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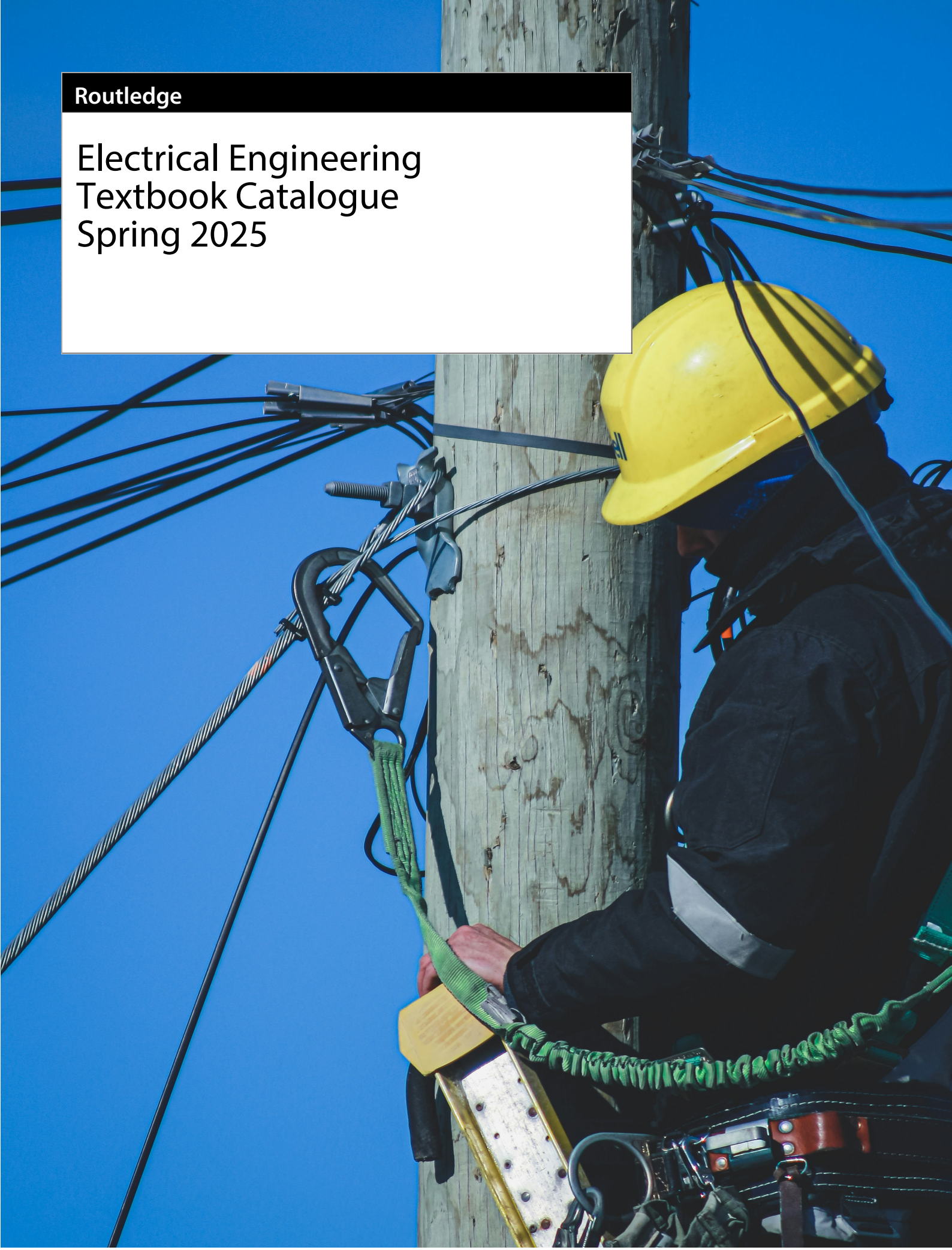
Electrical Engineering Textbook Catalogue Spring 2025



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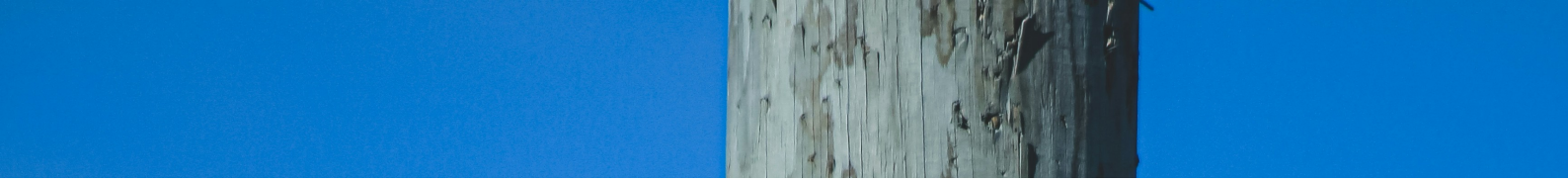

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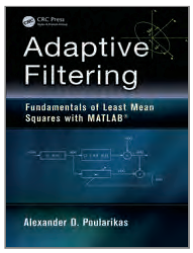
Adaptive Filtering

Fundamentals of Least Mean Squares with MATLAB®



Alexander D. Poularikas The University of Alabama in Huntsville, USA

This book covers the fundamentals of adaptive filtering, with a focus on the least mean square (LMS) adaptive filter. It discusses random variables, stochastic processes, vectors, matrices, determinants, discrete random signals, and probability distributions, while delivering a concise introduction to MATLAB®—complete with problems, computer experiments, and over 110 functions and script files. The text not only addresses the basics of the LMS adaptive filter algorithm but also explores the Wiener filter and its applications, details the steepest descent method, and develops the Newton's algorithm.

CRC Press
September 2014 : 364pp
Pb: 978-1-482-25335-1 : **£96.99**
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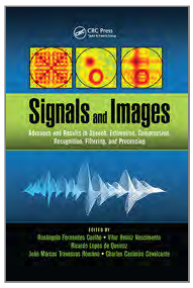
Signals and Images

Advances and Results in Speech, Estimation, Compression, Recognition, Filtering, and Processing



Edited by **Rosângela Fernandes Coelho** Military Institute of Engineering, Rio de Janeiro, Brazil**, Vitor Heloiz Nascimento** University of São Paulo, Brazil**, Ricardo Lopes de Queiroz** University of Brasília, Brazil**, João Marcos Travassos Romano** University of Campinas, São Paulo, Brazil**, Charles Casimiro Cavalcante** Federal University of Ceará, Fortaleza, Brazil

This book cohesively combines contributions from field experts to deliver a comprehensive account of the latest developments in signal processing. It not only shows how signal processing theory is applied, but also demonstrates how to tackle key problems such as how to enhance speech in the time domain, improve audio quality, and meet the desired electrical consumption target for controlling carbon emissions. The text serves as a guide to the next generation of signal processing solutions for speech and video coding, smartphones, and beyond.

CRC Press
July 2017 : 628pp
Pb: 978-1-138-89301-6 : **£71.99**
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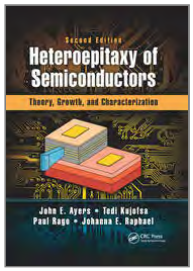
2ND EDITION

Heteroepitaxy of Semiconductors

Theory, Growth, and Characterization, Second Edition



John E. Ayers , Tedi Kujofsa , Paul Rago , Johanna Raphael

This book serves as a comprehensive reference and graduate-level text on Semiconductor Heteroepitaxy —the crystal growth of semiconductor layers on dissimilar substrates for the purpose of making modern semiconductor devices including high-speed transistors, lasers and detectors, digital circuits, photovoltaic cells, solid-state lighting, and sensors. Semiconductor Heteroepitaxy has become increasingly important as an enabling technology for computing, communication, energy, lighting, and control systems. The first edition remains the top book in the field because of its comprehensive treatment and focus on principles. This newest edition includes two entirely new chapters on metamorphic

CRC Press
September 2020 : 659pp
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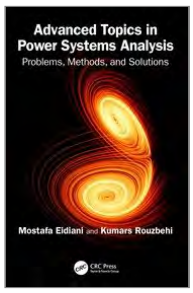
Advanced Topics in Power Systems Analysis

Problems, Methods, and Solutions



Mostafa Eidiani , Kumars Rouzbehi

Electric Power Systems Analysis" is one of the most challenging courses of the Electric Power Engineering major which is taught for junior students. Its complexity arises from numerous prerequisites, a wide array of topics, and a crucial dependence on computational tools, presenting students with significant challenges."

CRC Press
September 2024 : 134pp
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* For **full contents** and more information, visit: **www.routledge.com/9781032828664**

An Introduction to Safety Grounding

Asser A. Zaky

Protective or safety grounding is of vital importance for the protection of individuals from electric shock. To many electrical engineers the notion of grounding is nebulous and safety grounding is quite often confused with neutral grounding of the power supply. The main objective of this book is to give the reader a better understanding of safety grounding, why it is needed, where it is needed, and what are the requirements which must be met in order to have an effective grounding system. This book is a practical guide that provides comprehensive coverage of all types of grounding requirements and is intended for students and practicing electrical engineers alike.

CRC Press
September 2023 : 182pp
Pb: 978-0-367-75927-8 : **£49.99**
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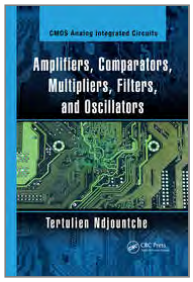
Amplifiers, Comparators, Multipliers, Filters, and Oscillators



Tertulien Ndjountche

The book presents design methods for analog integrated circuits with improved electrical performance. It describes different equivalent transistor models, design methods, and fabrication considerations for high-density integrated circuits in nanometer CMOS processes, and it analyzes circuit architectures that are suitable for analog building blocks. Highlighting various design challenges, the text offers a complete understanding of architectural- and transistor-level design issues of analog integrated circuits. It examines important trends in the design of high-speed and power-efficient front-end analog circuits that can be used for signal conditioning, filtering, and detection applicatio

CRC Press
December 2020 : 672pp
Pb: 978-0-367-73310-0 : **£45.99**
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eBook: 978-0-429-48556-5
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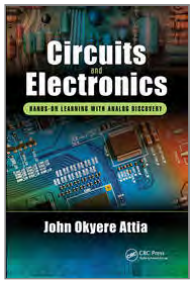
Circuits and Electronics

Hands-on Learning with Analog Discovery



John Okyere Attia

The book provides instructions on building circuits on breadboards, connecting the Analog Discovery wires to the circuit under test, and making electrical measurements. Various measurement techniques are described and used in this book, including: impedance measurements, complex power measurements, frequency response measurements, power spectrum measurements, current versus voltage characteristic measurements of diodes, bipolar junction transistors, and Mosfets. The book includes end-of-chapter problems for additional exercises geared towards hands-on learning, experimentation, comparisons between measured results and those obtained from theoretical calculations.

CRC Press
March 2021 : 206pp
Pb: 978-0-367-78171-2 : **£45.99**
Hb: 978-1-138-29732-6 : **£84.99**
eBook: 978-1-315-09866-1
* For **full contents** and more information, visit: **www.routledge.com/9780367781712**

Data Converters, Phase-Locked Loops, and Their Applications

Tertulien Ndjountche

With a focus on designing and verifying CMOS analog integrated circuits, the book reviews design techniques for mixed-signal building blocks, such as Nyquist and oversampling data converters, and circuits for signal generation, synthesis, and recovery. The text details all aspects, from specifications to the final circuit, of the design of digital-to-analog converters, analog-to-digital converters, phase-locked loops, delay-locked loops, high-speed input/output link transceivers, and class D amplifiers. Special emphasis is put on calibration methods that can be used to compensate circuit errors due to device mismatches and semiconductor process variations.

CRC Press
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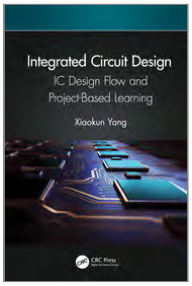
Integrated Circuit Design

IC Design Flow and Project-Based Learning



Xiaokun Yang

This textbook provides HDL-based examples, experiments, and projects able that cover real industry needs such as design/coding rules and methodologies. It will help readers build a connection between the HDL code and hardware circuits. This book can be used as a textbook for integrated circuit design and simulation courses. The audience includes senior undergraduate and graduate students, researchers, and entry-level design and verification engineers in the integrated circuit design industry.

CRC Press
November 2024 : 506pp
Hb: 978-1-032-03079-1 : **£99.99**
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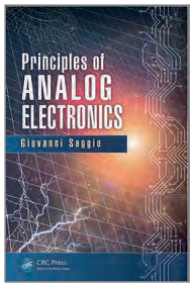
Principles of Analog Electronics



Giovanni Saggio Università degli Studi di Roma - Tor Vergata, Italy

Richly illustrated in full color, this textbook introduces you to the fascinating world of analog electronics, where fields, circuits, signals and systems, and semiconductors meet. The author expertly blends theory with practical examples to give a clear understanding of how real electronic circuits work. The book reviews the prerequisite mathematics, physics, and chemistry and the theory of circuits before delving into passive and active electronic devices. Taking a fresh approach, it connects electronics to everyday life through interesting observations, key personalities, and real-world applications.

CRC Press
January 2014 : 568pp
Hb: 978-1-466-58201-9 : **£81**
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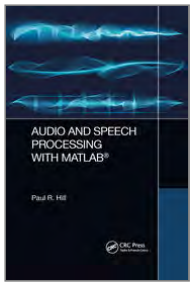
Audio and Speech Processing with MATLAB



Paul Hill

Speech and audio processing has undergone a revolution in preceding decades that has accelerated in the last few years generating game-changing technologies such as truly successful speech recognition systems; a goal that had remained out of reach until very recently. This book gives the reader a comprehensive overview of such contemporary speech and audio processing techniques with an emphasis on practical implementations and illustrations using MATLAB code. Core concepts are firstly covered giving an introduction to the physics of audio and vibration together with their representations using complex numbers, Z transforms and frequency analysis transforms such as the FFT.

CRC Press
September 2020 : 354pp
Pb: 978-0-367-65631-7 : **£53.99**
Hb: 978-1-498-76274-8 : **£135**
eBook: 978-0-429-44406-7
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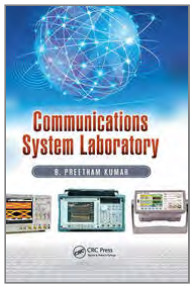
Communications System Laboratory



B. Preetham Kumar

This book offers an integrated approach, combining theory, simulation using computer tools, and experimental practice using hardware. Each chapter includes the following components: a brief theory that describes the underlying mathematics and principles, a problem-solving section with a set of typical problems, a computer laboratory with programming examples and exercises in MATLAB® and Simulink®, and finally, when applicable, a hardware laboratory with exercises using test and measurement equipment. The text not only covers fundamentals like frequency and bandwidth, but also highlights current and future technologies.

CRC Press
March 2021 : 440pp
Pb: 978-0-367-78334-1 : **£45.99**
Hb: 978-1-482-24544-8 : **£84.99**
eBook: 978-0-429-16102-5
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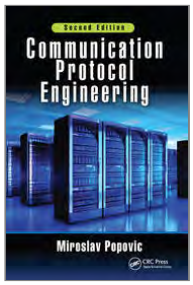
2ND EDITION

Communication Protocol Engineering



Miroslav Popovic

The book aims to enable the reader to master the engineering of communication protocols, which are amply present nowadays in mobile phones, tablets, laptops, smart appliances, and service providers' datacenters and clouds. Readers will acquire the theoretical knowledge and practical skills to successfully design, implement, test, and verify their solutions. The key benefits of the new edition align with the latest standard for conformance testing, TTCN-3, along with updated chapters. It explains process algebra CSP and how to model, simulate, and automatically verify CSP models in PAT.

CRC Press
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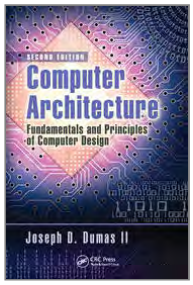
Computer Architecture

Fundamentals and Principles of Computer Design, Second Edition



Joseph D. Dumas II

This book explains, in easily understandable language, the key architectural principles and implementation techniques used to design and build modern computer systems – from embedded controllers to supercomputers, and everything in between. It will give undergraduate and master's level students studying computer science, computer engineering, and/or electrical engineering both a thorough understanding of how computers work and what characteristics to look for when buying a computer system for personal or organizational needs. It does this by incorporating information about actual computer systems, while providing simplified pedagogical examples where the details of real chips would be ove

CRC Press
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Designing Switch/Routers

Fundamental Concepts, Design Methods, Architectures and Applications

James Aweya

This two-volume set focuses on fundamental concepts and design goals (i.e., a switch/router's key features), architectures, and practical applications of switch/routers in IP networks. The discussion includes practical design examples to illustrate how switch/routers are designed and how the key features are implemented. This book provides a discussion of the design of switch/routers and is written in a style to appeal to undergraduate and graduate-level students, engineers, and researchers in the networking and telecoms industry, as well as academics and other industry professionals.

CRC Press
October 2022 : 702pp
Pb: 978-1-032-31581-2 : **£125**
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Designing Switch/Routers

Fundamental Concepts and Design Methods

James Aweya

This book examines the fundamental concepts and design methods associated with switch/routers. The book discusses the main factors that are driving the changing network landscape and propelling the continuous growth in demand for bandwidth and high-performance network devices. This book provides an introductory level discussion of switch/routers and is written in a style to appeal to undergraduate and graduate-level students, engineers, and researchers in the networking and telecoms industry, as well as academics and other industry professionals.

CRC Press
October 2022 : 350pp
Pb: 978-1-032-31582-9 : **£76.99**
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Designing Switch/Routers

Architectures and Applications

James Aweya

This book focuses more on the design goals (i.e., a switch/router's key features), architectures, and practical applications of switch/routers in IP networks. The discussion includes some practical design examples to illustrate how switch/routers are designed and how the key features are implemented. This book provides a discussion of the design of switch/routers and is written in a style to appeal to undergraduate and graduate-level students, engineers, and researchers in the networking and telecoms industry, as well as academics and other industry professionals.

