage Low-Power Latches and Flip-flops.

About the Authors

Kiat-Seng Yeo joined the school of Electrical and Electronic Engineering (EEE), Nanyang Technological University (NTU), Singapore, in 1993. He holds six patents and has published more than 100 articles on BiCMOS/CMOS integrated circuit design and technology.

Samir S. Rofail has been a teacher, researcher, and consultant in semiconductor and Icdesign for 20 years. From 1992 to 1999, he coordinated NTU's IC-Design group, leading intensive research on low-voltage, low-power BiCMOS/CMOS circuits. He is now a technical consultant in Waterloo, Canada.

Wang-Ling Goh joined NTU in 1996. Her research interests are in the areas of silicon processing technologies, particularly the SOI structures, CMP and copper. She holds one patent and has published more than 30 articles.

VLSI Design



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

Neil H. E. Weste
David Money Harris

ISBN: 9789332542884
Copyright: 2015
Pages :864



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

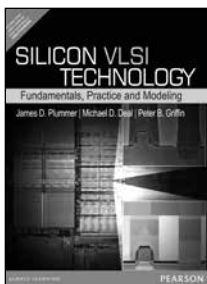
Contents

- 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.

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

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

ISBN: 978131726044
Copyright: 2009
Pages :817

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

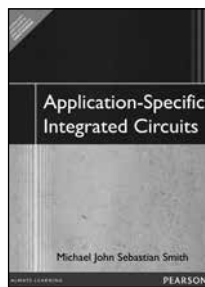
fabrication, but also the underlying scientific basis for those technologies.

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

Michael John Sebastian Smith

ISBN: 978177584080
Copyright: 1997

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.

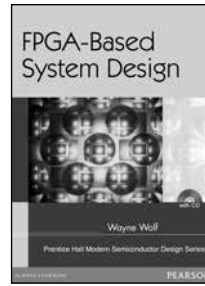
Features

- 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 commercial tools to ensure their accuracy and utility
- Separate chapters and appendices on Both Verilog 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.



FPGA-Based System Design

Wayne Wolf

ISBN: 9788131724651

Copyright: 2004

Pages :544

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-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 Wolf's 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 VLSI Design: IP-Based Design, 4/e

Wayne Wolf

ISBN: 9789332550353

Copyright: 1997

Pages : 656



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.

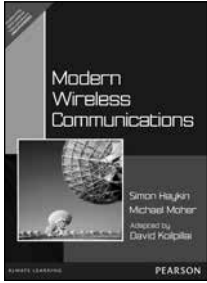
Contents:

- 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 Author

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.

Wireless Communications



Modern Wireless Communication

Simon Haykin
David Koilpillai
Michael Moher

ISBN: 9788131704431
Copyright: 2011
Pages: 592

About the Book

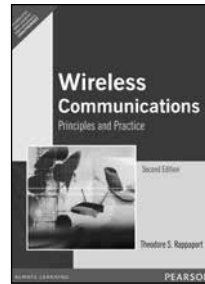
This text provides a comprehensive introduction to wireless communications, unraveling these techniques in an order consistent with the evolution of spectral utilization of the radio channel. Modern Wireless Communication begins with a discussion of FDMA systems and traces the progress of wireless communication 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



Wireless Communications: Principles and Practice, 2/e

Theodore S. Rappaport

ISBN: 9788131731864
Copyright: 2010

About the Book

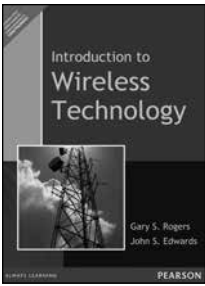
The leading book on wireless communications offers a wealth of practical information on the implementation realities of wireless communications. This book also contains up-to-date information on the major wireless communications standards from around the world. Covers every fundamental aspect of wireless 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 Concept\System Design Fundamentals
4. Mobile Radio Propagation: Large-Scale Path Loss
5. Mobile Radio Propagation: Small-Scale Fading and Multipath
6. Modulation Techniques for Mobile Radio
7. Equalization, Diversity, and Channel Coding
8. Speech Coding
9. Multiple Access Techniques for Wireless Communications
10. Wireless Networking
11. Wireless Systems and Standards
 - Appendix A. Trunking Theory
 - 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 Transforms



Introduction to Wireless Technology

Gary Rogers
John Edwards

ISBN: 9788131715345
Copyright: 2007
Pages :552

About the Book

This text provides a comprehensive introduction to all aspects of wireless technology and networking. The text emphasizes a practical application of technology as well as a comprehensive understanding of theory.

