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Frontiers of Multimedia Research - Shih-Fu Chang 2018-01-03
The field of multimedia is unique in offering a rich and dynamic forum for researchers from “traditional” fields to collaborate and develop new solutions and knowledge that transcend the boundaries of individual disciplines. Despite the prolific research activities and outcomes, however, few efforts have been made to develop books that serve as an introduction to the rich spectrum of topics covered by this broad field. A few books are available that either focus on specific subfields or basic background in multimedia. Tutorial-style materials covering the active topics being pursued by the leading researchers at frontiers of the field are currently lacking. In 2015, ACM SIGMM, the special interest group on multimedia, launched a new initiative to address this void by selecting and inviting 12 rising-star speakers from different subfields of multimedia research to deliver plenary tutorial-style talks at the ACM Multimedia conference for 2015. Each speaker discussed the challenges and state-of-the-art developments of their prospective research areas in a general manner to the broad community. The covered topics were comprehensive, including multimedia content understanding, multimodal human-human and human-computer interaction, multimedia social media, and multimedia system architecture and deployment. Following the very positive responses to these talks, the speakers were invited to expand the content covered in their talks into chapters that can be used as reference material for researchers, students, and practitioners. Each chapter discusses the problems, technical challenges, state-of-the-art approaches and performances, open issues, and promising direction for future work. Collectively, the chapters provide an excellent sampling of major topics addressed by the community as a whole. This book, capturing some of the outcomes of such efforts, is well positioned to fill the aforementioned needs in providing tutorial-style reference materials for frontier topics in multimedia. At the same time, the speed and sophistication required of data processing have grown. In addition to simple queries, complex algorithms like machine learning and graph analysis are becoming common. And in addition to batch processing, streaming analysis of real-time data is required to let organizations take timely action. Future computing platforms will need to not only scale out traditional workloads, but support these new applications too. This book, a revised version of the 2014 ACM Dissertation Award winning dissertation, proposes an architecture for cluster computing systems that can tackle emerging data processing workloads at scale. Whereas early cluster computing systems, like MapReduce, handled batch processing, our architecture also enables streaming and interactive queries, while keeping MapReduce's scalability and fault tolerance. And whereas most

deployed systems only support simple one-pass computations (e.g., SQL queries), ours also extends to the multi-pass algorithms required for complex analytics like machine learning. Finally, unlike the specialized systems proposed for some of these workloads, our architecture allows these computations to be combined, enabling rich new applications that intermix, for example, streaming and batch processing. We achieve these results through a simple extension to MapReduce that adds primitives for data sharing, called Resilient Distributed Datasets (RDDs). We show that this is enough to capture a wide range of workloads. We implement RDDs in the open source Spark system, which we evaluate using synthetic and real workloads. Spark matches or exceeds the performance of specialized systems in many domains, while offering stronger fault tolerance properties and allowing these workloads to be combined. Finally, we examine the generality of RDDs from both a theoretical modeling perspective and a systems perspective. This version of the dissertation makes corrections throughout the text and adds a new section on the evolution of Apache Spark in industry since 2014. In addition, editing, formatting, and links for the references have been added.

Symbolic Network Analysis - Pen-Min Lin 1991

The value of symbolic network analysis is now well recognized. In industry it has been used as an aid in the design of small linear networks. In academic institutions it has been found useful as an instructional aid. The purpose of this book is to present, in a single volume, a unified treatment of all symbolic analysis methods, using a consistent set of notation, and based on the same theoretical background (network topology, combinatorial analysis, and numerical analysis). The emphasis is on those methods which have been implemented and for which there are source codes available. The work will be of interest to all those who have the usual college-level training in circuit theory.

Circuits - A. Bruce Carlson 2000

This text allows students to learn the fundamental concepts in linear circuit analysis using a well-developed methodology that has been carefully refined through classroom use. Applying his many years of teaching experience, A. Bruce Carlson focuses the reader's attention on basic circuit concepts and modern analysis methods. He systematically unfolds each idea, covering studies of node and mesh equations, phasors, the s-domain, Fourier series, Laplace transforms and state variables in a practical "just-in-time" manner. In applying his methodology for study and understanding, each chapter begins with a list of action-oriented learning objectives and follows through to a summary of the major relevant points and relationships. He also provides students with an abundance of practical, worked examples and exercises to help them master the topics.