CRC Press
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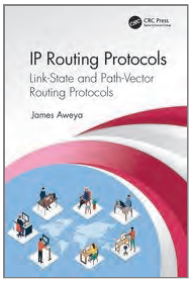
IP Routing Protocols

Link-State and Path-Vector Routing Protocols



James Aweya

This book discusses link-state routing protocols (OSPF and IS-IS), and the path-vector routing protocol (BGP). It covers their most identifying characteristics, operations, and the databases they maintain. Material is presented from a practicing engineer's perspective, linking theory and fundamental concepts to common prqactices and real-world examples. The discussion is presented in a simple style to make it comprehensible and appealing to undergraduate and graduate level students, research and practicing engineers, scientists, IT personnel, and network engineers.

CRC Press
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Pb: 978-0-367-70963-1 : **£68.99**
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eBook: 978-1-003-14901-9
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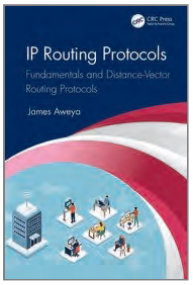
IP Routing Protocols

Fundamentals and Distance-Vector Routing Protocols



James Aweya

This book focuses on the fundamental concepts of IP routing and distance-vector routing protocols (RIPv2 and EIGRP). It discusses routing protocols from a practicing engineer's perspective, linking theory and fundamental concepts to common practices and everyday examples. The discussion is presented in a simple style to make it comprehensible and appealing to undergraduate and graduate level students, research and practicing engineers, scientists, IT personnel, and network engineers.

CRC Press
May 2021 : 324pp
Pb: 978-0-367-70962-4 : **£68.99**
Hb: 978-0-367-71041-5 : **£170**
eBook: 978-1-003-14904-0
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IP Routing Protocols

Two-Volume Set

James Aweya

This two-volume book describes the most common IP routing protocols used today, explaining the underlying concepts of each protocol and how the protocol components and processes fit within the typical router. Unlike other books, this title is not vendor focused. Volume 1 discusses fundamental concepts of IP routing and distance-vector routing protocols (RIPv2 and EIGRP). Volume 2 focuses on link-state routing protocols (OSPF and IS-IS) and the only path-vector routing protocol in use today (BGP). The volumes' simple style to make them comprehensible and appealing to undergraduate and graduate level students, research and practicing engineers, scientists, IT personnel, and network engineers.

CRC Press
May 2021 : 768pp
Pb: 978-0-367-70959-4 : **£91.99**
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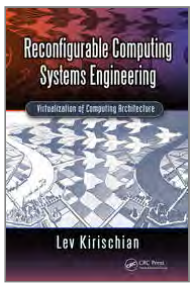
Reconfigurable Computing Systems Engineering

Virtualization of Computing Architecture



Lev Kirischian

This book offers a road map to the synthesis of reconfigurable computing system (RCS) architecture, exploring the process from the system and on-chip levels. It describes in detail all aspects of hardware virtualization in RCS platforms—from system-on-chip components to on-board levels—for application-specific workloads, presenting methodologies for rapid adaptation to multi-parametric constraints by dynamic reconfiguration of the RCS architecture. Featuring illustrative examples, case studies, homework problems, and important literature references, the text provides a solid understanding of RCS technology and where it's most effective.

CRC Press
March 2021 : 346pp
Pb: 978-0-367-77920-7 : **£47.99**
Hb: 978-1-439-85621-5 : **£120**
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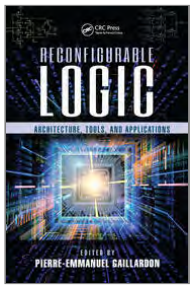
Reconfigurable Logic

Architecture, Tools, and Applications



Edited by **Pierre-Emmanuel Gaillardon** The University of Utah, Salt Lake City, USA

Series: Devices, Circuits, and Systems

This book explores classical field programmable gate array (FPGA) architectures and their supporting tools; evaluates recent proposals related to FPGA architectures, including the use of network-on-chips (NoCs); examines reconfigurable processors that merge concepts borrowed from the reconfigurable domain into processor design; and exploits FPGAs for high-performance systems, efficient error correction codes, and high-bandwidth network routers with built-in security. The book also expounds on emerging technologies to improve FPGA routing structures and create non-volatile configuration flip-flops, providing valuable insight into the future potential of reconfigurable systems.

CRC Press
October 2015 : 554pp
Hb: 978-1-482-26218-6 : **£155**
eBook: 978-1-315-21502-0
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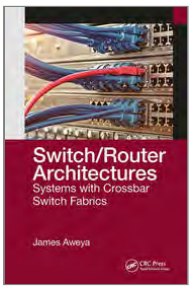
Switch/Router Architectures

Systems with Crossbar Switch Fabrics



James Aweya

Crossbar switch fabrics offer many benefits when designing switch/routers. This book discusses switch/router architectures using design examples and case studies of well-known systems that employ crossbar switch fabric as their internal interconnects.This book will be of benefit to telecoms/networking industry professionals as well as researchers and academics looking for more practical and efficient approaches for designing non-blocking crossbar switch fabrics.

CRC Press
October 2023 : 366pp
Pb: 978-1-032-65421-8 : **£49.99**
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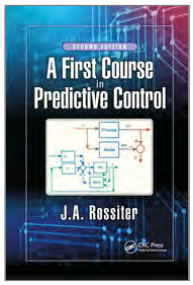
2ND EDITION

A First Course in Predictive Control



J.A. Rossiter

The book presents a significant expansion in depth and breadth of the previous edition. It includes substantially more numerical illustrations and copious supporting MATLAB code that the reader can use to replicate illustrations or build his or her own. The code is deliberately written to be as simple as possible and easy to edit. The book is an excellent starting point for any researcher to gain a solid grounding in MPC concepts and algorithms before moving into application or more advanced research topics. Sample problems for readers are embedded throughout the chapters, and in-text questions are designed for readers to demonstrate an understanding of concepts through numerical simulati

CRC Press
July 2022 : 428pp
Pb: 978-1-032-33916-0 : **£45.99**
Hb: 978-1-138-09934-0 : **£120**
eBook: 978-1-315-10412-6
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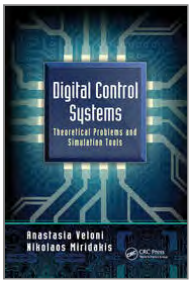
Digital Control Systems

Theoretical Problems and Simulation Tools



Anastasia Veloni , Nikolaos Miridakis

The objective of this book is to provide a collection of solved problems on control systems, with an emphasis on practical problems. System functionality is described, the modeling process is explained, the problem solution is introduced, and the derived results are discussed. Each chapter ends with a discussion on applying MATLAB®, LabVIEW, and/or Comprehensive Control to the previously introduced concepts. The aim of the book is to help an average reader understand the concepts of control systems through problems and applications. The solutions are based directly on math formulas given in extensive tables throughout the text.

CRC Press
March 2021 : 449pp
Pb: 978-0-367-77882-8 : **£61.99**
Hb: 978-1-138-03920-9 : **£155**
eBook: 978-1-315-16863-0
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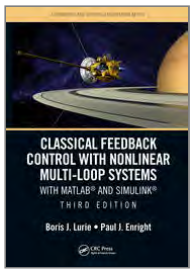
3RD EDITION

Classical Feedback Control with Nonlinear Multi-Loop Systems

With MATLAB® and Simulink®, Third Edition



Boris J. Lurie , Paul Enright

This book describes the design of high-performance feedback control systems, emphasizing the frequency-domain approach widely used in practical engineering. It presents design methods for high-order nonlinear single- and multi-loop controllers with efficient analog and digital implementations. Bode integrals are employed to estimate the available system performance and to determine the ideal frequency responses that maximize the disturbance rejection and feedback bandwidth. This book serves as a unique text for an advanced course in control system engineering, and as a valuable reference for practicing engineers competing in today's industrial environment.

CRC Press
December 2021 : 594pp
Pb: 978-1-032-24056-5 : **£39.99**
Hb: 978-1-138-54114-6 : **£105**
eBook: 978-1-351-01185-3
* For **full contents** and more information, visit: **www.routledge.com/9781032240565**

Mean-Field-Type Games for Engineers

Julian Barreiro-Gomez New York University, UAE.**, Hamidou Tembine** New York University, UAE.

This book comprises an appropriate background to work and do research on mean-field-type control and game theory. It starts with studying the deterministic optimal control and differential linear-quadratic games, and progressively moves to analyzing mean-field-type control and game problems incorporating several stochastic processes. For the mean-field-type game analysis, several numerical examples using a MatLab-based user-friendly toolbox are available for the readers. It includes applications in both continuous and discrete time, such as water distribution systems, micro-grid energy storage, stirred tank reactor, and COVID-19 propagation control.

CRC Press
May 2024 : 526pp
Pb: 978-0-367-56613-5 : **£45.99**
Hb: 978-0-367-56612-8 : **£110**
eBook: 978-1-032-12804-7 : **£45.99**
* For **full contents** and more information, visit: **www.routledge.com/9780367566135**

2ND EDITION

Design and Analysis of Control Systems

Driving the Fourth Industrial Revolution

Arthur G.O. Mutambara

Written to inspire and cultivate the ability to design and analyze feasible control algorithms for a wide range of engineering applications, this text covers the theoretical and practical principles involved in the design and analysis of control systems. Second edition introduces 4IR adoption strategies for traditional intelligent control including new techniques of implementing control systems. It provides improved coverage of characteristics of feedback control, Root-Locus analysis, frequency-response analysis including updated worked examples and problems. This book is aimed at Senior undergraduate and graduate students in control and systems, and electrical engineering.

CRC Press
March 2024 : 794pp
Hb: 978-1-032-71880-4 : **£190**
eBook: 978-1-032-71888-0
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2ND EDITION

Optimal and Robust Control

Advanced Topics with MATLAB®

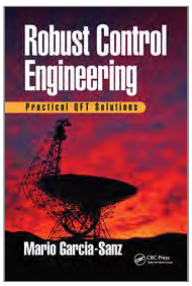
Luigi Fortuna University of Catania, Italy.**, Mattia Frasca** University of Catania, Italy.**, Arturo Buscarino** University of Catania, Italy.

This new edition deals with advanced automatic control techniques, paying particular attention to robustness-the ability to guarantee stability in the presence of uncertainty. It explains advanced techniques for handling uncertainty and optimizing the control loop, and details analytical strategies for obtaining reduced order models. It also includes numerous examples and MATLAB® exercises to help the reader efficiently acquire new skills. Written for electrical, electronic, computer science, space, and automation engineers interested in automatic control, this book can also be used for self-study of for a one-semester course in robust control.

CRC Press
January 2024 : 322pp
Pb: 978-1-032-05301-1 : **£47.99**
Hb: 978-1-032-05300-4 : **£110**
eBook: 978-1-032-15155-7 : **£45.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032053011**

Robust Control Engineering

Practical QFT Solutions



Mario Garcia-Sanz

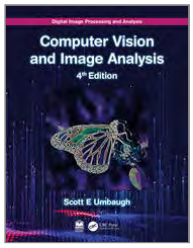
The book presents practical methodologies for engineers and researchers designing reliable control systems, bridging the gap between successfully-tested theory and real world control system implementation. The chapters showcase fifty successful real world cases studies, in which the author was involved, including: commercial wind turbines, wastewater treatment plants, power systems, satellites with flexible appendages, spacecraft flying in formation, large radio telescopes, and industrial manufacturing systems. Additionally, it utilizes the QFT Control Toolbox (QFTCT) for MATLAB, developed by the author, for problems and projects presented throughout each chapter.

CRC Press
June 2021 : 578pp
Pb: 978-1-032-09674-2 : **£49.99**
Hb: 978-1-138-03207-1 : **£135**
eBook: 978-1-315-39498-5
* For **full contents** and more information, visit: **www.routledge.com/9781032096742**

4TH EDITION

Digital Image Processing and Analysis

Computer Vision and Image Analysis



Scott E Umbaugh Southern Illinois University, Edwardsville, USA

Computer vision and image analysis is a field that continues to advance at an ever increasing pace, with applications ranging from medical diagnostics to space exploration. The diversity of applications is one of the driving forces that make it such an exciting field to be involved in for the 21st century.

CRC Press
October 2024 : 440pp
Pb: 978-1-032-11708-9 : **£48.99**
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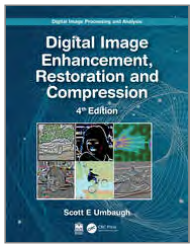
4TH EDITION

Digital Image Processing and Analysis

Digital Image Enhancement, Restoration and Compression



Scott E Umbaugh Southern Illinois University, Edwardsville, USA

The book, Digital Image Enhancement, Restoration and Compression, focuses on human vision based imaging application development. The book can be used for self-study by those involved with application development, whether they are engineers, scientists, or artists. The new edition has been extensively updated and includes numerous problems and programming exercises that will help the reader and student to develop their skills.

CRC Press
March 2025 : 488pp
Pb: 978-1-032-11710-2 : **£48.99**
Hb: 978-1-032-07130-5 : **£105**
eBook: 978-1-032-38447-4 : **£105**
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4TH EDITION

Digital Image Processing and Analysis

Two Volume Set

Scott E Umbaugh Southern Illinois University, Edwardsville, USA

The new edition will have separate volumes for computer vision and human-based vision applications. The first volume, Computer Vision and Image Analysis, will focus on the topics needed for computer vision systems development. It will feature more examples, more exercises and new algorithms. It will also include the new GUI for the CVIP Matlab Toolbox. The second volume, Image Enhancement, Restoration and Compression, will focus on the topics needed for human vison based systems development. It will feature more examples, more exercises and new algorithms. It will also include the new GUI for the CVIP Matlab Toolbox. .

CRC Press
February 2025 : 966pp
Pb: 978-1-032-11706-5 : **£69.99**
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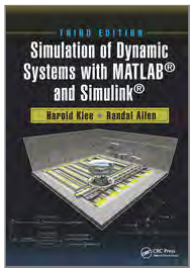
3RD EDITION

Simulation of Dynamic Systems with MATLAB® and Simulink®



Harold Klee , Randal Allen

Continuous-system simulation is an increasingly important tool for optimizing the performance of real-world systems. The book presents an integrated treatment of continuous simulation with all the background and essential prerequisites in one setting. It features updated chapters and two new sections on Black Swan and the Stochastic Information Packet (SIP) and Stochastic Library Units with Relationships Preserved (SLURP) Standard. The new edition includes basic concepts, mathematical tools, and the common principles of various simulation models for different phenomena, as well as an abundance of case studies, real-world examples, homework problems, and equations to develop a practical un

CRC Press
December 2021 : 852pp
Pb: 978-1-032-24195-1 : **£54.99**
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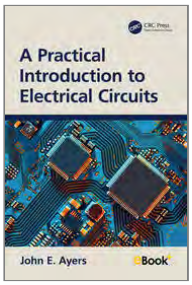
A Practical Introduction to Electrical Circuits



John E. Ayers

A Practical Introduction to Electrical Circuits represents a fresh approach to the subject which is compact and easy to use, yet offers a comprehensive description of the fundamentals, including Kirchhoff's laws, nodal and mesh analysis.

CRC Press
February 2024 : 440pp
Pb: 978-1-032-52816-8 : **£49.99**
Hb: 978-1-032-52815-1 : **£170**
eBook: 978-1-032-52817-5 : **£45.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032528168**

Advanced Field-Effect Transistors

Theory and Applications

Edited by **Dharmendra Singh Yadav** National Institute of Technology Kurukshetra, INDIA**, Shiromani Balmukund Rahi** Assistant Professor University School of Information and Communication Technology Gautam Buddha University Greater Noida, Uttar Pradesh India**, Sukeshni Tirkey** MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY BHOPAL INDIA

The book addresses the fundamental physics behind operation of various FETs, as well as challenges and solutions with the FETs for the device to circuit level design and simulation. It will provide an overview of new semiconductor devices and their applicability in electronic circuit design, which form the foundation of technological systems. It would be useful for scientists, researchers, and postgraduate students who are interested in learning about device physics, circuits, and systems. Readers are presumed to have a basic understanding of electronic circuits and devices. This book's purpose is to teach VLSI designers and students how to sensibly device to circuit processing.

CRC Press
December 2023 : 306pp
Hb: 978-1-032-49380-0 : **£135**
eBook: 978-1-003-39354-2
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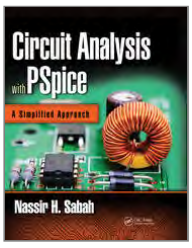
Circuit Analysis with PSpice

A Simplified Approach



Nassir H. Sabah

Intended as a textbook for the first two courses on electric circuits, the first six chapters of this book include techniques of circuit simplification and analysis applied to the dc state. Part II consists of a number of additional topics that can be selectively added in a second course. The first topic presented is operational amplifiers, followed by frequency responses of passive, filters, and then active filters, where operational amplifiers are used. Other topics included in Part II are the usual topics on responses to periodic inputs, complex power, responses to impulse and step functions, convolution, Laplace transform, Fourier transform, two-port circuits, and balanced three-phase

CRC Press
March 2021 : 838pp
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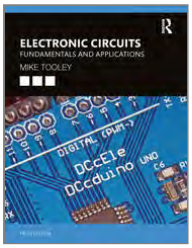
5TH EDITION

Electronic Circuits

Fundamentals and Applications



Mike Tooley , Mike Tooley

This fifth edition provides all the information required to get to grips with the fundamentals of electronics, detailing the underpinning knowledge necessary to appreciate the operation of a wide range of electronic circuits. An additional chapter shows how a wide range of useful electronic applications can be developed in conjunction with the increasingly popular Arduino microcontroller, and a new section details batteries for use in electronic equipment and some additional/updated student assignments. The book's content is matched to the latest pre-degree level courses (from Level 2 up to, and including, Foundation Degree and HND).