Features

- Enhances the student's learning experience.
- Fully interactive, student driven program.
- Provides coverage on all the wireless topics.

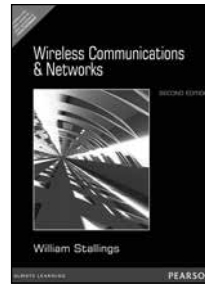
Contents:

1. Introduction to Networking.
2. Introduction to Wireless Communications.
3. Technical Foundation of Wireless Technologies.
4. Wireless Application Protocol.
5. Bluetooth.
6. Cellular Telephony.
7. Public Services.
8. Wireless LANs.
9. Satellite Communications.
10. Global Positioning System.
11. Paging Systems.
12. Trends.

About the Authors

John Edwards has a Ed.D. degree from the University of Georgia and holds the rank of Associate Professor of Information Technology at Macon State College. He has 35 years experience installing and managing local and wide area networks in education and business, and has published twenty-seven technical articles in the field of computing. He is a principal in a firm which provides e-commerce consulting, network configuration, installation and management, and website development.

Gary S. Rogers has a Ph.D. degree from Walden University and holds the rank of Assistant Professor of Information Technology at Macon State College. He specializes in telecommunications, possessing more than 20 years experience in the computer networking field and many years designing and implementing wired and wireless networks. Dr. Rogers has designed and implemented computer networking systems in both the private and public sectors. He has authored many articles and technical presentations in the area of networking, network security, and telecommunications standards.



Wireless Communications & Networks, 2/e

William Stallings

ISBN: 9788131720936
Copyright: 2009
Pages :608

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

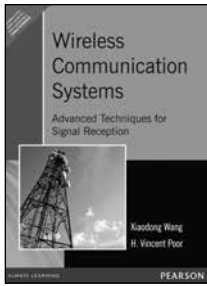
- Provides an entire chapter on spread spectrum, which is pervasive in wireless technology today.
- Also provides an entire chapter on satellite communications. This topic remains an important area within wireless communications.
- Thorough coverage of cordless systems.
- Extensive coverage of fixed 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 Authors

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.



Wireless Communication Systems: Advanced Techniques for Signal Reception

Xiaodong Wang
H. Vincent Poor

ISBN: 9788177588736

Copyright: 2004

Pages :698

About the Book

This book presents a unified framework for understanding the state-of-the-art in signal processing for wireless communications. Dr. Xiaodong Wang and Dr. H. Vincent Poor focus on the development, analysis, and use of explicit algorithms for performing advanced processing tasks that arise in receiver design for emerging wireless systems, and provide a comprehensive set of algorithms for addressing physical issues, including multi-path, dispersion, interference, dynamism, and multiple-antenna systems. Many of the methods detailed here were developed by the co-authors themselves, notably in the areas of turbo processing, multiple-antenna systems, and low-complexity adaptive algorithms.

Features

- NEW - State-of-the-art in signal processing for wireless systems—including the authors' own important advances in turbo processing, multi-antenna systems, and low-complexity adaptive algorithms.
- Unified framework for understanding advanced signal processing.
- New techniques for combating channel impairments and enhancing signal reception.

Contents

1. Introduction.
 2. Blind Multiuser Detection.
 3. Group-Blind Multiuser Detection.
 4. Robust Multiuser Detection in Non-Gaussian Channels.
 5. Space-Time Multiuser Detection.
 6. Turbo Multiuser Detection.
 7. Narrowband Interference Suppression.
 8. Monte Carlo Bayesian Signal Processing.
 9. Signal Processing For Fading Channels.
 10. Advanced Signal Processing for Coded OFDM Systems.
-



Author Index

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YOUR NEAREST PEARSON EDUCATION CONTACT (HIGHER EDUCATION)