Electrical Machines - I - Uday A. Bakshi 2020-11-01

The importance of various electrical machines is well known in the various engineering fields. The book provides comprehensive coverage of the magnetic circuits, magnetic materials, single and three phase transformers and d.c. machines. The book is structured to cover the key aspects of the course Electrical Machines - I. The book starts with the explanation of basics of magnetic circuits, concepts of self and mutual inductances and important magnetic materials. Then it explains the fundamentals of single phase transformers including the construction, phasor diagram, equivalent circuit, losses, efficiency, methods of cooling, parallel operation and autotransformer. The chapter on three phase transformer provides the detailed discussion of construction, connections, phasor groups, parallel operation, tap changing transformer and three winding transformer. The various testing methods of transformers are also incorporated in the book. The book further explains the concept of electromechanical energy conversion including the discussion of singly and multiple excited systems. Then the book covers all the details of d.c. generators including construction, armature reaction, commutation, characteristics, parallel operation and applications. The book also includes the details of d.c. motors such as characteristics, types of starters, speed control methods, electric braking and permanent magnet d.c. motors. Finally, the book covers the various testing methods of d.c. machines including Swinburne's test, brake test, retardation test and Hopkinson's test. The book uses plain, lucid

language to explain each topic. The book provides the logical method of explaining the various complicated topics and stepwise methods to make the understanding easy. Each chapter is well supported with necessary illustrations, self-explanatory diagrams and variety of solved problems. All the chapters are arranged in a proper sequence that permits each topic to build upon earlier studies. The book explains the philosophy of the subject which makes the understanding of the concepts very clear and makes the subject more interesting.

Piecewise Linear Control Systems - Mikael K.-J. Johansson 2003-07-01

2. Piecewise Linear Modeling . . . . . 9 2. 1 Model Representation . . . . . 9 2. 2 Solution Concepts . . . . . 2. 3 Uncertainty Models . . . . . . 2. 4 Modularity and Interconnections . . . . . 26 2. 5 Piecewise Linear Function Representations . . . . . 28 2. 6 Comments and References . . . . . 30 3. Structural Analysis . . . . . 32 3. 1 Equilibrium Points and the Steady State Characteristic . . 32 3. 2 Constraint Verification and Invariance . . . . . 35 3. 3 Detecting Attractive Sliding Modes on Cell Boundaries 37 3. 4 Comments and References . . . . . 39 4. Lyapunov Stability . . . . . 41 4. 1 Exponential Stability . . . . . 41 4. 2 Quadratic Stability . . . . . 42 4. 3 Conservatism of Quadratic Stability . . . . . 46 4. 4 From Quadratic to Piecewise Quadratic . . . . . 48 4. 5 Interlude: Describing Partition Properties . . . . . 51 4. 6 Piecewise Quadratic Lyapunov Functions . . . . . 55 4. 7 Analysis of Piecewise Linear Differential Inclusions . . . . 61 4. 8 Analysis of Systems with Attractive Sliding Modes . . . . 63 4. 9 Improving Computational Efficiency . . . . . 66 4. 10 Piecewise Linear Lyapunov Functions . . . . . 72 4. 11 A Unifying View . . . . . 77 4. 12 Comments and References . . . . . 82 5. Dissipativity Analysis . . . . . 85 5. 1 Dissipativity Analysis via Convex Optimization . . . . . 86 21 14 Contents Contents 5. 2 Computation of £2 induced Gain . . . . . 88 5. 3 Estimation of Transient Energy . . . . . 89 5. 4 Dissipative Systems with Quadratic Supply Rates . . . . . 91 5. 5 Comments and References . . . . . 95 Controller Design . . . . . 96 6. 1 Quadratic Stabilization of Piecewise Linear" Systems . . . 97 6. 2 Controller Synthesis based on Piecewise Quadratics . . . 98 6. 3 Comments and References . . . . . 105 7. Selected Topics . . . . . 107 7. 1 Estimation of Regions of Attraction . . . . . .

Elementary Linear Circuit Analysis - Leonard S. Bobrow 1995-06

A "student-friendly" introduction to the basics of electric circuit analysis, this sophomore-level text covers traditional material, as well as such modern topics as op-amps and the use of digital computers for circuit analysis. The presentation is very lucid and thorough with clearer and more complete explanations of Kirchoff's laws, and nodal analysis than in comparable texts. Bobrow also places greater emphasis on signals and waveforms. This text features evaluation of initial conditions, phasor diagrams, and coverage of SPICE.