Routledge
November 2019 : 522pp
Pb: 978-0-367-42198-4 : **£39.99**
Hb: 978-0-367-42199-1 : **£120**
eBook: 978-0-367-82265-1
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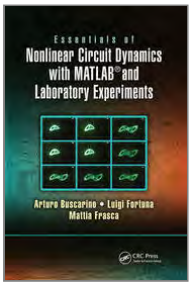
Essentials of Nonlinear Circuit Dynamics with MATLAB® and Laboratory Experiments



Arturo Buscarino , Luigi Fortuna , Mattia Frasca

The book begins with simple nonlinear dynamics, like the logistic map, and ends with nonlinear networks, like Cellular Nonlinear Networks. After discussing various examples, by using the essential concepts of bifurcation analysis, a set of laboratory experiences are proposed. This approach helps to build simple circuits and to achieve complex networks. The aim is to give to the readers a complete view of the main concepts of nonlinear dynamics finalized in order to understand complex systems and their control by using electronics devices. Numerical examples and homework problems with solutions are also included to enforce the material discussed. Moreover, the readers will be able to imple

CRC Press
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Hb: 978-1-138-19813-5 : **£86.99**
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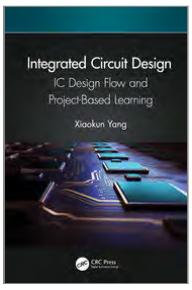
Integrated Circuit Design

IC Design Flow and Project-Based Learning



Xiaokun Yang

This textbook provides HDL-based examples, experiments, and projects able that cover real industry needs such as design/coding rules and methodologies. It will help readers build a connection between the HDL code and hardware circuits. This book can be used as a textbook for integrated circuit design and simulation courses. The audience includes senior undergraduate and graduate students, researchers, and entry-level design and verification engineers in the integrated circuit design industry.

CRC Press
November 2024 : 506pp
Hb: 978-1-032-03079-1 : **£99.99**
eBook: 978-1-003-18708-0
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Negative Capacitance Field Effect Transistors

Physics, Design, Modeling and Applications

Edited by **Young Suh Song , Shubham Tayal** SR University, India**, Shiromani Balmukund Rahi** Assistant Professor University School of Information and Communication Technology Gautam Buddha University Greater Noida, Uttar Pradesh India**, Abhishek Kumar Upadhyay**

Series: Materials, Devices, and Circuits

This book aims to provide information in the ever-growing field of low-power electronic devices and their applications in portable device, wireless communication, sensor, and circuit domains. This book is designed to be one-stop guidebook for students and academic researchers to understand recent trends in the IT industry and semiconductor industry. It will also be of interest to researchers in the field of nanodevices like NC-FET, FinFET, Tunnel FET, and device-circuit codesign.

CRC Press
October 2023 : 148pp
Hb: 978-1-032-44531-1 : **£100**
eBook: 978-1-003-37339-1
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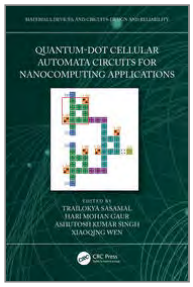
Quantum-Dot Cellular Automata Circuits for Nanocomputing Applications



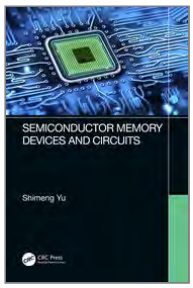
Edited by **Trailokya Sasamal , Hari Mohan Gaur** ABES Institute of Technology, UP, India**, Ashutosh Kumar Singh** National Institute of Technology, India**, Xiaoqing Wen** Kyushu Institute of Technology, Iizuka, Japan

Series: Materials, Devices, and Circuits

This book provides a composite solution for optimal logic designs for quantum-dot cellular automata based circuits. It includes the basics of new logic functions and novel digital circuit designs, quantum computing with QCA, new trends in quantum and quantum-inspired algorithms and applications, and algorithms to support QCA designers. The book is intended for students and researchers in electronics and computer disciplines who are interested in this rapidly changing field under the umbrella of courses such as emerging nanotechnologies and its architecture, low-power digital design.

CRC Press
July 2023 : 252pp
Hb: 978-1-032-42018-9 : **£125**
eBook: 978-1-003-36163-3
* For **full contents** and more information, visit: **www.routledge.com/9781032420189**

Semiconductor Memory Devices and Circuits



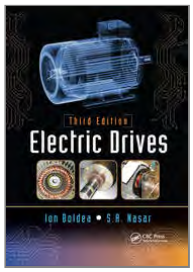
Shimeng Yu

This book covers semiconductor memory technologies from device bit-cell structures to memory array design with an emphasis on recent industry trends and cutting-edge technologies. The first part of the book discusses mainstream semiconductor memory technologies. The second part of the book discusses emerging memory candidates that may have the potential to change the memory hierarchy. The third part of the book surveys new applications of memory technologies beyond conventional applications. This book is intended for graduate students in electrical engineering programs and researchers or industry professionals in semiconductors and microelectronics.

CRC Press
April 2022 : 214pp
Hb: 978-0-367-68707-6 : **£105**
eBook: 978-1-003-13874-7
* For **full contents** and more information, visit: **www.routledge.com/9780367687076**

3RD EDITION

Electric Drives



Ion Boldea , Syed A. Nasar

The third edition of this bestselling textbook incorporates the latest technologies used to save energy and increase productivity, stability, and reliability. It includes new references to key research and development activities, adds nearly 120 new pages covering recent advances, and features two new chapters on advanced scalar control and multiphase electric machine drives. All solved numerical examples have been retained, and 10 MATLAB®–Simulink® programs remain online to ensure students gain a practical understanding of the subtleties involved in the operation of modern electric drives.

CRC Press
July 2022 : 672pp
Pb: 978-1-032-33995-5 : **£49.99**
Hb: 978-1-498-74820-9 : **£135**
eBook: 978-1-315-36857-3
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2ND EDITION

Electric Machines

Two Volume Set

Ion Boldea University Politehnica Timisoara, Romania**, Lucian N. Tutelea** Politehnica University of Timisoara, Romania

With its comprehensive coverage of the state of the art, this second edition of the book comrpises two volumes, and introduces the basic types of transformers and electric machines and also discusses advanced subjects in electric machines, starting from principles, to applications and case studies with ample graphical results. The first book covers circuit modeling characteristics and performance characteristics under steady state. The second book covers topics such as modeling of transients and control principles. Both the volumes include numerical examples and case studies, and numerous computer simulation programs in MATLAB and Simulink® are also available online.

CRC Press
December 2024 : 856pp
Pb: 978-1-032-10575-8 : **£74.99**
Hb: 978-0-367-37562-1 : **£210**
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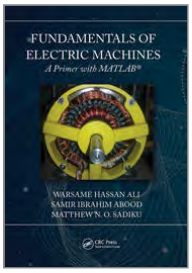
Fundamentals of Electric Machines: A Primer with MATLAB

A Primer with MATLAB



Warsame Hassan Ali , Matthew N. O. Sadiku , Samir Abood

An electric machine is a device that converts mechanical energy into electrical energy or vice versa. It can take the form of an electric generator, electric motor, or transformer. Electric generators produce virtually all electric power we use all over the world. Electric machine blends the three major areas of electrical engineering: power, control and power electronics. This book presents the relation of power quantities for the machine as the current, voltage power flow, power losses, and efficiency. This book will provide a good understanding of the behavior and its drive, beginning with the study of salient features of electrical dc and ac machines.

CRC Press
December 2021 : 410pp
Pb: 978-1-032-24286-6 : **£39.99**
Hb: 978-0-367-25098-0 : **£71.99**
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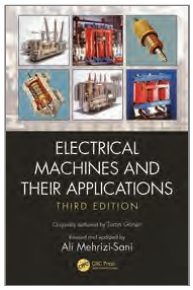
* For **full contents** and more information, visit: **www.routledge.com/9781032242866**

3RD EDITION

Electrical Machines and Their Applications



Turan Gonen California State University, Sacramento, USA**, Ali Mehrizi-Sani**

This popular, easy-to-read, book offers a comprehensive yet unique treatment of electric machines and their historical development. Electric Machines covers an in-depth analysis of machines augmented with ample examples, which makes it suitable both for those who are new to electric machines and for those who want to deepen their knowledge of electric machines.

CRC Press
January 2024 : 432pp
Hb: 978-0-367-65501-3 : **£94.99**
IEPB: 978-1-032-88617-6 : **£48.99**
eBook: 978-1-003-12974-5
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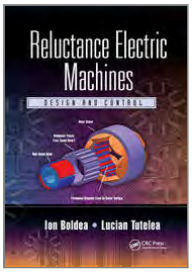
Reluctance Electric Machines

Design and Control



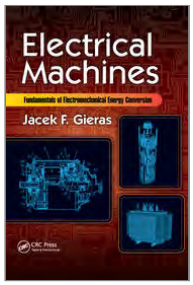
Ion Boldea , Lucian Tutelea

Electric energy is arguably a key agent for our material prosperity. With the notable exception of photovoltaic generators, electric generators are exclusively used to produce electric energy from mechanical energy. More than 60% of all electric energy is used in electric motors for useful mechanical work in various industries. The book presents the modeling, performance, design, and control of reluctance synchronous and flux-modulation machines developed for higher efficiency and lower cost. It covers one- and three-phase reluctance synchronous motors in line-start applications and various reluctance flux-modulation motors in pulse width modulation converter-fed variable speed drives.

CRC Press
December 2020 : 432pp
Pb: 978-0-367-73393-3 : **£58.99**
Hb: 978-1-498-78233-3 : **£155**
eBook: 978-0-429-45831-6
* For **full contents** and more information, visit: **www.routledge.com/9780367733933**

Electrical Machines

Fundamentals of Electromechanical Energy Conversion



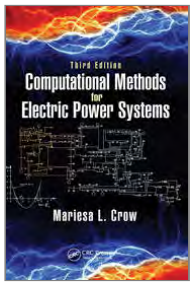
Jacek F. Gieras

This textbook deals exhaustively with electrical machines and provides examples of their application to modern electromechanical drive systems. Some everyday examples of these applications can include: a cooling fan driven by electric motor (usually a single-phase induction motor), a washing machine drum driven by a PM brushless motor or SRM, an electric screwdriver driven by an AC brush motor, a wind turbine with induction or PM brushless generator, etc. Most of the material in this book has been classroom-tested, with very successful results. Each chapter contains a minimum 10 numerical examples to help enforce new information, while exploring technical problems and their possible solut

CRC Press
December 2020 : 452pp
Pb: 978-0-367-73694-1 : **£53.99**
Hb: 978-1-498-70883-8 : **£110**
eBook: 978-1-315-37142-9
* For **full contents** and more information, visit: **www.routledge.com/9780367736941**

3RD EDITION

Computational Methods for Electric Power Systems



Mariesa L. Crow

This book introduces computational methods that form the basis of many analytical studies in power systems. It provides the background for algorithms that underlie several commercial software packages, linking concepts to power system applications. The third edition contains new material on preconditioners for linear iterative methods, Broyden's method, and Jacobian-free Newton–Krylov methods. It includes additional problems and examples, as well as updated examples on sparse LU factorization. It also adds coverage of the eigensystem realization algorithm and the double-shift method for computing complex eigenvalues.

CRC Press
June 2021 : 346pp
Pb: 978-1-032-09822-7 : **£54.99**
Hb: 978-1-498-71159-3 : **£135**
eBook: 978-0-429-17261-8
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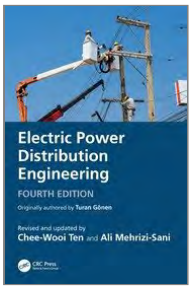
4TH EDITION

Electric Power Distribution Engineering



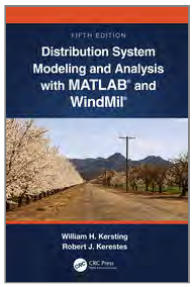
Turan Gönen , Chee-Wooi Ten , Ali Mehrizi-Sani

Are you fascinated by the complex web of electrical power that illuminates our modern world? Do you want to understand the intricate systems responsible for delivering electricity to our homes, businesses, and industries? Look no further than "Electric Power Distribution System Engineering" by renowned author Turan Gonen.

CRC Press
March 2024 : 480pp
Hb: 978-0-367-65495-5 : **£135**
IEPB: 978-1-032-88626-8 : **£49.99**
eBook: 978-1-032-43935-8 : **£125**
* For **full contents** and more information, visit: **www.routledge.com/9780367654955**

5TH EDITION

Distribution System Modeling and Analysis with MATLAB® and WindMil®



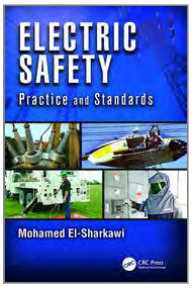
William H. Kersting Milsoft Utility Solutions, USA.**, Robert Kerestes** University of Pittsburgh, USA.

The fifth edition includes new sections on electric vehicle loads and the impact they have on voltage drop and transformers in distribution systems. A new and improved tape-shield cable model has been developed to produce more accurate impedance modeling of underground cables. In addition, MATLAB scripts have been developed for all the examples in the text, in addition to new MATLAB based problems at the end of the chapters. The book also covers approximation methods to help users interpret computer program results and includes reference and assignments that help users apply MATLAB and WindMil programs to put their new learning into practice.

CRC Press
August 2022 : 496pp
Hb: 978-1-032-19836-1 : **£135**
eBook: 978-1-003-26109-4
* For **full contents** and more information, visit: **www.routledge.com/9781032198361**

Electric Safety

Practice and Standards



Mohamed A. El-Sharkawi University of Washington, Seattle, USA

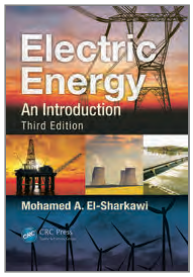
Most power engineers are not familiar with the electric safety practices governing site works or grounding practices of dwellings, hospitals, and factories. This book provides the knowledge and analysis they need to be versed on electric safety and, therefore, effectively transfer the skills to their field workers. It includes several case studies from real events and examples showing that variations in implementing electric safety procedures can create sites with various safety levels. As electric safety codes are similar everywhere, this practical book can be used worldwide.

CRC Press
March 2017 : 464pp
Pb: 978-1-138-07399-9 : **£62**
Hb: 978-1-466-57149-5 : **£155**
eBook: 978-0-429-10188-5
* For **full contents** and more information, visit: **www.routledge.com/9781138073999**

3RD EDITION

Electric Energy

An Introduction, Third Edition



Mohamed A. El-Sharkawi University of Washington, Seattle, USA

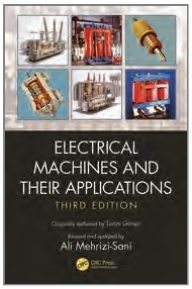
Series: Power Electronics and Applications Series

Along with the standard topics of power electronics and electromechanical conversion, this third edition of a bestseller covers energy resources, power plants, environmental impacts of power generation, power system operation, renewable energy, and electrical safety. Focusing on issues encountered in everyday practice, the author includes examples based on real systems and data. Now in color, the text offers new and expanded coverage on the failure modes of nuclear power plants, interface and integration issues, stray voltage and impulse shocks, the circuits in wind and solar systems, smart grid technology, and more.

CRC Press
November 2012 : 606pp
Hb: 978-1-466-50303-8 : **£145**
eBook: 978-0-429-09670-9
* For **full contents** and more information, visit: **www.routledge.com/9781466503038**

3RD EDITION

Electrical Machines and Their Applications



Turan Gonen California State University, Sacramento, USA**, Ali Mehrizi-Sani**

This popular, easy-to-read, book offers a comprehensive yet unique treatment of electric machines and their historical development. Electric Machines covers an in-depth analysis of machines augmented with ample examples, which makes it suitable both for those who are new to electric machines and for those who want to deepen their knowledge of electric machines.

CRC Press
January 2024 : 432pp
Hb: 978-0-367-65501-3 : **£94.99**
IEPB: 978-1-032-88617-6 : **£48.99**
eBook: 978-1-003-12974-5
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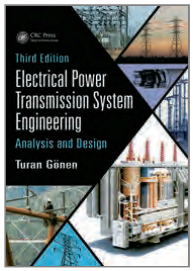
3RD EDITION

Electrical Power Transmission System Engineering

Analysis and Design, Third Edition



Turan Gönen

A hands-on electrical and mechanical design text for engineering students and professionals, this Third Edition features additional examples of fault analysis, a detailed discussion of flexible AC systems, and expanded coverage of the structures, equipment, and environmental impact of transmission lines. Also included is a review of the methods for allocating transmission line fixed charges among joint users, new trends and regulations in transmission line construction, a guide to the FERC electric transmission facilities permit process and Order No. 1000, and a glossary of terms.

CRC Press
May 2014 : 1094pp
Hb: 978-1-482-23222-6 : **£91**
eBook: 978-0-429-18345-4
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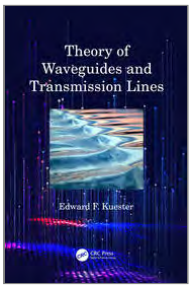
Theory of Waveguides and Transmission Lines



Edward F. Kuester University of Colorado Boulder, USA

This book provides the principles of operation of electromagnetic waveguides and transmission lines. The approach is divided between mathematical descriptions of basic behaviors and treatment of specific types of waveguide structures. Classic transmission lines, their basic properties, their connection to lumped-element networks, and the distortion of pulses are discussed followed by a full field analysis of waveguide modes. Modes of specific kinds of waveguides - traditional hollow metallic waveguides, dielectric (including optical) waveguides, etc.are discussed. Problems of excitation and scattering of waveguide modes are addressed followed by real systems and performance.

CRC Press
September 2023 : 610pp
Pb: 978-0-367-54044-9 : **£49.99**
Hb: 978-1-498-73087-7 : **£115**
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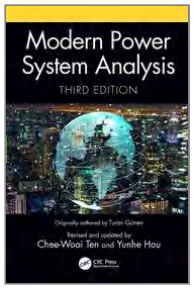
3RD EDITION

Modern Power System Analysis

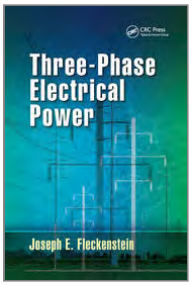


Chee-Wooi Ten , Yunhe Hou

Step into the captivating world of power systems with "Modern Power System Analysis" by acclaimed author Turan Gonen. This illuminating book offers a comprehensive examination of power system analysis. Whether you're a curious non-specialist, a voracious reader seeking knowledge, or a librarian or bookseller searching for a valuable resource, Gonen's masterpiece is sure to captivate you. This book is an excellent source to begin your journey.