NORTH

Vishal Dhawan

vishal.dhawan@pearson.com

DELHI NCR

Binit Kumar Shukla

binit.shukla@pearson.com

9871105803

Sunil Sharma

sunil.sharma2@pearson.com

9810038092

Navdeep Singh Virdi

navdeep.singh@pearson.com

9818692884

Kamal Bisht

kamal.bisht@pearson.com

9871877866

Gaurav Sharma

gaurav.sharma5@pearson.com

9650078659

Mohd Suhail

mohd.suhail@pearson.com

9871437770

Avinash Kumar Shukla

avinash.kumar2@pearson.com

97187 07999

Sahil Kumar

sahil.kumar@pearson.com

8447920102

Pallav Jain

pallav.jain@pearson.com

9654011114

Arvind Kumar Rai

arvind.raai@pearson.com

9350401333

Ishaan Yadav

ishaan.yadav@pearson.com

9999811082

PUNJAB

Chandigarh

Munish Modi

munish.modi@pearson.com

9582925252

MADHYA PRADESH

Bhopal

Gaurav Singh Yadav

gaurav.yadav@pearson.com

9981593703

RAJASTHAN

Jaipur

Dushyant Singh

dushyant.singh@pearson.com

9314020121

Gaurav Choudhary

gaurav.choudhary@pearson.com

9983340113

UTTAR PRADESH

Lucknow

Santosh Kumar

santosh.kumar2@pearson.com

9415517650

EAST

Vishal Dhawan

vishal.dhawan@pearson.com

WEST BENGAL

Kolkata

Binit Kumar Shukla

binit.shukla@pearson.com

9871105803

Syed Belaluddin

syed.belal@pearson.com

9831105388

Tapan Kumar Saha

tapan.saha@pearson.com

9830137194

Vishwajeet Banick

vishwajeet.banick@pearson.com

9831499052

Surajit Kumar Kalita

surajit.kumar@pearson.com

9007490111

ASSAM

Guwahati

Bikash Haloi

bikash.haloi1@pearson.com

9508588889

BIHAR

Patna

Satyendra Sahay

satendra.sahay@pearson.com

9334391431

ODISHA

Bhubaneswar

Ranjan Kumar Mishra

ranjan.mishra@pearson.com

9437276051

WEST

Niraj Mishra

niraj.mishra@pearson.com

MAHARASHTRA

Mumbai

Vikas Misar

vikas.misar@pearson.com

9820062721

Dhiren Chandramohan Vakharia

dhiren.vakharia@pearson.com

9833320212

Siddhesh Gaikwad

siddhesh.gaikwad@pearson.com

9930022807

Pune

Dheeraj Gujrati

dheeraj.gujrati@pearson.com

9890491116

Naren Mahato

naren.mahato@pearson.com

7219602464

Kedar Vinod Pise

kedar.pise@pearson.com

9923505251

YOUR NEAREST PEARSON EDUCATION CONTACT (HIGHER EDUCATION)