Analog Integrated Circuit Design - Tony Chan Carusone 2012

The 2nd Edition of Analog Integrated Circuit Design focuses on more coverage about several types of circuits that have increased in importance in the past decade. Furthermore, the text is enhanced with material on CMOS IC device modeling, updated processing layout and expanded coverage to reflect technical innovations. CMOS devices and circuits have more influence in this edition as well as a reduced amount of text on BiCMOS and bipolar information. New chapters include topics on frequency response of analog ICs and basic theory of feedback amplifiers.

Linear Circuits - Raymond A. DeCarlo 2009

Linear Circuit Analysis - Raymond A. DeCarlo 2003

Nonlinear Systems - Hassan K. Khalil 2013-11-01

For a first-year graduate-level course on nonlinear systems. It may also be used for self-study or reference by engineers and applied mathematicians. The text is written to build the level of mathematical sophistication from chapter to chapter. It has been reorganized into four

parts: Basic analysis, Analysis of feedback systems, Advanced analysis, and Nonlinear feedback control.

Linear Circuit Analysis - Pen-Min Lin 2001-11-19

This package includes Linear Circuit Analysis, Second Edition by Raymond A. DeCarlo and Pen-Min Lin and Allan's Circuits Problems by Allan Kraus. Packaged together, these two books offer excellent instruction and over 400 circuits problems for practice.

Digital Design: International Version - John F Wakerly 2010-06-18

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

Systems and Control - Stanislaw H. Zak 2002-12-15

Instructor's Solutions Manual to Accompany Systems and Control is a supplement to Zak's main text. It contains solutions to all of the end-of-chapter problems and it is available free of charge to adopting professors.

Electric Circuit Analysis - S. N. Sivanandam 2009-11-01

This book Electric Circuit Analysis attempts to provide an exhaustive treatment of the basic foundations and principles of circuit analysis, which should become an integral part of a student knowledge in his pursuit of the study of further topics in electrical engineering. The topics covered can be handled quite comfortably in two academic semesters. Numerous solved problems are provided to illustrate the concepts. In addition, a large number of exercise problems have been included at the end of each chapter. This revised edition covers some additional topics separately in an appendix. Further, some revisions and corrections have been incorporated in the text, as per the suggestions given by teachers and students of electrical engineering. The book draws upon three decades of teaching experience of the author in this subject. Students are advised to work out the problems and enhance their learning and knowledge of the subject. The book includes objective type questions to help students prepare for competitive examinations.

Industrial Control Electronics - John W. Webb 1993

Microelectronic Circuits - Muhammad H. Rashid 2011

Basic Engineering Circuit Analysis - J. David Irwin 2019-01-03

Switched Linear Systems - Zhendong Sun 2006-03-30

Switched linear systems have enjoyed a particular growth in interest since the 1990s. The large amount of data and ideas thus generated have, until now, lacked a co-ordinating framework to focus them effectively on some of the fundamental issues such as the problems of robust stabilizing switching design, feedback stabilization and optimal switching. This deficiency is resolved by this book which features: nucleus of constructive design approaches based on canonical decomposition and forming a sound basis for the systematic treatment of secondary results; theoretical exploration and logical association of several independent but pivotal concerns in control design as they pertain to switched linear systems: controllability and observability, feedback stabilization, optimization and periodic switching; a reliable foundation for further theoretical research as well as design guidance for real life engineering applications through the integration of novel ideas, fresh insights and rigorous results.

Linear Circuit Analysis, Volume I - Raymond A. DeCarlo 1995-01

The combined three volumes of these texts cover traditional linear circuit analysis topics - both concepts and computation - including the use of available software for problem solution where necessary. This volume discusses topics such as network theorems, and node and loop analysis.