CRC Press
March 2024 : 427pp
Hb: 978-0-367-65506-8 : **£135**
IEPB: 978-1-032-88629-9 : **£49.99**
eBook: 978-1-032-71570-4 : **£125**
* For **full contents** and more information, visit: **www.routledge.com/9780367655068**

Three-Phase Electrical Power



Joseph E. Fleckenstein

This book addresses all aspects applicable to three-phase circuits, including ac circuits, generation, transmission, distribution, grounding, currents, power, demand, metering, circuit protection, motors, motor protection, power factor correction, tariffs, electrical drawings, and relays. It also covers all possible types of three-phase circuits for all possible applications: balanced, unbalanced, leading, lagging, three-wire, and four-wire. Using simple terms and straightforward language to explain key concepts and their underlying theory, this contemporary educational guide employs phasors throughout the text and features numerous examples, illustrations, photographs, and end-of-chapter

CRC Press
September 2020 : 436pp
Pb: 978-0-367-65596-9 : **£54.99**
Hb: 978-1-498-73777-7 : **£145**
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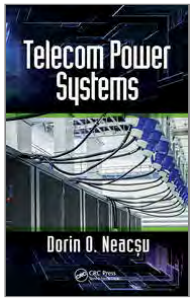
Telecom Power Systems



Dorin O. Neacșu

This book addresses topics specific to the application of power electronics to telecom systems. It follows the power flow from national grid down to the last low-voltage high current requirement of a processor. Auxiliary equipment requirements, such as uninterruptible power supplies, storage energy systems, or charging systems, are explained, along with peculiar classification or suggestions for usage. The presentation of each telecom power system is completed with a large number of practical examples to reinforce new material.

CRC Press
September 2020 : 436pp
Pb: 978-0-367-65641-6 : **£49.99**
Hb: 978-1-138-09930-2 : **£135**
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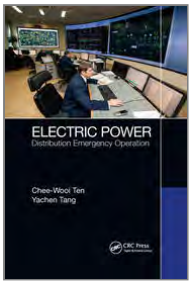
Electric Power

Distribution Emergency Operation



Chee-Wooi Ten , Yachen Tang

Provides the fundamentals of distribution emergency operation using graph-theoretic approach and exploration of subsystem(s) that address the operational aspects of fault occurrence to determine the possible feeder reconfiguration. Topics include: (1) Data extraction from geographic information systems (GIS), (2) Graph modeling of distribution feeders, (3) Programming for backward/forward sweeping unbalanced power flow, (4) Short circuit analysis and fault localization, (5) Fault isolation and service restoration, (6) Outage management and crew coordination, (7) Trouble call tickets and escalation to search for fault, and (8) Emerging topics of distribution management systems (DMS).

CRC Press
June 2022 : 268pp
Pb: 978-1-032-33888-0 : **£49.99**
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eBook: 978-0-429-44083-0
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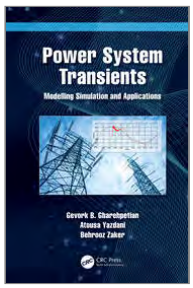
Power System Transients

Modelling Simulation and Applications



Gevork Gharehpetian , Atousa Yazdani , Behrooz Zaker

In this textbook, variety of transient cases occurred or possible to occur in power systems are discussed and analyzed. It starts by categorizing transients' phenomena and specifying unfavorable situations in power systems raised by transients. The book provides a comprehensive resource to mainly educate graduate students in the area of power system transients. It also serves as a reference for industry engineers challenged by transient problems in the system.

CRC Press
October 2024 : 248pp
Pb: 978-1-032-18559-0 : **£45.99**
Hb: 978-1-032-18558-3 : **£76.99**
eBook: 978-1-003-25513-0
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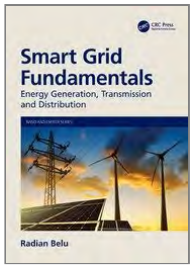
Smart Grid Fundamentals

Energy Generation, Transmission and Distribution



Radian Belu Southern University and A&M College, USA.

Series: Nano and Energy

The book provides a comprehensive overview of smart grids, their role in the development of electricity systems, as well as issues and problems related to smart grid evolution, operation, management, control, protection, entities, and components. The book can be used as an introductory and basic textbook, reference and training resource by engineers, students, faculty, and interested readers to gain the essential knowledge of the power and energy systems, smart grid fundamentals, concepts and features, as well as the main energy technologies, including how they work and operate, characteristics, and they are evaluated and selected for specific applications..

CRC Press
May 2024 : 486pp
Pb: 978-1-032-19194-2 : **£48.99**
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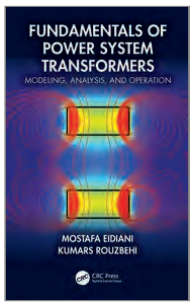
* For **full contents** and more information, visit: **www.routledge.com/9781032191942**

Fundamentals of Power System Transformers

Modeling, Analysis, and Operation



Mostafa Eidiani , Kumars Rouzbehi

Fundamentals of Power System Transformers acts as a stepping stone towards a deeper comprehension of electric machines and transformers, resembling the content covered in a graduate-level course. This book is aimed at graduate students in electrical engineering as well as researchers and industry professionals interested in signal processing, radars, aviation radar systems, and radio-controlled systems. The book will also be of interest to pilots, flight engineers, military command personnel, and military contractors.

CRC Press
January 2025 : 127pp
Hb: 978-1-032-88175-1 : **£91.99**
eBook: 978-1-003-53756-4
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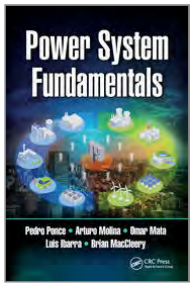
Power System Fundamentals



Pedro Ponce , Arturo Molina , Omar Mata , Luis Ibarra , Brian MacCleery

This book covers the fundamentals of power systems, which are the pillars for smart grids, with a focus on defining the smart grid with theoretical and experimental electrical concepts. It begins by discussing electric circuits, which are the basic systems in smart grids, and finishes with a complete smart grid concept. The book allows the reader to build a foundation of understanding with basic and advanced exercises that run on simulation before moving to experimental results. It is intended for readers who want to comprehensively cover both the basic and advanced concepts of smart grids.

CRC Press
December 2021 : 446pp
Pb: 978-1-032-24187-6 : **£54.99**
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eBook: 978-1-315-14899-1
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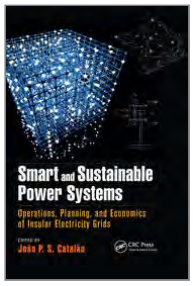
Smart and Sustainable Power Systems

Operations, Planning, and Economics of Insular Electricity Grids



Edited by **João P. S. Catalão**

This book discusses the modeling, simulation, and optimization of insular power systems to address the large-scale integration of renewables and demand-side management. It describes uncertainty, variability, reserves, and demand response. It examines forecasting techniques, power flow calculations, and scheduling models, including testing and validation using real-world data. The text also covers probabilistic and stochastic approaches, scenario generation, short-term operation, electric price signals, competitive operation of distribution networks, and network expansion planning, making it a valuable resource for the development of a sustainable and smart grid.

CRC Press
December 2020 : 452pp
Pb: 978-0-367-73815-0 : **£49.99**
Hb: 978-1-498-71212-5 : **£155**
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Real-Time Systems Development with RTEMS and Multicore Processors

Gedare Bloom Howard University, Washington, D.C., USA **, Joel Sherrill** OAR Corporation, Huntsville, AL, USA**, Tingting Hu** University of Luxembourg, Luxembourg**, Ivan Cibrario Bertolotti**

Series: Embedded Systems

This book focuses on enabling real-time embedded software engineering while providing theoretical foundations and hardware background to understand the rationale for key decisions in RTOS and application design and implementation. Some topics covered in this book are - Cross-compilation for embedded systems development; Concurrent programming models used in real-time embedded software; Usage and comparison of two application programmer interfaces (APIs): POSIX and the RTEMS Classic APIs, etc. The authors of this book are experts in the academic field of real-time embedded systems, with two of them primary open-source maintainers of the RTEMS software project.

CRC Press
May 2022 : 534pp
Pb: 978-0-367-64436-9 : **£61.99**
Hb: 978-0-815-36597-6 : **£155**
eBook: 978-1-351-25579-0
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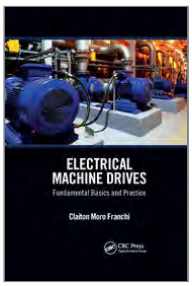
Electrical Machine Drives

Fundamental Basics and Practice



Claiton Moro Franchi

This work was developed based on the author's experience of more than 10 years working in research and industry in the areas of electrical drives and industrial automation. Seeking the connection between theory and its applications, the author presents a detailed conceptual description with lots of figures and illustrative examples that harmonize the theoretical approach with the practice. Composed of eleven chapters and three appendices, the book describes in a dynamic and didactic way the fundamental concepts related to the drives of electric machines. At the end of each chapter is a set of exercises to ease the fixation of the presented content.

CRC Press
June 2022 : 404pp
Pb: 978-1-032-33862-0 : **£49.99**
Hb: 978-1-138-09939-5 : **£135**
eBook: 978-1-315-10398-3
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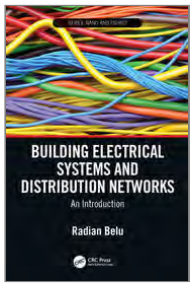
Building Electrical Systems and Distribution Networks

An Introduction



Radian Belu Southern University and A&M College, USA.

Series: Nano and Energy

This book covers all important, new and conventional aspects of building electrical systems, power distribution, lighting, transformers and rotating electric machines, wiring and building installations. Solved examples, end of chapter questions and problems, case studies, and design considerations are included in each chapter, highlighting concepts, diverse and critical features of building and industrial electrical systems. Support materials are included for interested instructors.

CRC Press
March 2020 : 606pp
Hb: 978-1-482-26351-0 : **£115**
eBook: 978-0-429-17345-5
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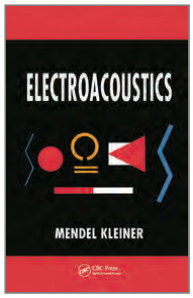
Electroacoustics

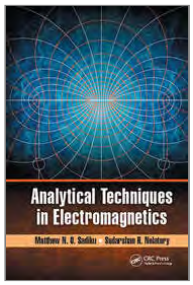


Mendel Kleiner Chalmers University of Technology, Gothenburg, Sweden

A key part of the modern communication society, electroacoustic devices such as microphones and loudspeakers are used everywhere from cars and mobile phones to homes and sports arenas. This modern, accessible text explains the key scientific and engineering principles behind their design. It also examines the compromises that are necessary when designing transducers for use in the real world. The book covers both traditional audio and ultrasonic transducers and includes up-to-date material on arrays, radiation impedance, loudspeaker enclosure design, and more.

CRC Press
February 2013 : 628pp
Hb: 978-1-439-83618-7 : **£135**
eBook: 978-0-429-07351-9
* For **full contents** and more information, visit: **www.routledge.com/9781439836187**

Analytical Techniques in Electromagnetics



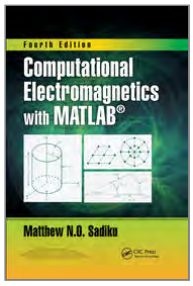
Matthew N. O. Sadiku Prairie View A&M University, Texas, USA**, Sudarshan R. Nelatury** Penn State Erie, The Behrend College, USA

This book offers a balanced view of techniques for solving electromagnetic problems, refusing to overemphasize the importance of analytical methods at the expense of numerical techniques. Carefully selected topics provide an appreciation of the kinds of electromagnetic problems that can be solved exactly. Beginning with a review of basic electromagnetics, the text covers separation of variables, series expansion, conformal transformation, and perturbation methods, as well as Fourier sine and cosine, two-sided Fourier, Laplace, Hankel, and Mellin transform techniques. Simple examples, worked-out problems, and end-of-chapter exercises demonstrate various applications.

CRC Press
November 2015 : 266pp
Hb: 978-1-498-70901-9 : **£120**
eBook: 978-0-429-15717-2
* For **full contents** and more information, visit: **www.routledge.com/9781498709019**

4TH EDITION

Computational Electromagnetics with MATLAB, Fourth Edition



Matthew N.O. Sadiku

This fourth edition of the text reflects the continuing increase in awareness and use of computational electromagnetics and incorporates advances and refinements made in recent years. Most notable among these are the improvements made to the standard algorithm for the finite-difference time-domain (FDTD) method and treatment of absorbing boundary conditions in FDTD, finite element, and transmission-line-matrix methods. It teaches the readers how to pose, numerically analyze, and solve EM problems, to give them the ability to expand their problem-solving skills using a variety of methods, and to prepare them for research in electromagnetism.

CRC Press
June 2022 : 708pp
Pb: 978-1-032-33903-0 : **£61.99**
Hb: 978-1-138-55815-1 : **£145**
eBook: 978-1-315-15125-0
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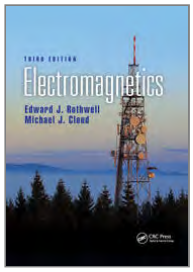
3RD EDITION

Electromagnetics



Edward J. Rothwell , Michael J. Cloud

Providing an ideal transition from introductory to advanced concepts, this book builds a foundation that allows electrical engineers to confidently proceed with the development of advanced EM studies, research, and applications. New topics include quasistatics, vector spherical wave functions, and wave matrices. Several application-oriented sections covering guided waves and transmission lines, particle dynamics, shielding, electromagnetic material characterization, and antennas have also been added. Mathematical appendices present helpful background information in the areas of Fourier transforms, dyadics, and boundary value problems.

CRC Press
July 2022 : 1008pp
Pb: 978-1-032-33917-7 : **£49.99**
Hb: 978-1-498-79656-9 : **£135**
* For **full contents** and more information, visit: **www.routledge.com/9781032339177**

2ND EDITION

Introduction to Electromagnetism

From Coulomb to Maxwell

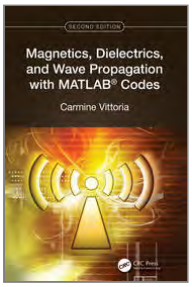
Martin J N Sibley University of Huddersfield, West Yorkshire, United Kingdom

This edition aims to expand the on the first edition and take the reader through to the wave equation on coaxial cable and free-space by using Maxwell's equations. The new chapters will include time varying signals and fundamentals of Maxwell's equation. This book is intended for first and second year electrical and electronics undergraduates, and can also be used for undergraduates in mechanical engineering, computing and physics. The book will include examples and homework problems.

CRC Press
September 2023 : 246pp
Pb: 978-0-367-71187-0 : **£49.99**
Hb: 978-0-367-46056-3 : **£110**
eBook: 978-0-367-46270-3
* For **full contents** and more information, visit: **www.routledge.com/9780367711870**

2ND EDITION

Magnetics, Dielectrics, and Wave Propagation with MATLAB® Codes

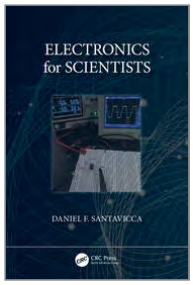


Carmine Vittoria Northeastern University, Boston, Massachusetts, USA

Because future microwave, wireless communication systems, computer chip designs and sensor systems, it will require miniature fabrication processes in the order of nano meters or less as well as the marriage of various material technologies to produce composites consisting of many different materials.

CRC Press
November 2023 : 492pp
Hb: 978-1-032-55568-3 : **£92.99**
eBook: 978-1-003-43124-4
* For **full contents** and more information, visit: **www.routledge.com/9781032555683**

Electronics for Scientists



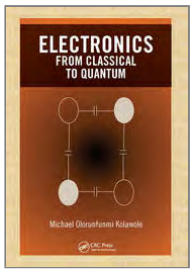
Daniel Santavicca

Electronics for Scientists provides a practical and concise introduction to electrical circuits, signals, and instrumentation for undergraduate students in the physical sciences. The subject of electronics is indispensable to a wide array of scientific and technical fields, and this book seeks to provide an approachable point of access to this rich and important subject.

CRC Press
September 2023 : 165pp
Pb: 978-1-032-52813-7 : **£33.99**
Hb: 978-1-032-52812-0 : **£92.99**
eBook: 978-1-003-40849-9
* For **full contents** and more information, visit: **www.routledge.com/9781032528137**

Electronics

from Classical to Quantum

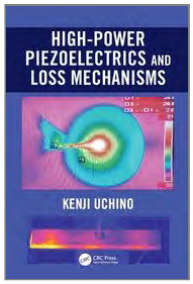


Michael Olorunfunmi Kolawole Jolade Consulting Company, Australia.

This book discusses formulation and classification of integrated circuits, develops hierarchical structure of functional logic blocks to build more complex digital logic circuits, outlines the structure of transistors, their processing techniques, their arrangement forming logic gates and digital circuits, optimal pass transistor stages of buffered chain, and performance of designed circuits under noisy conditions. It also outlines the principles of quantum electronics leading to the development of lasers, masers, reversible quantum gates and circuits and applications of quantum cells.

CRC Press
May 2022 : 342pp
Pb: 978-0-367-51385-6 : **£49.99**
Hb: 978-0-367-51222-4 : **£115**
eBook: 978-1-003-05291-3
* For **full contents** and more information, visit: **www.routledge.com/9780367513856**

High-Power Piezoelectrics and Loss Mechanisms

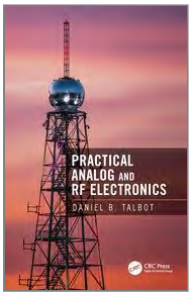


Kenji Uchino Pennsylvania State University, USA.

This textbook introduces the theoretical background of piezoelectrics, electromechanial phenomenology, loss mechanisms, practical materials, device designs, drive and characterization techniques, typical applications, and looks forward to the future perspectives in this field. This text is designed for self-learning by the reader by himself/herself aided by the availability of: Chapter Essentials – Summary for your quick memory recovery; Check Points – Answers are provided in the book Appendix; Example Problems – To enhance the reader's understanding with full detailed solutions; Chapter Problems – For the final exam, or further consideration.

