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KEY=CHAPTER - PAOLA DANIELA

Fundamentals of Electrical Engineering *McGraw-Hill Higher Education* **Rizzoni's Fundamentals of Electrical Engineering provides a solid overview of the electrical engineering discipline that is especially geared toward the many non-electrical engineering students who take this course. The book was developed to fit the growing trend of the Intro to EE course morphing into a briefer, less comprehensive course. The hallmark feature of this text is its liberal use of practical applications to illustrate important principles. The applications come from every field of engineering and feature exciting technologies. The appeal to non-engineering students are the special features such as Focus on Measurement sections, Focus on Methodology sections, and Make the Connections sidebars. Principles and Applications of Electrical Engineering *McGraw Hill Professional* **The fourth edition of "Principles and Applications of Electrical Engineering" provides comprehensive coverage of the principles of electrical, electronic, and electromechanical engineering to non-electrical engineering majors. Building on the success of previous editions, this text focuses on relevant and practical applications that will appeal to all engineering students. Fundamentals of Electrical Engineering** *Oxford Series in Electrical and Computer Engineering* **Divided into four parts: circuits, electronics, digital systems, and electromagnetics, this text provides an understanding of the fundamental principles on which****

modern electrical engineering is based. It is suitable for a variety of electrical engineering courses, and can also be used as a text for an introduction to electrical engineering. **Hybrid Electric Vehicles Energy Management Strategies** *Springer* This SpringerBrief deals with the control and optimization problem in hybrid electric vehicles. Given that there are two (or more) energy sources (i.e., battery and fuel) in hybrid vehicles, it shows the reader how to implement an energy-management strategy that decides how much of the vehicle's power is provided by each source instant by instant. **Hybrid Electric Vehicles:** •introduces methods for modeling energy flow in hybrid electric vehicles; •presents a standard mathematical formulation of the optimal control problem; •discusses different optimization and control strategies for energy management, integrating the most recent research results; and •carries out an overall comparison of the different control strategies presented. Chapter by chapter, a case study is thoroughly developed, providing illustrative numerical examples that show the basic principles applied to real-world situations. The brief is intended as a straightforward tool for learning quickly about state-of-the-art energy-management strategies. It is particularly well-suited to the needs of graduate students and engineers already familiar with the basics of hybrid vehicles but who wish to learn more about their control strategies. **Basic Electronics Math** *Elsevier* Most students entering an electronics technician program have an understanding of mathematics. **Basic Electronics Math** provides is a practical application of these basics to electronic theory and circuits. The first half of **Basic Electronics Math** provides a refresher of mathematical concepts. These chapters can be taught separately from or in combination with the rest of the book, as needed by the students. The second half of **Basic Electronics Math** covers applications to electronics. **Basic concepts of electronics math** Numerous problems and examples Uses real-world applications **Power System Analysis** *McGraw-Hill* This is an introduction to power system analysis and design. The text contains fundamental concepts and modern topics with applications to real-world problems, and integrates MATLAB and SIMULINK throughout. **The Fundamentals of Electrical Engineering for Mechatronics** *Walter de Gruyter GmbH & Co KG* The technical systems we develop today are complicated. The challenges vehicle manufacturers are facing involve a combination of the fields of electronics, mechanics, control engineering, telecommunications, computer engineering, and software programming in order to realise the required functionality. This multi-disciplinary field of engineering is called mechatronics, and one of the key disciplines in this field is electronic engineering. Consequently, knowledge of the basic laws and principles of electronic engineering is mandatory for anyone who wants to work in the field of mechatronics. This book therefore explains the fundamentals of electrical engineering with an emphasis on mechatronic systems. Starting with basic laws, the main focus is on circuit analysis, including DC and AC circuits, transient effects, filters and oscillating circuits. Basic circuit elements are introduced as well as more complex