Electric Circuits Problem Solver - 2012-11-16

REA?s Electric Circuits Problem Solver Each Problem Solver is an insightful and essential study and solution guide chock-full of clear, concise problem-solving gems. Answers to all of your questions can be found in one convenient source from one of the most trusted names in reference solution guides. More useful, more practical, and more informative, these study aids are the best review books and textbook companions available. They're perfect for undergraduate and graduate studies. This highly useful reference is the finest overview of electric

circuits currently available, with hundreds of electric circuits problems that cover everything from resistive inductors and capacitors to three-phase circuits and state equations. Each problem is clearly solved with step-by-step detailed solutions.
Linear Circuit Analysis - Swaminathan Madhu 1988

Linear Systems - Panos J. Antsaklis 2006-11-24
"There are three words that characterize this work: thoroughness, completeness and clarity. The authors are congratulated for taking the time to write an excellent linear systems textbook!" —IEEE Transactions on Automatic Control Linear systems theory plays a broad and fundamental role in electrical, mechanical, chemical and aerospace engineering, communications, and signal processing. A thorough introduction to systems theory with emphasis on control is presented in this self-contained textbook, written for a challenging one-semester graduate course. A solutions manual is available to instructors upon adoption of the text. The book's flexible coverage and self-contained presentation also make it an excellent reference guide or self-study manual. For a treatment of linear systems that focuses primarily on the time-invariant case using streamlined presentation of the material with less formal and more intuitive proofs, please see the authors' companion book entitled A Linear Systems Primer.
Electric Circuits and Networks - K. S. Suresh Kumar 2009
Electric Circuits and Networks is designed to serve as a textbook for a two-semester undergraduate course on basic electric circuits and networks. The book builds on the subject from its basic principles. Spread over seventeen chapters, the book can be taught with varying degree of emphasis on its six subsections based on the course requirement. Written in a student-friendly manner, its narrative style places adequate stress on the principles that govern the behaviour of electric circuits and networks.
Introduction to Linear Circuit Analysis and Modelling - Luis Moura 2005-03-05
Luis Moura and Izzat Darwazeh introduce linear circuit modelling and analysis applied to both electrical and electronic circuits, starting with DC and progressing up to RF, considering noise analysis along the way. Avoiding the tendency of current textbooks to focus either on the basic electrical circuit analysis theory (DC and low frequency AC frequency range), on RF circuit analysis theory, or on noise analysis, the authors combine these subjects into the one volume to provide a comprehensive set of the main techniques for the analysis of electric circuits in these areas. Taking the subject from a modelling angle, this text brings together the most common and traditional circuit analysis techniques (e.g. phasor analysis) with system and signal theory (e.g. the concept of system and transfer function), so students can apply the theory for analysis, as well as modelling of noise, in a broad range of electronic circuits. A highly student-focused text, each chapter contains exercises, worked examples and end of chapter problems, with an additional glossary and bibliography for reference. A balance between concepts and applications is maintained throughout. Luis Moura is a Lecturer in Electronics at the University of Algarve. Izzat Darwazeh is Senior Lecturer in Telecommunications at University College, London, previously at UMIST. An innovative approach fully integrates the topics of electrical and RF circuits, and noise analysis, with circuit modelling Highly student-focused, the text includes exercises and worked examples throughout, along with end of chapter problems to put theory into practice
Liquid Cell Electron Microscopy - Frances M. Ross 2017
2.6.2 Electrodes for Electrochemistry
Matrices for Engineers - Allan D. Kraus 2002
Matrices for Engineers is designed to supply engineers and engineering students with a foundation in matrix theory and versatility in the manipulation of matrices. The book's approach provides the necessary material in a direct manner, with examples that illustrate each concept as it appears. The book emphasizes methodology and includes topics such as how to obtain the characteristic polynomial of a matrix; the factorizations of a coefficient matrix for ease of computation; and linear transformations from an intuitive and engineering point of view, in which

conditions at one point in a system induce conditions at another. Indeed, it covers computational techniques and goes beyond matrix algebra to include matrix calculus. Perfect for self-study, Matrices for Engineers also functions as a supplement to Oxford University Press's popular Linear Circuit Analysis, Second Edition (0-19-513666-7), by Raymond A. DeCarlo and Pen-Min Lin or any introductory electrical engineering text, such as Introduction to Electrical Engineering (0-19-513604-7) by Mulukutla S. Sarma. It can also be used to help in preparing for the Fundamentals of Engineering (FE)/Engineer-in-Training (EIT) exam and the Professional Engineer (PE) exam. For a complete and detailed list of engineering exam review books available from Oxford University Press, visit our website at http://www.engineeringpress.com. Also Available from Oxford University Press DeCarlo and Lin's Linear Circuit Analysis, Second Edition (0-19-513666-7): Allan's Circuits Problems by Allan D. Kraus (0-19-514248-9) Solutions Manual to Accompany Linear Circuit Analysis, Second Edition, by Raymond A. DeCarlo and Pen-Min Lin (0-19-514218-7) Microsoft PowerPoint Overheads to Accompany Linear Circuit Analysis, Second Edition (0-19-514724-3) Sarma's Introduction to Electrical Engineering (0-19-513604-7): Solutions Manual to Accompany Introduction to Electrical Engineering by Mulukutla S. Sarma (0-19-514260-8) Microsoft PowerPoint Overheads to Accompany Introduction to Electrical Engineering (0-19-514472-4) KC's Problems and Solutions to Accompany Microelectronic Circuits, Fourth Edition, by K. C. Smith (0-19-511771-9) Spice, Second Edition, by Gordon Roberts and Adel Sedra (0-19-510842-6) Getting Started with MATLAB: A Quick Introduction for Scientists and Engineers (Version 6), by Rudra Pratap (0-19-515014-7)