CRC Press
August 2024 : 380pp
Pb: 978-0-367-54072-2 : **£45.99**
Hb: 978-0-367-54069-2 : **£76.99**
eBook: 978-1-003-08751-9
* For **full contents** and more information, visit: **www.routledge.com/9780367540722**

Practical Analog and RF Electronics

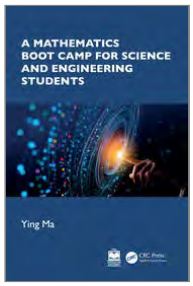


Daniel B. Talbot

This is a book about real-world techniques in designing analog circuits: amplifiers, filters, injection-locked oscillators, phase-locked loops, and spectrum regrowth in digital RF transmitters, etc. The book offers practical solutions to analog and RF problems, helping the reader to achieve high performance circuit and system design. This book will be useful to both students and practitioners. Teachers will find the book an important supplement to a standard analog and RF course, or it may stand alone as a textbook. Practitioners may find it useful by bookmarking some of the step-by-step procedures, e.g. the section on simplified impedance matching or group delay flattening.

CRC Press
April 2022 : 226pp
Pb: 978-0-367-54294-8 : **£49.99**
Hb: 978-0-367-54291-7 : **£125**
eBook: 978-1-003-08854-7
* For **full contents** and more information, visit: **www.routledge.com/9780367542948**

A Mathematics Boot Camp for Science and Engineering Students



Ying Ma

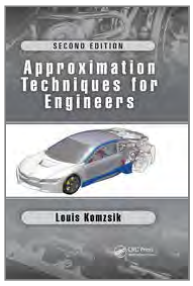
Many students have difficulty applying mathematical techniques to solve problems in science and engineering, even after completing Calculus I and II. Students who are beginning core coursework in their field of study often need additional guidance on practicing, learning, and improving their problem-solving skills for application. This book offers a solution to this issue and is specifically designed to address common errors in mathematical problem-solving for undergraduate science and engineering students. This concise and practical text offers "basic training" in mathematical problem-solving skills for undergraduate students in science and engineering disciplines.

CRC Press
March 2025 : 323pp
Pb: 978-1-032-44294-5 : **£53.99**
Hb: 978-1-032-44295-2 : **£120**
* For **full contents** and more information, visit: **www.routledge.com/9781032442945**

2ND EDITION

Approximation Techniques for Engineers

Second Edition



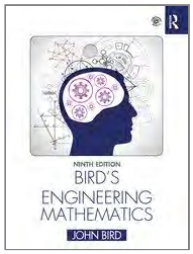
Louis Komzsik

This book's specific goal is to provide a working knowledge of the various approximation techniques for engineering practice. Therefore, many sections are illuminated by either a computational example or an algorithm to enhance understanding and provide a template for the reader's own application of the technique. The more advanced techniques are also illustrated by some of their industrial applications. The additions of the second edition, the eleven new sections and the two new chapters, significantly enlarge the engineering audience in reflection to the expansion of applications in the past decade since the original publication.

CRC Press
September 2020 : 386pp
Pb: 978-0-367-65807-6 : **£45.99**
Hb: 978-1-138-70005-5 : **£110**
eBook: 978-0-429-22539-0
* For **full contents** and more information, visit: **www.routledge.com/9780367658076**

9TH EDITION

Bird's Engineering Mathematics



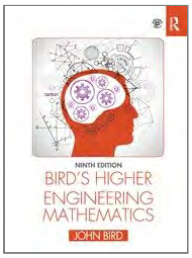
John Bird Defence College of Technical Training, UK

Engineering Mathematics has helped thousands of students to succeed in their exams, using worked examples and interactive problems. Mathematics is explained in a straightforward manner, supported by over 550 practical engineering examples and applications which relate theory to practice. This is a great text for a range of Level 2 and 3 engineering courses, and for A level revision. Its companion website provides resources for both students and lecturers, including lists of essential formulae and multiple-choice tests and full solutions for all 1900 further questions; and illustrations and answers to revision tests for adopting course instructors.

Routledge
March 2021 : 758pp
Pb: 978-0-367-64378-2 : **£45.99**
Hb: 978-0-367-64379-9 : **£110**
eBook: 978-1-003-12423-8
* For **full contents** and more information, visit: **www.routledge.com/9780367643782**

9TH EDITION

Bird's Higher Engineering Mathematics



John Bird Defence College of Technical Training, UK

Higher Engineering Mathematics has helped thousands of students to succeed in their exams by developing problem-solving skills, It is supported by over 600 practical engineering examples and applications which relate theory to practice. The extensive and thorough topic coverage makes this a solid text for undergraduate and upper-level vocational courses. Its companion website provides resources for both students and lecturers, including lists of essential formulae, and full solutions to all 2,000 further questions contained in the 277 practice exercises; and illustrations and answers to revision tests for adopting course instructors.

Routledge
March 2021 : 934pp
Pb: 978-0-367-64373-7 : **£47.99**
Hb: 978-0-367-64375-1 : **£110**
eBook: 978-1-003-12422-1
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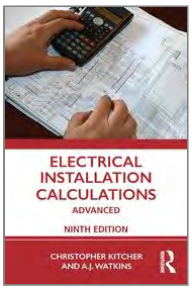
9TH EDITION

Electrical Installation Calculations

Advanced



Christopher Kitcher College Lecturer, UK

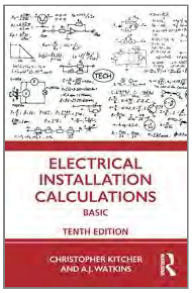
This new edition has been updated to be in line with the 18th Edition IEE Wiring Regulations (BS 7671:2018). It includes ring final circuit calculations, test procedures and interpretation of results, testing of 3 phase motors, polarisation testing calculations, risk level calculations for surge protection, and updated PV calculations. It meets the requirements of Level 3 electrical installation courses, and includes calculations used by professional electrical installation engineers and students involved in higher levels of study. Also included are a glossary section, worked examples and exercises, and a question-and-answer section.

Routledge
June 2022 : 240pp
Pb: 978-1-032-19332-8 : **£32.99**
Hb: 978-1-032-19333-5 : **£84.99**
eBook: 978-1-003-25872-8
* For **full contents** and more information, visit: **www.routledge.com/9781032193328**

10TH EDITION

Electrical Installation Calculations

Basic



Christopher Kitcher College Lecturer, UK

This is in line with the 18th Edition IEE Wiring Regulations (BS 7671:2018). It now includes a worked example of resistivity and an update and development of the material on disconnection times for fuses and circuit breakers. It meets the requirements of current foundation level electrical installation courses, and includes essential calculations outside specific syllabuses which are invaluable for professional electrical installation engineers based in industry and students progressing to higher levels of study. It includes a glossary section, worked examples and exercises throughout, and a complete question and answer section.

Routledge
June 2022 : 218pp
Pb: 978-1-032-19340-3 : **£32.99**
Hb: 978-1-032-19341-0 : **£84.99**
eBook: 978-1-003-25873-5
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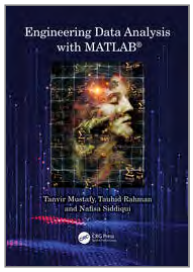
Engineering Data Analysis with MATLAB®



Tanvir Mustafy Military Inst. of Science and Tech, BD**,**
Tauhid Rahman Military Inst. of Science and Tech, BD**,**
Nafisa Siddiqui Military Inst. of Science and Tech, BD

This book provides a concise overview of a variety of techniques for analyzing statistical, scientific, and financial data, using MATLAB® to integrate several approaches to data analysis and statistics. Chapters offer a broad review of computational data analysis, illustrated with many examples and applications. Each chapter combines theoretical concepts with practical MATLAB® applications and includes practice exercises, ensuring a comprehensive understanding of the material. With coverage of both basic and more complex ideas in applied statistics, the book has broad appeal for undergraduate students up to practicing engineers.

CRC Press
December 2024 : 902pp
Pb: 978-1-032-50771-2 : **£71.99**
Hb: 978-1-032-50658-6 : **£145**
eBook: 978-1-003-39958-2
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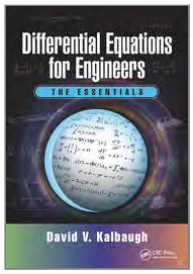
Differential Equations for Engineers

The Essentials



David V. Kalbaugh

The aim of this book is to survey the broad landscape of differential equations, including elements of partial differential equations (PDEs), and concisely present the topics of most use to engineers. It includes practical applications drawn from electrical, mechanical, and aerospace engineering and strongly addresses numerical integration. With the use of step-by-step explanations, a review of necessary foundations, and sets of solved problems, the material provides concrete clarification to concepts students sometimes find abstract (e.g., eigenvalues and eigenvectors).

CRC Press
December 2021 : 452pp
Pb: 978-1-032-24139-5 : **£49.99**
Hb: 978-1-498-79881-5 : **£135**
eBook: 978-1-315-15496-1
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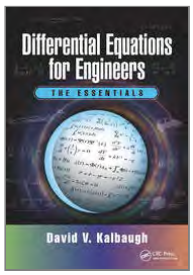
Differential Equations for Engineers

The Essentials



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December 2021 : 452pp
Pb: 978-1-032-24139-5 : **£49.99**
Hb: 978-1-498-79881-5 : **£135**
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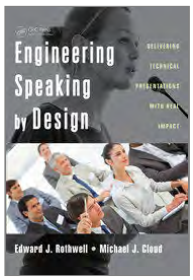
Engineering Speaking by Design

Delivering Technical Presentations with Real Impact



Edward J. Rothwell Michigan State University, East Lansing, USA**, Michael J. Cloud** Lawrence Technological University, Southfield, Michigan, USA

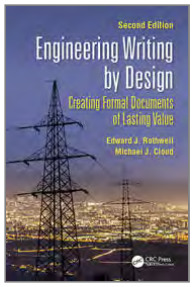
This unique book is conceptually organized around the engineering design process. It demonstrates how to apply this process to formal oral technical presentations. Providing clear and concise instruction supported by illustrative examples, the text explains how to avoid logical fallacies (both formal and informal), use physical reasoning to catch mistakes in claims, master the essentials of presentation style, conquer the elements of mathematical exposition, and forge a connection with the audience. Each chapter ends with a convenient checklist, bulleted summary, and set of exercises.

CRC Press
July 2015 : 164pp
Pb: 978-1-498-70577-6 : **£47.99**
Hb: 978-1-138-42206-3 : **£185**
eBook: 978-1-315-21432-0
* For **full contents** and more information, visit: **www.routledge.com/9781498705776**

2ND EDITION

Engineering Writing by Design

Creating Formal Documents of Lasting Value, Second Edition



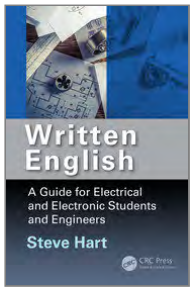
Edward J. Rothwell , Michael J. Cloud

This book shows how effective writing can be achieved by thinking like an engineer. Based on the authors' combined experience as engineering educators, the book presents a novel approach to technical writing, positioning formal writing tasks as engineering design problems with requirements, constraints, protocols, standards, and customers (readers) to satisfy. Featuring illustrative examples, chapter summaries and exercises, quick-reference tables, and recommendations for further reading, this book is packed with valuable tips and information practicing and aspiring engineers need to become effective writers.

CRC Press
January 2020 : 257pp
Pb: 978-0-367-34754-3 : **£49.99**
Hb: 978-0-367-89682-9 : **£105**
eBook: 978-0-429-32769-8
* For **full contents** and more information, visit: **www.routledge.com/9780367347543**

Written English

A Guide for Electrical and Electronic Students and Engineers



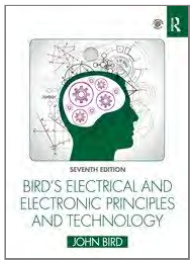
Steve Hart English Language Editor and Resource Writer, Cambridge, UK

This book covers all aspects of English grammar relevant to electrical and electronic engineers. It discusses working with numbers and algebra, including correct formatting procedures (both body citations and references). The book addresses vocabulary and stylistic issues, describes the level of writing expected in the field, reveals often-made mistakes, and indicates areas where engineers should focus their efforts. The text also offers unique insight into problems students and academics face on a day-to-day basis when writing in a language that is not their mother tongue.

CRC Press
December 2015 : 216pp
Pb: 978-1-498-73962-7 : **£37.99**
Hb: 978-1-138-42241-4 : **£180**
eBook: 978-1-315-21412-2
* For **full contents** and more information, visit: **www.routledge.com/9781498739627**

7TH EDITION

Bird's Electrical and Electronic Principles and Technology



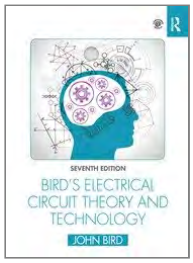
John Bird Defence College of Technical Training, UK

This practical textbook introduces the essentials of electrical and electronic engineering, and their uses in technology. It sets out detailed examples and lab experiments, for future technicians in electrical engineering, electronics, and telecommunications, and is ideal for vocational courses at Levels 2 and 3, foundation degrees and introductory courses for undergraduates. Now with more on glass batteries, and global climate change and the future of electricity production. The companion website gives resources for both students and lecturers, including lists of essential formulae, multiple choice tests, and full solutions for all 900 further questions.

Routledge
October 2021 : 592pp
Pb: 978-0-367-67235-5 : **£39.99**
Hb: 978-0-367-67237-9 : **£180**
eBook: 978-1-003-13040-6
* For **full contents** and more information, visit: **www.routledge.com/9780367672355**

7TH EDITION

Bird's Electrical Circuit Theory and Technology



John Bird Defence College of Technical Training, UK

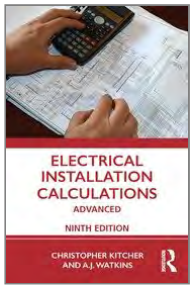
This fully comprehensive text explains electrical circuit theory and associated technology topics in a straightforward manner, supported by practical engineering examples and applications to ensure that readers can relate theory to practice. Containing over 800 worked examples, this is an excellent text for a range of courses, in particular for Degree and Foundation Degree in electrical principles, circuit theory, telecommunications, and electrical technology.

Routledge
October 2021 : 930pp
Pb: 978-0-367-67222-5 : **£49.99**
Hb: 978-0-367-67224-9 : **£180**
eBook: 978-1-003-13033-8
* For **full contents** and more information, visit: **www.routledge.com/9780367672225**

9TH EDITION

Electrical Installation Calculations

Advanced



Christopher Kitcher College Lecturer, UK

This new edition has been updated to be in line with the 18th Edition IEE Wiring Regulations (BS 7671:2018). It includes ring final circuit calculations, test procedures and interpretation of results, testing of 3 phase motors, polarisation testing calculations, risk level calculations for surge protection, and updated PV calculations. It meets the requirements of Level 3 electrical installation courses, and includes calculations used by professional electrical installation engineers and students involved in higher levels of study. Also included are a glossary section, worked examples and exercises, and a question-and-answer section.

Routledge
June 2022 : 240pp
Pb: 978-1-032-19332-8 : **£32.99**
Hb: 978-1-032-19333-5 : **£84.99**
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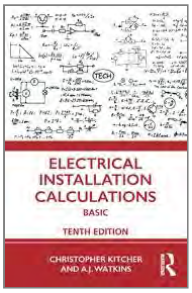
10TH EDITION

Electrical Installation Calculations

Basic



Christopher Kitcher College Lecturer, UK

This is in line with the 18th Edition IEE Wiring Regulations (BS 7671:2018). It now includes a worked example of resistivity and an update and development of the material on disconnection times for fuses and circuit breakers. It meets the requirements of current foundation level electrical installation courses, and includes essential calculations outside specific syllabuses which are invaluable for professional electrical installation engineers based in industry and students progressing to higher levels of study. It includes a glossary section, worked examples and exercises throughout, and a complete question and answer section.

Routledge
June 2022 : 218pp
Pb: 978-1-032-19340-3 : **£32.99**
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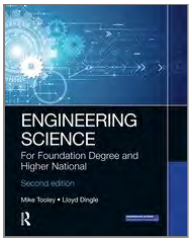
2ND EDITION

Engineering Science

For Foundation Degree and Higher National

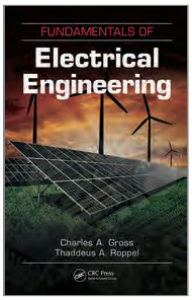


Mike Tooley Brooklands College, UK**, Lloyd Dingle**

Engineering Science will help you understand the scientific principles involved in engineering. Focusing primarily upon core mechanical and electrical science topics, students enrolled on an Engineering Foundation degree and Higher National Engineering qualification will find this book an invaluable aid to their learning. The second edition features new chapters on 'Materials, Properties, Testing and Failure' and 'AC Network Analysis' complete with 54 totally new drawings.

Routledge
September 2020 : 528pp
Pb: 978-0-367-43272-0 : **£47.99**
Hb: 978-0-367-43273-7 : **£135**
eBook: 978-1-003-00224-6
* For **full contents** and more information, visit: **www.routledge.com/9780367432720**

Fundamentals of Electrical Engineering



Charles A. Gross Auburn University, Alabama, USA**, Thaddeus A. Roppel** Auburn University, Alabama, USA

Written to provide an overview of the electrical engineering profession to college students and professionals outside the field of electrical engineering, this textbook provides information on the necessary technical competencies required within the field. Simple and easy to use, yet complete in rigor and coverage of fundamental concepts, this book teaches the fundamentals of electrical engineering without including the typical analytical methods that hold little relevance for non-electrical engineers. Many examples explaining concepts and homework problems are included within the chapters to aid with student comprehension and application. A solutions manual is provided as well, upon qualification.