GUJARAT

Ahmedabad

Gaurav Gagwani

gaurav.gagwani@pearson.com
9898813419

SOUTH

A.K Dhanpal

dhanpal.ak@pearson.com

TAMIL NADU

Chennai

G. Mark Pani Jino

mark.jino@pearson.com
9003258275

G. Shankar

g.shankar@pearson.com
9003130680

Jayaraj V.S

vs.jayaraj@pearson.com
9994070570

A. Jerom Richerd

jerom.richerd@pearson.com
9842593027

Robert Tim Wilton

robert.wilton@pearson.com
9566918567

Coimbatore

S. Gopinath

s.gopinath@pearson.com
9655627617

Natesa Deepan

natesa.deepan@pearson.com
8220015269

Madurai

D. Satheesh

satheesh.d@pearson.com
9677666014

ANDHRA PRADESH & TELANGANA

Hyderabad

Santosh Thadakamadla

t.santosh@pearson.com
9959444413

Kadium Mallikharjun

k.mallikharjun@pearson.com
9603877224

G.V. Kishore

gv.kishore@pearson.com
8897667666

Naveen Bojja

naveen.bojja@pearson.com
9966685001

Vijayawada

Vuppanapalli Jayaprakash Narayana

jayaprakash.vuppanapalli@pearson.com
9603109934

KARNATAKA

Bangalore

Vishal Bajpai

vishal.bajpai@pearson.com
9663526715

Ramesh Shankaran

ramesh.shankaran@pearson.com
9845537670

Arun Kumar R

arun.kumar1@pearson.com
9538100777

K.J. Vinay Kumar

vinay.kumar@pearson.com
9538239890

Mohan Kumar

mohan.nagappa@pearson.com
9739731924

KERALA

B Muneer

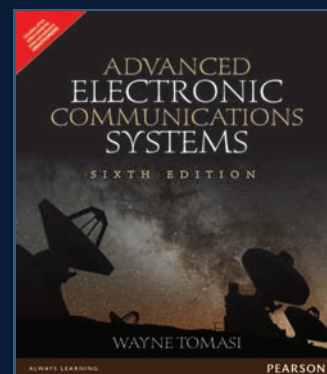
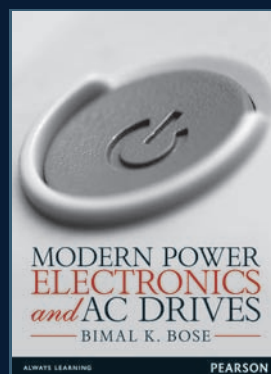
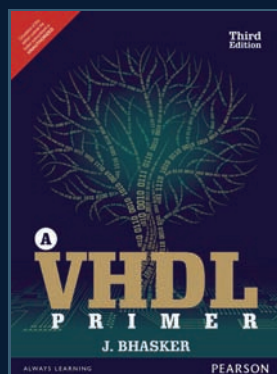
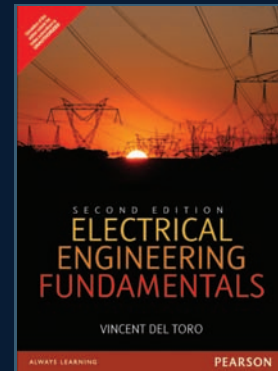
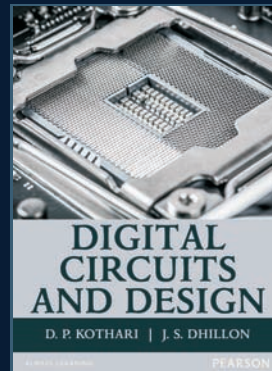
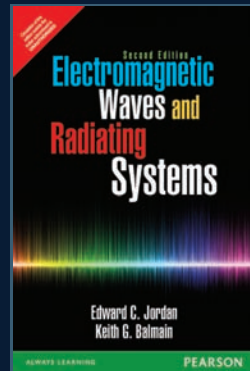
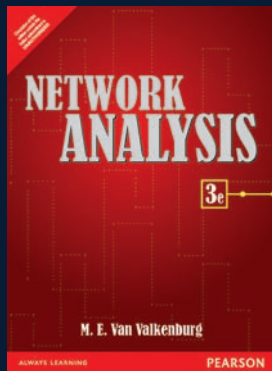
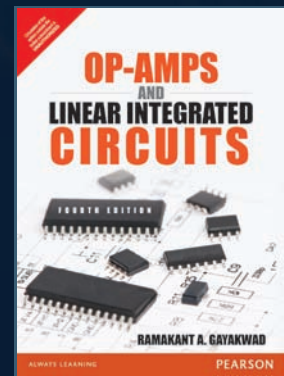
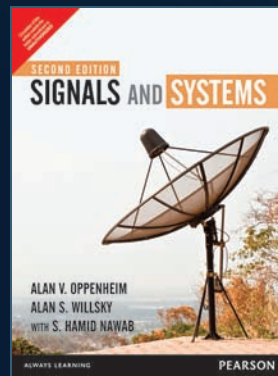
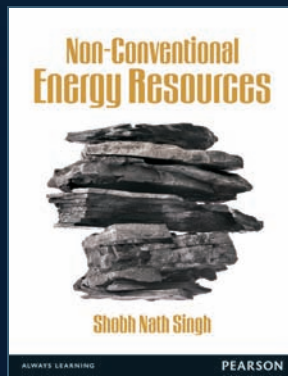
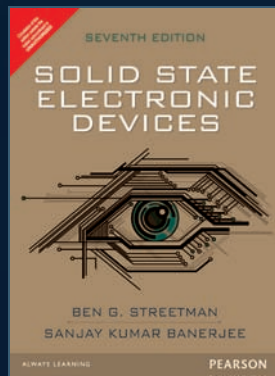
b.muneer@pearson.com
9847505010

Jijo Gratius

jijo.gratius@pearson.com
9947722275

ELECTRICAL AND ELECTRONICS ENGINEERING

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7th Floor, Knowledge Boulevard, A-8 (A), Sector 62, NOIDA 201 309
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