Linear Circuit Analysis - Raymond A. DeCarlo 1995

The combined three volumes of these texts cover traditional linear circuit analysis topics - both concepts and computation - including the use of available software for problem solution where necessary. The text balances emphasis on concepts and calculation so students learn the basic principles and properties that govern circuits behaviour, while they gain a firm understanding of how to solve computational techniques they will face in the world of professional engineers.

CRC Handbook of Metal Etchants - Perrin Walker 1990-12-11

This publication presents cleaning and etching solutions, their applications, and results on inorganic materials. It is a comprehensive collection of etching and cleaning solutions in a single source. Chemical formulas are presented in one of three standard formats - general, electrolytic or ionized gas formats - to insure inclusion of all necessary operational data as shown in references that accompany each numbered formula. The book describes other applications of specific solutions, including their use on other metals or metallic compounds. Physical properties, association of natural and man-made minerals, and materials are shown in relationship to crystal structure, special processing techniques and solid state devices and assemblies fabricated. This publication also presents a number of organic materials which are widely used in handling and general processing...waxes, plastics, and lacquers for example. It is useful to individuals involved in study, development, and processing of metals and metallic compounds. It is invaluable for readers from the college level to industrial R & D and full-scale device fabrication, testing and sales. Scientific disciplines, work areas and individuals with great interest include: chemistry, physics, metallurgy, geology, solid state, ceramic and glass, research libraries, individuals dealing with chemical processing of inorganic materials, societies and schools.

A Linear Systems Primer - Panos J. Antsaklis 2007-12-03

Based on a streamlined presentation of the authors' successful work Linear Systems, this textbook provides an introduction to systems theory with an emphasis on control. Initial chapters present necessary mathematical background material for a fundamental understanding of the dynamical behavior of systems. Each chapter includes helpful chapter descriptions and guidelines for the reader, as well as summaries, notes, references, and exercises at the end. The emphasis throughout is on time-invariant systems, both continuous- and discrete-time.

Engineering Circuit Analysis - Hayt 2011-09

An Introduction to Hybrid Dynamical Systems - Arjan J. van der Schaft 2007-10-03
This book is about dynamical systems that are "hybrid" in the sense that they contain both continuous and discrete state variables. Recently there has been increased research interest in the study of the interaction between discrete and continuous dynamics. The present volume provides a first attempt in book form to bring together concepts and methods dealing with hybrid systems from various areas, and to look at these from a unified perspective. The authors have chosen a mode of exposition that is largely based on illustrative examples rather than on the abstract theorem-proof format because the systematic study of hybrid systems is still in its infancy. The examples are taken from many different application areas, ranging from power converters to communication protocols and from chaos to mathematical finance. Subjects covered include the following: definition of hybrid systems; description formats; existence and uniqueness of solutions; special subclasses (variable-structure systems, complementarity systems); reachability and verification; stability and stabilizability; control design methods. The book will be of interest to scientists from a wide range of disciplines including: computer science, control theory, dynamical system theory, systems modeling and simulation, and operations research.
Linear Circuit Analysis - Raymond A. DeCarlo 1995
Two well-known circuit experts offer an introduction to basic circuit analysis. Real world applications open many chapters with motivational examples.
Power Transformer Diagnostics, Monitoring and Design Features - Issouf Fofana, Ph.D. ing. Chairholder 2019-01-09
This book is a printed edition of the Special Issue "Power Transformer Diagnostics, Monitoring and Design Features" that was published in Energies
Introduction to Electrical Engineering - Clayton R. Paul 1992