CRC Press
February 2012 : 482pp
Hb: 978-1-439-83714-6 : **£105**
eBook: 978-0-429-11299-7
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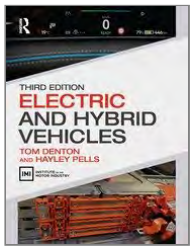
3RD EDITION

Electric and Hybrid Vehicles



Tom Denton Technical Consultant, Institute of the Motor Industry (IMI), UK**, Hayley Pells** Avia Sports Cars Ltd, UK

Endorsed by the Institute of the Motor Industry, this full colour textbook introduces the subject for further education and undergraduate students, technicians, and drivers. This edition is extensively updated, especially regarding batteries, charging and the high voltage pathway, and with new case studies and illustrations. It covers the different types of hybrid and electric vehicle, costs and emissions, and the charging infrastructure, before explaining how the vehicles work, plus the maintenance and repair procedures. It particularly suits students studying for IMI Levels 2, 3 and 4 Awards in Hybrid Electric Vehicles, IMI Accreditation, C&G and all other EV/Hybrid courses.

Routledge
January 2024 : 260pp
Pb: 978-1-032-55679-6 : **£39.99**
Hb: 978-1-032-55680-2 : **£100**
eBook: 978-1-003-43173-2
* For **full contents** and more information, visit: **www.routledge.com/9781032556796**

10TH EDITION

Electrical Installation Work

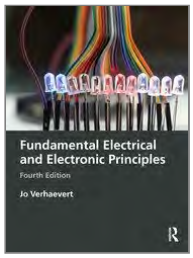
Brian Scaddan

This well established installation guide to design, installation and testing provides a topic by topic progression, in line with the 18th Edition of the Wiring Regulations. It now contains new material on batteries, LED and ELV lighting, data cabling and renewable electricity generation and distribution, with some focus on medical locations, and a glossary of terms. The guidance on tools used and safety legislation have also been brought up to date. It suits City and Guilds and EAL courses such as C&G 2365, or 2357, and professionals, but is independent of any particular course.

Routledge
November 2022 : 322pp
Pb: 978-1-032-34891-9 : **£45.99**
Hb: 978-1-032-34893-3 : **£125**
eBook: 978-1-003-32432-4
* For **full contents** and more information, visit: **www.routledge.com/9781032348919**

4TH EDITION

Fundamental Electrical and Electronic Principles



Jo Verhaevert Ghent University, Belgium

This book covers the essential principles that form the foundations for electrical and electronic engineering courses. This new edition is extensively updated with a greater focus on electronic principles, evenly balanced with electrical principles. Fuller coverage is given to active electronics, with the additional topics of diodes and transistors, and core topics such as oscilloscopes now reflect state-of-the-art technology. The book forms an excellent core work for beginning further education students with some mathematics background preparing for careers as technicians, and an introductory text for first year undergraduate students in all engineering disciplines.

Routledge
January 2024 : 272pp
Pb: 978-1-032-31147-0 : **£49.99**
Hb: 978-1-032-31148-7 : **£115**
eBook: 978-1-003-30829-4
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3RD EDITION

Image and Video Compression for Multimedia Engineering

Fundamentals, Algorithms, and Standards, Third Edition

Yun-Qing Shi , Huifang Sun

The latest edition provides a comprehensive foundation for image and video compression. It covers HEVC/H.265 and future video coding activities, in addition to Internet Video Coding. The book features updated chapters and content, along with several new chapters and sections. It adheres to the current international standards, including the JPEG standard.

CRC Press
December 2021 : 664pp
Pb: 978-1-032-24065-7 : **£49.99**
Hb: 978-1-138-29959-7 : **£135**
eBook: 978-1-315-09795-4
* For **full contents** and more information, visit: **www.routledge.com/9781032240657**

Microcontroller Engineering with MSP432

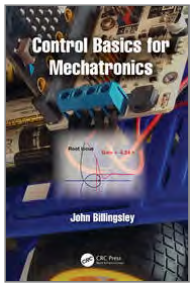
Fundamentals and Applications

Ying Bai

This book is designed for college students taking embedded controls or intelligent controls courses. It imparts both fundamental knowledge and practical techniques in the designing and building of professional microcontrollers applied in real industrial and commercial applications. The book provides a detailed description of the practical considerations and applications in embedded designing and programming using Keil ARM-MDK µVersion5.15, which is one of the most updated kits. It includes homework problems, real-world examples, and programming projects for hands-on application of material covered in each chapter.

CRC Press
June 2022 : 844pp
Pb: 978-1-032-33985-6 : **£45.99**
Hb: 978-1-498-77298-3 : **£120**
eBook: 978-1-315-36710-1
* For **full contents** and more information, visit: **www.routledge.com/9781032339856**

Control Basics for Mechatronics



John Billingsley

Mechatronics is a mongrel, a crossbreed of classic mechanical engineering, the relatively young pup of computer science, the energetic electrical engineering, the pedigree mathematics and the bloodhound of Control Theory.The theme running throughout the book is simulation, with simple JavaScript applications that let you experience the dynamics for yourself.

CRC Press
September 2023 : 174pp
Pb: 978-1-032-42583-2 : **£29.99**
Hb: 978-1-032-42557-3 : **£92.99**
eBook: 978-1-032-52679-9 : **£27.99**
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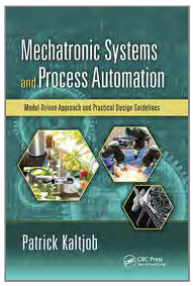
Mechatronic Systems and Process Automation

Model-Driven Approach and Practical Design Guidelines



Patrick O.J. Kaltjob

The book discusses the concept of process automation and mechatronic system design, while offering a unified approach and methodology for the modeling, analysis, automation and control, networking, monitoring, and sensing of various machines and processes from single electrical-driven machines to large-scale industrial process operations. This step-by-step guide covers design applications from various engineering disciplines (mechanical, chemical, electrical, computer, biomedical) through real-life mechatronics problems and industrial automation case studies with topics such as manufacturing, power grid, cement production, wind generator, oil refining, incubator, etc.

CRC Press
December 2020 : 467pp
Pb: 978-0-367-73502-9 : **£49.99**
Hb: 978-0-815-37079-6 : **£135**
eBook: 978-1-351-24859-4
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2ND EDITION

MicroMechatronics, Second Edition

Kenji Uchino

After Uchino's introduction of a new terminology, 'Micromechatronics' in 1979 for describing the application area of 'piezoelectric actuators', the rapid advances in semiconductor chip technology have led to a new terminology MEMS(micro-electro-mechanical-system) or even NEMS (nano-electro-mechanicalsystem) to describe mainly thin film sensor/actuator devices, a narrower area of micromechatronics coverage. New technologies, product developments and commercialization are providing the necessity of this major revision. In particular, the progresses in high power transducers, loss mechanisms in smart materials, energy harvesting and computer simulations are significant.

CRC Press
December 2021 : 584pp
Pb: 978-1-032-24069-5 : **£49.99**
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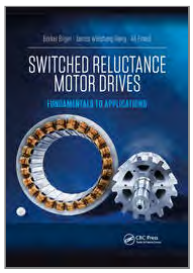
Switched Reluctance Motor Drives

Fundamentals to Applications



Edited by **Berker Bilgin , James Weisheng Jiang , Ali Emadi**

This is a comprehensive textbook covering major aspects of switched reluctance motor drives in detail. It also provides a macroscopic view of the use of electric motors in different sectors to explore the role of SRM in industry. Utilizing higher efficiency, lower cost, and robust electric motors will increase the level of electrification in industry, improve overall system efficiency, and reduce the operational cost, the electricity consumption, and emissions. This is where switched reluctance machine (SRM) can play a significant role. One of the main advantages of SRM is its low-cost and simple construction, which can provide reliable operation in a harsh environment.

CRC Press
June 2022 : 824pp
Pb: 978-1-032-33875-0 : **£58.99**
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3RD EDITION

Plasma Physics and Engineering

Alexander Fridman Drexel University, Philadelphia, USA**,**
Lawrence A. Kennedy University of Illinois, Chicago, USA

Plasma Physics and Engineering presents basic and applied knowledge on modern plasma physics, plasma chemistry and plasma engineering for senior undergraduate and graduate students as well as for scientists and engineers, working in academia, research labs and industry with plasmas, laser and combustion systems. This is a unique book providing a clear fundamental introduction to all aspects of modern plasma science, describing all electric discharges applied today from vacuum to atmospheric pressure and higher, from thermal plasma sources to essentially cold non-equilibrium discharges. A solutions manual is available, which is helpful in relevant university courses.

CRC Press
September 2023 : 724pp
Pb: 978-0-367-69752-5 : **£49.99**
Hb: 978-1-498-77221-1 : **£155**
eBook: 978-1-315-12081-2
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2ND EDITION

Advanced DC/DC Converters

Fang Lin Luo AnHui University, HeFei, China; Nanyang Technological University, Singapore**, Hong Ye** Nanyang Technological University, Singapore

Series: Power Electronics and Applications Series

The production of DC/DC converters occupies the largest percentage of the total turnover of all conversion equipment productions. The purpose of this new edition is to provide advanced DC/DC converters that are both concise and useful for engineering students and practicing professionals. It introduces more than 200 topologies of the advanced DC/DC converters originally developed by authors. All prototypes are novel approaches and great contributions in modern power engineering.

CRC Press
December 2016 : 774pp
Hb: 978-1-498-77490-1 : **£185**
eBook: 978-1-315-39378-0
* For **full contents** and more information, visit: **www.routledge.com/9781498774901**

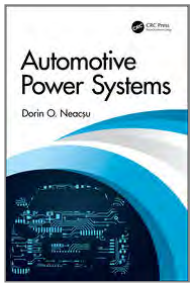
Application of Signal Processing Tools and Artificial Neural Network in Diagnosis of Power System Faults

Nabamita Banerjee Roy , Kesab Bhattacharya

Accurate, fast, and reliable fault classification techniques are an important operational requirement in modern-day power transmission systems. This book gives an elaboration of the power system faults and the conventional techniques of fault analysis. The book will provide necessary information and knowledge to an Engineering student and practioners to carry out research activity. Readers will learn the method of programming and simulation of any network in MATLAB. They will learn how to extract features from a signal waveform by using a suitable signal processing toolbox. They will also learn the application of Artificial Neural Network.

CRC Press
September 2023 : 143pp
Pb: 978-1-032-04363-0 : **£49.99**
Hb: 978-0-367-43113-6 : **£110**
eBook: 978-0-367-43114-3
* For **full contents** and more information, visit: **www.routledge.com/9781032043630**

Automotive Power Systems



Dorin O. Neacşu Technical University of Iasi, Romania.

The main challenge in vehicle electrification consists of replacing the engine-based mechanical, pneumatic, or hydraulic ancillary energy sources with electrical energy processed through an electromagnetic device. The book illustrates this evolutionary process with numerous series-production examples for either of body or chassis systems, from old milestones to futuristic luxury vehicles. The first part of the book describes automotive technologies for generation and distribution of electrical power, as well as its usage within body systems, chassis systems, or lighting. The second part explores deeper into the specifics of each component of the vehicle electric power system.

CRC Press
March 2022 : 314pp
Pb: 978-0-367-51297-2 : **£45.99**
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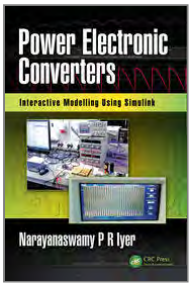
Power Electronic Converters

Interactive Modelling Using Simulink



Narayanaswamy P R Iyer Myna Electrical and Electronics Consultancy, Australia

Provides a step-by-step method for the development of a virtual interactive power electronics laboratory. The book is suitable for undergraduates and graduates for their laboratory course and projects in power electronics. It is equally suitable for professional engineers in the power electronics industry. The reader will learn to develop interactive virtual power electronics laboratory and perform simulations of their own, as well as any given power electronic converter design using SIMULINK with advanced system model and circuit component level model.

CRC Press
March 2018 : 356pp
Hb: 978-0-815-36819-9 : **£135**
eBook: 978-1-351-25575-2
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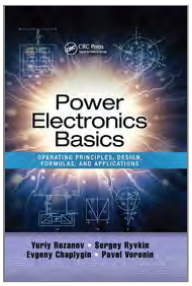
Power Electronics Basics

Operating Principles, Design, Formulas, and Applications



Yuriy Rozanov , Sergey E. Ryvkin , Evgeny Chaplygin , Pavel Voronin

This book explains the key concepts and terms of power electronics, exploring applications including renewable energy production, fuel cells, and electric drives. It describes the power assemblies, control, and passive components of semiconductor power switches. It covers the control of power electronic devices, from mathematical modeling to analysis of electrical processes. It addresses pulse-width modulation, power quality control, and multilevel, modular, and multicell power converter topologies. It also discusses line-commutated and resonant converters, as well as inverters and AC converters based on completely controllable switches.

CRC Press
September 2020 : 492pp
Pb: 978-0-367-65597-6 : **£65**
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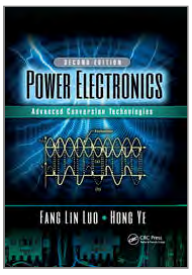
eBook: 978-0-429-17906-8
* For **full contents** and more information, visit: **www.routledge.com/9780367655976**

2ND EDITION

Power Electronics

Advanced Conversion Technologies, Second Edition



Fang Lin Luo , Hong Ye

Recently, many renewable energy systems, such as solar-panel and wind-turbine energy systems, have used DC/DC converters and DC/AC inverters. By discussing a wide range of converters, readers can find suitable topologies for their applications and even invent new topologies by using suggested methods in the text. This edition features an entirely new chapter on best switching angles to obtain lowest THD for multilevel DC/AC inverters. All other chapters have been updated and include homework problems throughout. With case studies from GE, AEG, Simplatroll Ltd, and Chinese Power Manufacturing Co., the reader will be exposed to practical applications in industry and real-world settings

CRC Press
September 2020 : 735pp
Pb: 978-0-367-65615-7 : **£54.99**
Hb: 978-1-138-73532-3 : **£150**
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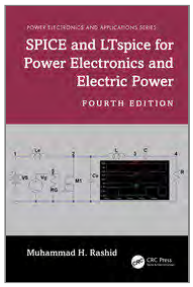
4TH EDITION

SPICE and LTspice for Power Electronics and Electric Power



Muhammad H. Rashid University of West Florida, Pensacola, USA

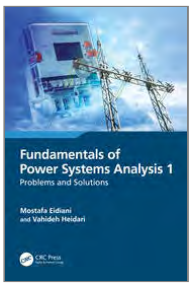
Series: Power Electronics and Applications Series

Power electronics can be a difficult course for students to understand and for professional professors to teach, simplifying the process for both.

CRC Press
November 2024 : 649pp
Hb: 978-1-032-25661-0 : **£84.99**
eBook: 978-1-003-28445-1
* For **full contents** and more information, visit: **www.routledge.com/9781032256610**

Fundamentals of Power Systems Analysis 1

Problems and Solutions



Mostafa Eidiani , Vahideh Heidari

A supplementary book on power systems and their points is necessary for every successful student because the main books contain so much information. The supplementary book should have a summary, many tests, and an explanation of the answers. There is a descriptive answer sheet in this book that is very helpful for re-reading and summarizing the information. This book can help you increase your study speed and master the important lessons if you are in the last few months of the semester and have not studied.

CRC Press
September 2023 : 214pp
Pb: 978-1-032-49561-3 : **£42.99**
Hb: 978-1-032-49563-7 : **£92.99**
eBook: 978-1-032-55462-4 : **£39.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032495613**

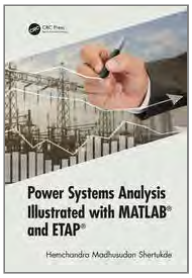
Infrastructure Asset Management with Power System Applications

Lina Bertling Tjernberg KTH Royal Institute of Technology, Stockholm, Sweden

This book is about infrastructure asset management, which can be expressed as the combination of management, financial, economic, and engineering, applied to physical assets with the objective of providing the required level of service in the most cost-effective manner. It includes management of the whole lifecycle of a physical asset from design, construction, commission, operation, maintenance, modification, decommissioning, and disposal. It covers budget issues and focuses on asset management of an infrastructure for energy—i.e., the electric power system.

CRC Press
April 2018 : 582pp
Hb: 978-1-498-70867-8 : **£155**
eBook: 978-1-351-05741-7
* For **full contents** and more information, visit: **www.routledge.com/9781498708678**

Power Systems Analysis Illustrated with MATLAB and ETAP

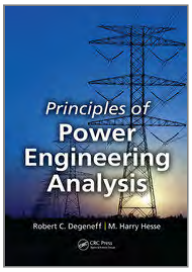


Hemchandra Madhusudan Shertukde University of Hartford, Connecticut, USA

Electrical power is harnessed using several energy sources, including: coal, hydel, nuclear, solar, and wind. Generated power is needed to be transferred over long distances to support load requirements of customers viz: residential, industrial, and commercial. This necessitates proper design and analysis of Power Systems to efficiently control the power flow from one point to the other without delay, disturbance, or interference. Ideal for utility and power system designer professionals and students, this book is richly illustrated with MATLAB and etap (Electrical Transient Analysis Program) to succinctly illustrate concepts throughout, and includes examples, case studies, and problems.

CRC Press
January 2019 : 304pp
Hb: 978-1-498-79721-4 : **£155**
eBook: 978-0-429-43692-5
* For **full contents** and more information, visit: **www.routledge.com/9781498797214**

Principles of Power Engineering Analysis



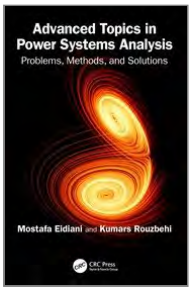
Robert C. Degeneff Utility Systems Technologies, Inc., Niskayuna, New York, USA**, M. Harry Hesse** Southbury, Connecticut, USA

This classroom-tested, graduate-level text presents the basic tools required to understand the components in an electric power transmission system. It explains from first principles the expressions that predict the performance of transmission systems and transformers. The authors then extend these concepts to balanced three-phase systems and unbalanced systems. They introduce symmetrical component analysis of transmission systems, three-phase transformers, and faulted systems. They also describe the design of untransposed transmission lines and discuss other analysis component systems. A solutions manual is available for qualifying instructors.

CRC Press
March 2017 : 452pp
Pb: 978-1-138-07506-1 : **£76.99**
Hb: 978-1-439-89231-2 : **£195**
eBook: 978-0-429-18566-3
* For **full contents** and more information, visit: **www.routledge.com/9781138075061**

Advanced Topics in Power Systems Analysis

Problems, Methods, and Solutions

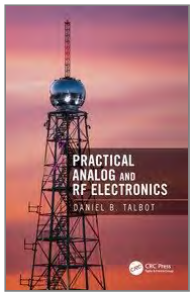


Mostafa Eidiani , Kumars Rouzbehi

Electric Power Systems Analysis" is one of the most challenging courses of the Electric Power Engineering major which is taught for junior students. Its complexity arises from numerous prerequisites, a wide array of topics, and a crucial dependence on computational tools, presenting students with significant challenges."

CRC Press
September 2024 : 134pp
Pb: 978-1-032-82866-4 : **£41.99**
Hb: 978-1-032-82878-7 : **£91.99**
eBook: 978-1-003-50677-5 : **£38.99**
* For **full contents** and more information, visit: **www.routledge.com/9781032828664**

Practical Analog and RF Electronics



Daniel B. Talbot

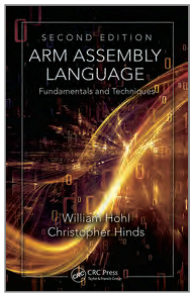
This is a book about real-world techniques in designing analog circuits: amplifiers, filters, injection-locked oscillators, phase-locked loops, and spectrum regrowth in digital RF transmitters, etc. The book offers practical solutions to analog and RF problems, helping the reader to achieve high performance circuit and system design. This book will be useful to both students and practitioners. Teachers will find the book an important supplement to a standard analog and RF course, or it may stand alone as a textbook. Practitioners may find it useful by bookmarking some of the step-by-step procedures, e.g. the section on simplified impedance matching or group delay flattening.

CRC Press
April 2022 : 226pp
Pb: 978-0-367-54294-8 : **£49.99**
Hb: 978-0-367-54291-7 : **£125**
eBook: 978-1-003-08854-7
* For **full contents** and more information, visit: **www.routledge.com/9780367542948**

2ND EDITION

ARM Assembly Language

Fundamentals and Techniques, Second Edition



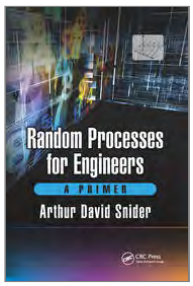
William Adam Hohl Consultant, Austin, Texas, USA**,**
Christopher Hinds ARM, Inc., Austin, Texas, USA

This edition continues to support the popular ARM7TDMI, but also addresses the latest architectures from ARM®, including the Cortex™-A, Cortex-R, and Cortex-M processors. Containing three brand new chapters, a new appendix, and expanded coverage of the ARM7™, this volume tackles IEEE 754 floating-point arithmetic, discusses both Keil™ MDK-ARM and Texas Instruments Code Composer Studio™, and provides a resource to be used alongside a variety of hardware evaluation modules, such as TI's Tiva Launchpad, STMicroelectronics' iNemo and Discovery, and NXP Semiconductors' Xplorer boards.

CRC Press
October 2014 : 453pp
Hb: 978-1-482-22985-1 : **£97**
eBook: 978-0-429-16204-6
* For **full contents** and more information, visit: **www.routledge.com/9781482229851**

Random Processes for Engineers

A Primer

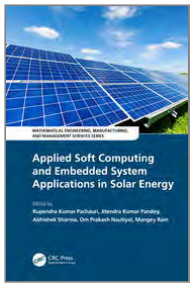


Arthur David Snider

This book discusses the statistical description of processes, including an extensive review of probability and statistics and the analysis of raw data using spectral methods. Various theoretical models (ARMA, Bernoulli, shot, Markov, and random walks) are explored, as well as techniques that are used for prediction—least mean-squared error, Wiener-Hopf and Kalman filters, etc. Everything in this book is introduced at a nuts and bolts level and fills in the gap between the undergraduate engineering statistics course and the axiomatic approaches venerated by specialists.

CRC Press
September 2020 : 207pp
Pb: 978-0-367-65635-5 : **£53.99**
Hb: 978-1-498-79903-4 : **£105**
eBook: 978-1-315-36548-0
* For **full contents** and more information, visit: **www.routledge.com/9780367656355**

Applied Soft Computing and Embedded System Applications in Solar Energy



Edited by **Rupendra Kumar Pachauri , Jitendra Kumar Pandey , Abhishek Sharmu , Om Nautiyal , Mangey Ram**

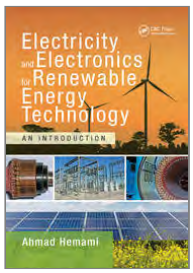
Series: Mathematical Engineering, Manufacturing, and Management Sciences

This book deals with energy systems and soft-computing methods from a wide range of approaches and application perspectives. The authors examine how embedded system applications can deal with the smart monitoring and controlling of stand-alone and grid connected solar PV systems for increased efficiency. The book is intended for students, professionals, and researchers in electrical and computer engineering fields, working on alternative energy-related issues such as problems with renewable energy resources (wind, solar, sea, etc.), micro grid and smart grid projects.

CRC Press
September 2023 : 254pp
Pb: 978-0-367-63902-0 : **£49.99**
Hb: 978-0-367-62512-2 : **£135**
eBook: 978-1-003-12123-7
* For **full contents** and more information, visit: **www.routledge.com/9780367639020**

Electricity and Electronics for Renewable Energy Technology

An Introduction



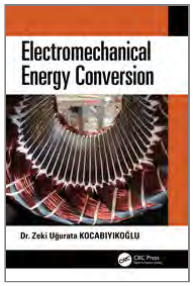
Ahmad Hemami Adjunct Professor, McGill University, Montreal, Québec, Canada

Series: Power Electronics and Applications Series

This book instills an essential knowledge of electricity and electronics required for work with renewable energy. It begins with a brief explanation of the necessary mathematics and then addresses the basics of electricity and relationships, motors and generators, transformers, and networks and distribution; tackles the key concepts associated with electronics, diodes and transistors, switching devices, and power converters; covers digital electronics from number systems and logic circuits to encoders and decoders; and explores advanced subjects such as reactive power and the operation of a transistor.

CRC Press
August 2017 : 818pp
Pb: 978-1-138-89299-6 : **£61.99**
Hb: 978-1-482-26176-9 : **£155**
eBook: 978-1-315-27506-2
* For **full contents** and more information, visit: **www.routledge.com/9781138892996**

Electromechanical Energy Conversion

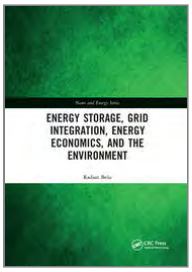


Zeki Uğurata Kocabiyikoğlu TOBB Economy and Technology University, Turkey.

This book is intended to be a text book on "Electromechanical Energy Conversion" for the undergraduates of electrical and electronic engineering students of universities and colleges. Therefore the level and amount of the knowledge to be transferred to the reader is kept as much as what can be transferred in one academic semester of a university or college. Although the subject is rather classical and somehow well established in some respects it is vast and can be difficult to grasp if went in to details. In this book it is aimed to be as short, lean and as easily understandable as possible with minimum of wording and maximum of drawings, figures and tables.

CRC Press
March 2022 : 296pp
Pb: 978-0-367-52402-9 : **£45.99**
Hb: 978-0-367-32267-0 : **£105**
eBook: 978-0-429-31763-7
* For **full contents** and more information, visit: **www.routledge.com/9780367524029**

Energy Storage, Grid Integration, Energy Economics, and the Environment



Radian Belu

The book will cover energy storage systems, bioenergy and hydrogen economy, grid integration of the renewable energy systems, distributed generation, economic analysis and environmental impacts of renewable energy systems. Solutions manual and Power Point slides are included for instructors.

CRC Press
June 2022 : 392pp
Pb: 978-1-032-33796-8 : **£45.99**
Hb: 978-0-367-26140-5 : **£120**
eBook: 978-0-429-32243-3
* For **full contents** and more information, visit: **www.routledge.com/9781032337968**

Fundamentals and Source Characteristics of Renewable Energy Systems

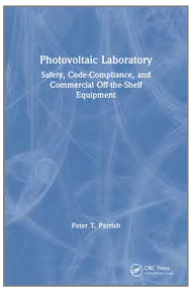
Radian Belu

The book will cover electric energy from alternative energy sources including solar, wind, water, hydropower, geothermal and ocean energy. This textbook is intended for an audience with little or no power engineering or renewable energy background.

CRC Press
June 2022 : 420pp
Pb: 978-1-032-33794-4 : **£45.99**
Hb: 978-0-367-26139-9 : **£120**
eBook: 978-0-429-29728-1
* For **full contents** and more information, visit: **www.routledge.com/9781032337944**

Photovoltaic Laboratory

Safety, Code-Compliance, and Commercial Off-the-Shelf Equipment



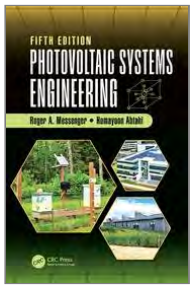
Peter T. Parrish Irvine Valley College, California, USA

This textbook is ideal preparation for those seeking a career in the photovoltaic (PV) industry. It is the only textbook that offers students the opportunity to design, build, test, and troubleshoot practical PV systems based on commercially available equipment. Complete with electrical schematics, layouts, and step-by-step installation instructions, this hands-on laboratory manual provides in-depth, project-driven instruction on safety, trade math, circuit measurement, site survey, mechanical and electrical integration, characterization of PV modules, and the design, installation, and testing of different off-grid and grid-tied PV systems.

CRC Press
April 2016 : 390pp
Pb: 978-1-482-24443-4 : **£86.99**
Hb: 978-1-138-45985-4 : **£150**
eBook: 978-1-315-22241-7
* For **full contents** and more information, visit: **www.routledge.com/9781482244434**

5TH EDITION

Photovoltaic Systems Engineering

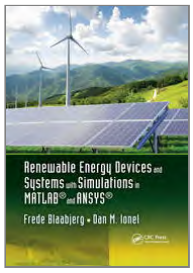


Roger A. Messenger Florida Atlantic University (FAU), Boca Raton, Florida, USA**, Homayoon "Amir" Abtahi** Florida Atlantic University, Boca Raton, USA

The primary purpose of PV Systems Engineering is to provide a comprehensive set of PV knowledge and understanding tools for the design, installation, commissioning, inspection and operation of PV systems.

CRC Press
December 2024 : 411pp
Hb: 978-1-032-72621-2 : **£110**
eBook: 978-1-003-47089-2
* For **full contents** and more information, visit: **www.routledge.com/9781032726212**

Renewable Energy Devices and Systems with Simulations in MATLAB® and ANSYS®



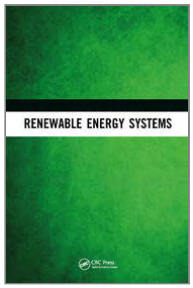
Edited by **Frede Blaabjerg , Dan M. Ionel**

This book focuses on renewable generation technology and provides a detailed overview of the state-of-the-art technology today, while exploring possibilities for the future. Written by leading experts in the field of power electronics, this book covers a broad range of renewable energy topics such as fuel cells, wave energy, batteries, and their integration into a microgrid. Two simulation projects are available on PV and wind generators, with models in MATLAB and Simulink, which will allow the reader to design for installation both a PV and small scale wind turbine system.

CRC Press
September 2020 : 414pp
Pb: 978-0-367-65621-8 : **£54.99**
Hb: 978-1-498-76582-4 : **£150**
eBook: 978-1-315-36739-2
* For **full contents** and more information, visit: **www.routledge.com/9780367656218**

Renewable Energy Systems

Fundamentals and Source Characteristics



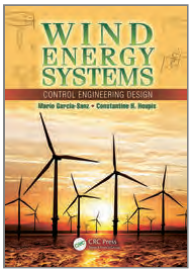
Radian Belu

The Renewable Energy Systems: Fundamentals and Source Characteristics is a set book coming in two volumes. The first volume is "Fundamentals and Source Characteristics of Renewable Energy Systems and the second volume is called "Energy Storage, Grid Integration, Energy Economics and the Environment".

CRC Press
July 2022 : 810pp
Pb: 978-1-032-33783-8 : **£54.99**
Hb: 978-1-482-25744-1 : **£150**
* For **full contents** and more information, visit: **www.routledge.com/9781032337838**

Wind Energy Systems

Control Engineering Design



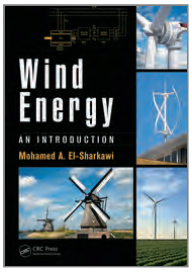
Mario Garcia-Sanz Case Western Reserve University, Cleveland, Ohio, USA**, Constantine H. Houpis** Air Force Institute of Technology, Wright-Patterson AFB, Ohio, USA

Presenting the latest developments in the field of advanced robust control engineering design techniques for wind turbines applications, this book introduces a concurrent engineering approach to design efficient and reliable controllers for the most critical problems of multi-megawatt wind energy systems. It describes large aerodynamic flexible structures, which are working under very turbulent and unpredictable environmental conditions and are connected to a variable and demanding electrical grid. Exemplifying how to achieve future control challenges in new energy systems, the text also explores concurrent engineering methods, advanced quantitative (QFT) robust control techniques, and switching control strategies for critical real-world applications.

CRC Press
February 2012 : 632pp
Hb: 978-1-439-82179-4 : **£110**
eBook: 978-0-429-18561-8
* For **full contents** and more information, visit: **www.routledge.com/9781439821794**

Wind Energy

An Introduction



Mohamed A. El-Sharkawi University of Washington, Seattle, USA

This book covers wind energy system types, operation, modeling, analysis, integration, and control. Featuring numerous models, illustrations, examples, and exercises, the text explains the aerodynamic theories that govern the operation of wind turbines, highlights the differences between the most common types of wind turbines, analyzes the main power electronic circuits used in wind energy, details the electrical generators from the basic principle of induced voltage to the steady-state and dynamic models, and discusses the main integration challenges of wind energy systems with electric utility systems.

CRC Press
June 2015 : 355pp
Hb: 978-1-482-26399-2 : **£115**
eBook: 978-0-429-17164-2
* For **full contents** and more information, visit: **www.routledge.com/9781482263992**

RF Circuit Design Techniques for MF-UHF Applications

Abdullah Eroglu Purdue University, Fort Wayne, USA

A valuable resource for professionals and students, this book explains how to design, simulate, and implement RF/microwave components and devices for applications within the medium frequency (MF) to ultrahigh frequency (UHF) range. It covers a variety of techniques for designing high-power microstrip circuits, directional couplers, transformers, composite and multilayer inductors, filters, combiners/dividers, and RFID systems. The book illustrates how to apply the theory in practice and includes real-world implementation examples that use computer-aided design (CAD) tools. Throughout, the author offers practical hints to help designers.

CRC Press
March 2017 : 358pp
Pb: 978-1-138-07760-7 : **£79.99**
Hb: 978-1-439-86165-3 : **£155**
eBook: 978-1-315-21712-3
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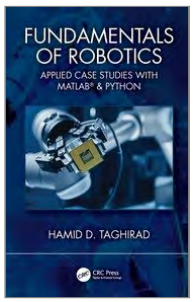
Fundamentals of Robotics

Applied Case Studies with MATLAB® & Python



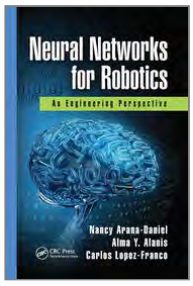
Hamid D. Taghirad

In an era where robotics is reshaping industries and redefining possibilities, "Fundamentals of Robotics: Practical Case Studies with Matlab & Python" emerges as an essential guide for both aspiring engineers and seasoned professionals. This comprehensive book bridges the gap between theoretical knowledge and practical application, driving advancements in robotics technology that mimic the complexity and grace of biological creatures.

CRC Press
January 2025 : 546pp
Pb: 978-1-032-79300-9 : **£81.99**
Hb: 978-1-032-79305-4 : **£91.99**
eBook: 978-1-003-49141-5
* For **full contents** and more information, visit: **www.routledge.com/9781032793009**

Neural Networks for Robotics

An Engineering Perspective



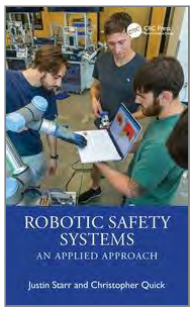
Nancy Arana-Daniel , Alma Y. Alanis , Carlos Lopez-Franco

The book offers an insight on artificial neural networks for giving a robot a high level of autonomous tasks, such as navigation, cost mapping, object recognition, intelligent control of ground and aerial robots, and clustering, with real-time implementations. The reader will learn various methodologies that can be used to solve each stage on autonomous navigation for robots, from object recognition, clustering of obstacles, cost mapping of environments, path planning, and vision to low level control. These methodologies include real-life scenarios to implement a wide range of artificial neural network architectures.

CRC Press
December 2020 : 246pp
Pb: 978-0-367-73339-1 : **£58.99**
Hb: 978-0-815-37868-6 : **£155**
eBook: 978-1-351-23179-4
* For **full contents** and more information, visit: **www.routledge.com/9780367733391**

Robotic Safety Systems

An Applied Approach



Justin Starr , Christopher Quick

This book reboots the conversation about all technologies relating to robot safety. It covers key features of industry standards, relevant government regulations, hardware devices, physical safeguards, and vendor-specific software implementations, including FANUC's Dual-Check Safety, ABB's SafeMove and more. This book is intended for post-secondary classes at universities with specializations in robotics or robotic engineering. It will also be useful for robot systems integrators - design engineers, consultants, integration experts, robot programmers.