Microelectronics - Donald A. Neamen 2006-05-01
This junior level electronics text provides a foundation for analyzing and designing analog and digital electronics throughout the book. Extensive pedagogical features including numerous design examples, problem solving technique sections, Test Your Understanding questions, and chapter checkpoints lend to this classic text. The author, Don Neamen, has many years experience as an Engineering Educator. His experience shines through each chapter of the book, rich with realistic examples and practical rules of thumb.The Third Edition continues to offer the same hallmark features that made the previous editions such a success.Extensive Pedagogy: A short introduction at the beginning of each chapter links the new chapter to the material presented in previous chapters. The objectives of the chapter are then presented in the Preview section and then are listed in bullet form for easy reference.Test Your Understanding Exercise Problems with provided answers have all been updated. Design Applications are included at the end of chapters. A specific electronic design related to that chapter is presented. The various stages in the design of an electronic thermometer are explained throughout the text.Specific Design Problems and Examples are highlighted throughout as well.
Electronic Circuit Analysis - B. Visvesvara Rao 2012

Linear Systems - S. P. Bhattacharyya 2013-10-01
This brief presents recent results obtained on the analysis, synthesis and design of systems described by linear equations. It is well known that linear equations arise in most branches of science and engineering as well as social, biological and economic systems. The novelty of this approach is that no models of the system are assumed to be available, nor are they required. Instead, a few measurements made on the system can be processed strategically to directly extract design values that meet specifications without constructing a model of the system, implicitly or explicitly. These new concepts are illustrated by applying them to linear DC and AC circuits, mechanical, civil and hydraulic systems, signal flow block diagrams and control systems. These applications are preliminary and suggest many open problems. The results presented in this brief are the latest effort in this direction and the authors hope these will lead to

attractive alternatives to model-based design of engineering and other systems.

Field and Wave Electromagnetics - Cheng 1989-09

Electric Circuits Fundamentals - Sergio Franco 1994-08

This exciting new text teaches the foundations of electric circuits and develops a thinking style and a problem-solving methodology that is based on physical insight. Designed for the first course or sequence in circuits in electrical engineering, the approach imparts not only an appreciation for the elegance of the mathematics of circuit theory, but a genuine "feel" for a circuit's physical operation. This will benefit students not only in the rest of the curriculum, but in being able to cope with the rapidly changing technology they will face on-the-job. The text covers all the traditional topics in a way that holds students' interest. The presentation is only as mathematically rigorous as is needed, and theory is always related to real-life situations. Franco introduces ideal transformers and amplifiers early on to stimulate student interest by giving a taste of actual engineering practice. This is followed by extensive coverage of the operational amplifier to provide a practical illustration of abstract but fundamental concepts such as impedance transformation and root location control--always with a vigilant eye on the underlying physical basis. SPICE is referred to throughout the text as a means for checking the results of hand calculations, and in separate end-of-chapter sections, which introduce the most important SPICE features at the specific points in the presentation at which students will find them most useful. Over 350 worked examples, 400-plus exercises, and 1000 end-of-chapter problems help students develop an engineering approach to problem solving based on conceptual understanding and physical intuition rather than on rote procedures.

Introduction to Electronics - Earl D. Gates 2001

Now in its fourth edition, Introduction to Electronics continues to offer its readers a complete introduction to basic electricity/electronics principles with emphasis on hands-on application of theory. Expanded discussion of Capacitive AC, Inductive AC, and Resonance Circuits is just the beginning! For the first time, MultiSIM® problems have been integrated into Introduction to Electronics, providing even greater opportunities to apply basic electronics principles and develop critical thinking skills by building, analyzing, and troubleshooting DC and AC circuits. In addition, this electron flow, algebra-based electricity/electronics primer now includes coverage of topics such as surface mount components, Karnaugh maps, and microcontrollers that are becoming increasingly important in today's world. Introduction to Electronics is the ideal choice for readers with no prior electronics experience who seek a basic background in DC and AC circuits that aligns closely with today's business and industry requirements. Objectives are clearly stated at the beginning of each brief, yet highly focused chapter to focus attention on key points. In addition, all-new photographs are used throughout the book and detailed, step-by-step examples are included to show how math and formulas are used. Chapter-end review questions and summaries ensure mastery, while careers are profiled throughout Introduction to Electronics, 4th Edition to stimulate the reader's interest in further study and/or potential employment in electronics or related fields.