CRC Press
November 2024 : 286pp
Hb: 978-1-032-25989-5 : **£74.99**
eBook: 978-1-003-28816-9
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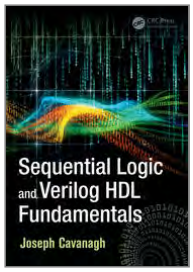
Sequential Logic and Verilog HDL Fundamentals

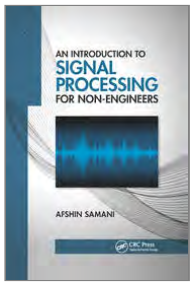


Joseph Cavanagh Santa Clara University, California, USA

This self-contained tutorial comprehensively discusses the analysis and synthesis of both synchronous and asynchronous sequential machines. These machines are implemented using Verilog Hardware Description Language (HDL), in accordance with the Institute of Electrical and Electronics Engineers (IEEE) Standard: 1364-1995. The book first introduces Verilog HDL and then uses it to design synchronous sequential machines and alternative synchronous sequential machines. Next, the text describes the synthesis of asynchronous sequential machines using Verilog HDL, and provides synthesis examples of pulse-mode asynchronous sequential machines using Verilog HDL.

CRC Press
October 2015 : 860pp
Hb: 978-1-498-73822-4 : **£175**
eBook: 978-1-315-21413-9
* For **full contents** and more information, visit: **www.routledge.com/9781498738224**

An Introduction to Signal Processing for Non-Engineers



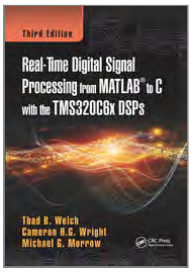
Afshin Samani

This book introduces the main and basic concepts of signal processing for scientists and students with no engineering background. The book presents the concepts with minimum use of mathematical formulations and more emphasis on visual illustrations. The idea is to present an intuitive approach to understand the basis of signal processing and exemplify some practical applications of the concepts by which the readers achieve basic knowledge and skills in signal processing. Most of illustrations in the book have been created by computer programming in MATLAB, thus the reader will learn the basis of using computer in signal processing applications.

CRC Press
June 2022 : 116pp
Pb: 978-1-032-33781-4 : **£49.99**
Hb: 978-0-367-20755-7 : **£125**
eBook: 978-0-429-26333-0
* For **full contents** and more information, visit: **www.routledge.com/9781032337814**

3RD EDITION

Real-Time Digital Signal Processing from MATLAB to C with the TMS320C6x DSPs



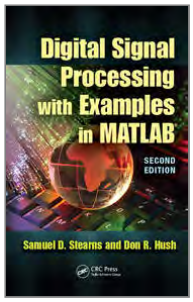
Thad B. Welch , Cameron H.G. Wright , Michael G. Morrow

The software in this new edition supports the latest high-performance hardware, including the powerful, inexpensive, and versatile OMAP-L138 Low Cost Development Kit from Texas Instruments. This book utilizes a highly practical, step-by-step framework that provides hands-on experience in real-time DSP, rather than relying on theory alone. The chapters utilize a series of demonstrations, exercises, and applied projects that begins with a quick overview of the pertinent theory, progresses to applying the concepts using MATLAB, and ultimately running applicable programs in real-time on some of the latest high-performance DSP hardware. The reader is coached into creating for themselves variou

CRC Press
December 2020 : 480pp
Pb: 978-0-367-73645-3 : **£45.99**
Hb: 978-1-498-78101-5 : **£120**
eBook: 978-1-315-36568-8
* For **full contents** and more information, visit: **www.routledge.com/9780367736453**

2ND EDITION

Digital Signal Processing with Examples in MATLAB®



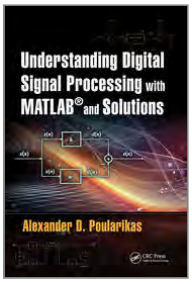
Samuel D. Stearns Sandia National Laboratories, Albuquerque, New Mexico, USA**, Donald R. Hush** Los Alamos National Laboratory, New Mexico, USA

Series: Electrical Engineering & Applied Signal Processing Series

Updated and expanded, the second edition of this bestselling text introduces the fundamentals of DSP. Along with discussing current DSP applications, this edition includes new chapters on analog systems models and pattern recognition using support vector machines as well as new sections on the chirp z-transform, resampling, waveform reconstruction, discrete sine transform, and logarithmic and nonuniform sampling. It also contains a more comprehensive table of transforms. Numerous exercises and examples harness the power of MATLAB® and MATLAB functions and examples are available for download online.

CRC Press
April 2011 : 510pp
Hb: 978-1-439-83782-5 : **£115**
eBook: 978-0-429-10613-2
* For **full contents** and more information, visit: **www.routledge.com/9781439837825**

Understanding Digital Signal Processing with MATLAB® and Solutions



Alexander D. Poularikas

The book discusses signals that most electrical engineers detect and study. The vast majority of signals could never be detected due to random additive signals, known as noise, that distorts them or completely overshadows them. The text presents the methods for extracting the desired signals from the noise. Each new development includes examples that use MATLAB to provide the answer in graphic forms for the reader's comprehension and understanding.

CRC Press
March 2021 : 472pp
Pb: 978-0-367-77912-2 : **£53.99**
Hb: 978-1-138-08143-7 : **£135**
eBook: 978-1-315-11285-5
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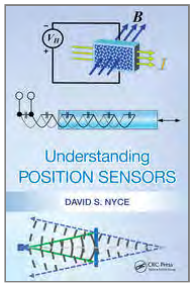
Understanding Position Sensors



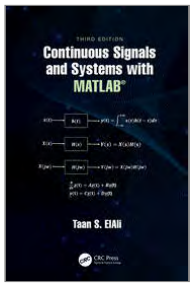
David Nyce

This book explains the theory and application of the technologies used in sensors for the measurement of linear and angular/rotary position, providing information important to sensor design, and how they function. A chapter on sensor outputs and communication protocols is included and is applicable to all types of industrial sensors. This book is written for electrical, mechanical, and material engineers, as well as for engineering students who are interested in understanding sensor technologies. The book could also be used as a textbook for an engineering course on sensor technology.

CRC Press
June 2023 : 448pp
Hb: 978-1-032-43699-9 : **£125**
eBook: 978-1-003-36899-1
* For **full contents** and more information, visit: **www.routledge.com/9781032436999**

3RD EDITION

Continuous Signals and Systems with MATLAB®



Taan S. ElAli Benedict College, USA.

Series: Electrical Engineering Textbook Series

Continuous Signals and Systems with MATLAB offers comprehensive coverage of continuous linear systems, based on basic mathematical principles. It presents many solved problems from various engineering disciplines using analytical tools as well as MATLAB. This book is intended primarily for undergraduate junior and senior electrical, mechanical, aeronautical, and aerospace engineering students. Practicing engineers will also find this book useful. This book explains the subject matter with easy-to-follow mathematical development and numerous solved examples. The book covers traditional topics and includes an extensive coverage of state-space representation and analysis.

CRC Press
April 2022 : 362pp
Pb: 978-0-367-54299-3 : **£39.99**
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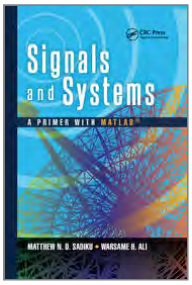
Signals and Systems

A Primer with MATLAB®



Matthew N. O. Sadiku , Warsame Hassan Ali

This book provides clear, interesting, and easy-to-understand coverage of continuous-time and discrete-time signals and systems. Each chapter opens with a historical profile or career talk, followed by chapter objectives. All principles are presented in a lucid, logical, step-by-step approach. The authors encourage the use of MATLAB® in a student-friendly manner, applying it gradually throughout the book. The text includes illustrative and worked examples, as well as practice problems and review questions. It makes an ideal textbook for junior-level undergraduate students in electrical and computer engineering.

CRC Press
December 2020 : 440pp
Pb: 978-0-367-73777-1 : **£45.99**
Hb: 978-1-482-26151-6 : **£96.99**
eBook: 978-0-429-17171-0
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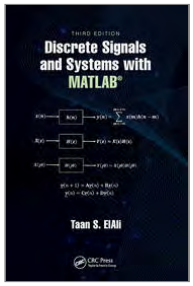
Discrete Signals and Systems with MATLAB®



Taan S. ElAli Benedict College, USA.

This book is primarily intended for electrical and computer engineering students, and especially for the use of juniors or seniors in these undergraduate engineering disciplines. It can also be very useful to practicing engineers. It is detailed, broad, based on mathematical basic principles, focused, and contains many solved problems using analytical tools as well as MATLAB. The book is ideal for a one-semester course in the area of discrete linear systems or digital signal processing. Numerous examples are presented within each chapter to illustrate each concept when and where it is presented.

CRC Press
April 2022 : 360pp
Pb: 978-0-367-54300-6 : **£45.99**
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Systems and Signal Processing with MATLAB®

Two Volume Set

Taan S. ElAli Benedict College, USA.

Most books on linear systems for undergraduates cover discrete and continuous systems material together in a single volume. Such books also include topics in discrete and continuous filter design, and discrete and continuous state-space representations. However, with this magnitude of coverage, the student typically gets a little of both discrete and continuous linear systems but not enough of either. Continuous linear systems and discrete linear systems are broad topics and each merit a single book devoted to the respective subject matter. The objective of this set of two volumes is to present material for each at the undergraduate level using MATLAB.

CRC Press
April 2022 : 722pp
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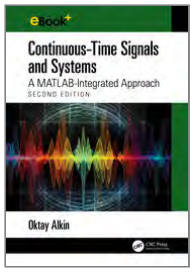
2ND EDITION

Continuous-Time Signals and Systems

A MATLAB-Integrated Approach, Second Edition



Oktay Alkin Southern Illinois University Edwardsville, USA

Drawing on author's 30+ years of teaching experience, "Continuous-Time Signals and Systems: A MATLAB Integrated Approach" represents a novel and comprehensive approach to understanding signals and systems theory.

CRC Press
March 2025 : 760pp
Hb: 978-1-032-67523-7 : **£110**
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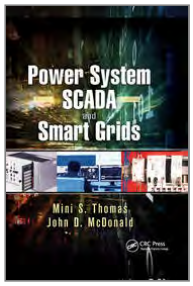
Power System SCADA and Smart Grids



Mini S. Thomas , John Douglas McDonald

This book brings together the fundamentals and possible application functions of power system supervisory control and data acquisition (SCADA). It assists electrical engineering students, researchers, and practitioners in acquiring a solid understanding of SCADA systems and application functions in generation, transmission, and distribution systems, which are evolving day by day, to help them adapt to new challenges effortlessly. The book reveals the inner secrets of SCADA systems, unveils the potential of the smart grid, and inspires more minds to get involved in the development process.

CRC Press
September 2020 : 352pp
Pb: 978-0-367-65884-7 : **£45.99**
Hb: 978-1-482-22674-4 : **£105**
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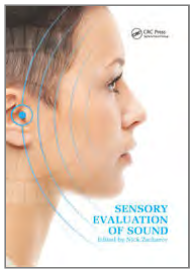
* For **full contents** and more information, visit: **www.routledge.com/9780367658847**

Sensory Evaluation of Sound



Edited by **Nick Zacharov**

The book provides a detailed review of the latest techniques in sensory evaluation, specifically applied to the evaluation of sound and audio. The material spans topics from concert hall acoustics to the latest applications in audiology and hearing aid design, via the fields of mobile telecommunications and product sound quality. Aimed at the engineer, researcher, manager, and student, the book gives insight into the advanced methods for the sensory evaluation of sound. Additionally, it provides a grounding of basic methodologies and associated statistical analysis methods and illustrates the use of these methods in a number of real world domains, with concrete case studies.

CRC Press
September 2020 : 578pp
Pb: 978-0-367-65674-4 : **£45.99**
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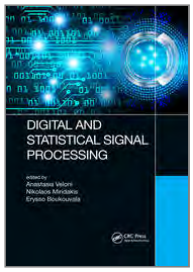
Digital and Statistical Signal Processing



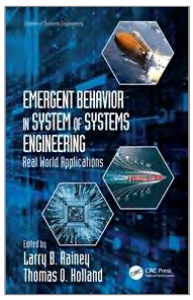
Anastasia Veloni , Nikolaos Miridakis , Erysso Boukouvala

Nowadays, many aspects of electrical and electronic engineering are essentially applications of DSP. This is due to the focus on processing information in the form of digital signals, using certain DSP hardware designed to execute software. Fundamental topics in digital signal processing are introduced with theory, analytical tables, and applications with simulation tools. The book provides a collection of solved problems on digital signal processing and statistical signal processing. The solutions are based directly on the math-formulas given in extensive tables throughout the book, so the reader can solve practical problems on signal processing quickly and efficiently.

CRC Press
December 2020 : 576pp
Pb: 978-0-367-73299-8 : **£45.99**
Hb: 978-1-138-58006-0 : **£120**
eBook: 978-0-429-50752-6
* For **full contents** and more information, visit: **www.routledge.com/9780367732998**

Engineering Emergence

A Modeling and Simulation Approach



Edited by **Larry B. Rainey , Mo Jamshidi**

This book examines the nature of emergence in context of man-made (i.e. engineered) systems, in general, and system of systems engineering applications, specifically. It investigates emergence to interrogate or explore the domain space from a modeling and simulation perspective to facilitate understanding, detection, classification, prediction, control, and visualization of the phenomenon. Written by leading international experts, the text is the first to address emergence from an engineering perspective.

CRC Press
September 2020 : 566pp
Pb: 978-0-367-65611-9 : **£54.99**
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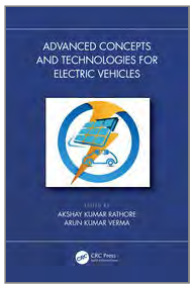
Advanced Concepts and Technologies for Electric Vehicles

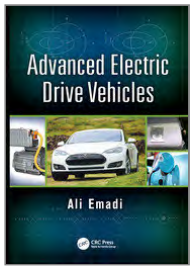


Edited by **Akshay Kumar Rathore , Arun Kumar Verma**

This book explains the basic and advanced technology behind the Power Electronics Converters for EV charging and their important developments, and also introduces the issues that underpin the design and performance modeling of electric vehicles. The book is intended for professionals, researchers, and engineers in the electric vehicle industry as well as advanced students in electrical engineering will benefit from this comprehensive coverage of electric vehicle technology.

CRC Press
August 2023 : 284pp
Hb: 978-1-032-36073-7 : **£125**
eBook: 978-1-003-33013-4
* For **full contents** and more information, visit: **www.routledge.com/9781032360737**

Advanced Electric Drive Vehicles



Edited by **Ali Emadi** McMaster University, Hamilton, Ontario, Canada

Series: Energy, Power Electronics, and Machines

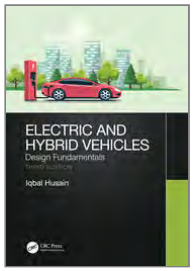
This book covers more electric vehicles, hybrid electric vehicles, plug-in hybrid electric vehicles, range-extended electric vehicles, and all-electric vehicles including battery electric vehicles and fuel cell vehicles. It describes electrification technologies applied to nonpropulsion loads, such as power steering and air-conditioning systems. It discusses hybrid battery/ultra-capacitor energy storage systems, 48-V electrification and belt-driven starter generator systems, vehicle-to-grid interface and electrical infrastructure issues, energy management, and optimization. It provides numerous illustrations, practical examples, case studies, and end-of-chapter questions to aid in understanding key concepts and applications.

CRC Press
March 2017 : 616pp
Pb: 978-1-138-07285-5 : **£79.99**
Hb: 978-1-466-59769-3 : **£195**
eBook: 978-1-315-21557-0
* For **full contents** and more information, visit: **www.routledge.com/9781138072855**

3RD EDITION

Electric and Hybrid Vehicles

Design Fundamentals



Iqbal Husain North Carolina State University, USA.

This thoroughly revised third edition presents a comprehensive systems level perspective of electric and hybrid vehicles with emphasis on technical aspects, mathematical relationships, and basic design guidelines. The platform has been set in this book for system level simulations to develop models using various softwares used in academia and industry, such as Matlab/Simulink, PLECS, PSIM, Motor-CAD and Altair Flux. Examples and simulation results are provided in this edition using these software tools. Engineers of multiple disciplines can either get a broader overview or explore in depth a particular aspect of electric or hybrid vehicles.

CRC Press
February 2021 : 498pp
Pb: 978-0-367-69393-0 : **£47.99**
Hb: 978-1-138-59058-8 : **£120**
eBook: 978-0-367-72346-0 : **£47.99**
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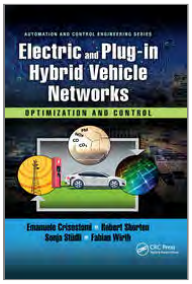
Electric and Plug-in Hybrid Vehicle Networks

Optimization and Control



Emanuele Crisostomi , Robert Shorten , Sonja Stüdli , Fabian Wirth

The book explores the behavior of networks of electric and hybrid vehicles. It covers the following topics: energy management issues for aggregates of plug-in vehicles; the design of sharing systems to support electro-mobility; context awareness in the operation of electric and hybrid vehicles, and the role that this plays in a Smart City context; and tools to test and design massively large-scale networks of such vehicles. A particular focus of the book is on the opportunities afforded by networked actuation possibilities in electric and hybrid vehicles, and the role that such actuation may play in air-quality and emissions management.

CRC Press
December 2020 : 260pp
Pb: 978-0-367-73559-3 : **£49.99**
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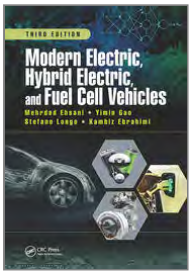
3RD EDITION

Modern Electric, Hybrid Electric, and Fuel Cell Vehicles



Mehrdad Ehsani Texas A&M University, College Station, USA**, Yimin Gao** Advanced Vehicle Research Center, Danville, Virginia, USA**, Stefano Longo** Cranfield University, UK**, Kambiz Ebrahimi** Loughborough University, UK

The book deals with the fundamentals, theoretical bases, and design methodologies of conventional internal combustion engine (ICE) vehicles, electric vehicles (EVs), hybrid electric vehicles (HEVs), and fuel cell vehicles (FCVs). The design methodology is described in mathematical terms, step-by-step, and the topics are approached from the overall drive train system, not just individual components. Furthermore, in explaining the design methodology of each drive train, design examples are presented with simulation results.

CRC Press
February 2018 : 572pp
Hb: 978-1-498-76177-2 : **£145**
IEPB: 978-1-138-33049-8 : **£55**
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