semiconductor devices like operational amplifiers, bipolar junction transistors and MOSFET field-effect transistors. Finally, a short introduction to the important field of circuit simulation completes the book. The latest vehicles are classic examples of mechatronic systems. Automotive applications are therefore used throughout the book as examples to demonstrate the application of the discussed topics in a mechatronic environment. **Electrical Engineering Fundamentals** *Prentice Hall* A manual on the basic concepts of electrical engineering includes discussions of circuit elements, network theory, digital systems, and feedback control **Vehicle Propulsion Systems Introduction to Modeling and Optimization** *Springer Science & Business Media* The authors of this text have written a comprehensive introduction to the modeling and optimization problems encountered when designing new propulsion systems for passenger cars. It is intended for persons interested in the analysis and optimization of vehicle propulsion systems. Its focus is on the control-oriented mathematical description of the physical processes and on the model-based optimization of the system structure and of the supervisory control algorithms. **Practical Electronics for Inventors 2/E** *McGraw Hill Professional* **THE BOOK THAT MAKES ELECTRONICS MAKE SENSE** This intuitive, applications-driven guide to electronics for hobbyists, engineers, and students doesn't overload readers with technical detail. Instead, it tells you-and shows you-what basic and advanced electronics parts and components do, and how they work. Chock-full of illustrations, **Practical Electronics for Inventors** offers over 750 hand-drawn images that provide clear, detailed instructions that can help turn theoretical ideas into real-life inventions and gadgets. **CRYSTAL CLEAR AND COMPREHENSIVE** Covering the entire field of electronics, from basics through analog and digital, AC and DC, integrated circuits (ICs), semiconductors, stepper motors and servos, LCD displays, and various input/output devices, this guide even includes a full chapter on the latest microcontrollers. A favorite memory-jogger for working electronics engineers, **Practical Electronics for Inventors** is also the ideal manual for those just getting started in circuit design. If you want to succeed in turning your ideas into workable electronic gadgets and inventions, is **THE** book. Starting with a light review of electronics history, physics, and math, the book provides an easy-to-understand overview of all major electronic elements, including: Basic passive components o Resistors, capacitors, inductors, transformers o Discrete passive circuits o Current-limiting networks, voltage dividers, filter circuits, attenuators o Discrete active devices o Diodes, transistors, thyristors o Microcontrollers o Rectifiers, amplifiers, modulators, mixers, voltage regulators **ENTHUSIASTIC READERS HELPED US MAKE THIS BOOK EVEN BETTER** This revised, improved, and completely updated second edition reflects suggestions offered by the loyal hobbyists and inventors who made the first edition a bestseller. Reader-suggested improvements in this guide include: Thoroughly expanded and improved theory chapter New sections covering test equipment, optoelectronics, microcontroller circuits, and more New and revised drawings Answered problems throughout the book

Practical Electronics for Inventors takes you through reading schematics, building and testing prototypes, purchasing electronic components, and safe work practices. You'll find all this in a guide that's destined to get your creative and inventive juices flowing. **Principles of Electrical Machines** *S. Chand Publishing* For over 15 years "Principles of Electrical Machines" is an ideal text for students who look to gain a current and clear understanding of the subject as all theories and concepts are explained with lucidity and clarity. Succinctly divided in 14 chapters, the book delves into important concepts of the subject which include Armature Reaction and Commutation, Single-phase Motors, Three-phase Induction motors, Synchronous Motors, Transformers and Alternators with the help of numerous figures and supporting chapter-end questions for retention. **Dynamic Modeling and Control of Engineering Systems** *Cambridge University Press* This textbook is ideal for a course in engineering systems dynamics and controls. The work is a comprehensive treatment of the analysis of lumped parameter physical systems. Starting with a discussion of mathematical models in general, and ordinary differential equations, the book covers input/output and state space models, computer simulation and modeling methods and techniques in mechanical, electrical, thermal and fluid domains. Frequency domain methods, transfer functions and frequency response are covered in detail. The book concludes with a treatment of stability, feedback control (PID, lead-lag, root locus) and an introduction to discrete time systems. This new edition features many new and expanded sections on such topics as: solving stiff systems, operational amplifiers, electrohydraulic servovalves, using Matlab with transfer functions, using Matlab with frequency response, Matlab tutorial and an expanded Simulink tutorial. The work has 40% more end-of-chapter exercises and 30% more examples. **Basic Electronics for Scientists and Engineers** *Cambridge University Press* Ideal for a one-semester course, this concise textbook covers basic electronics for undergraduate students in science and engineering. Beginning with the basics of general circuit laws and resistor circuits to ease students into the subject, the textbook then covers a wide range of topics, from passive circuits through to semiconductor-based analog circuits and basic digital circuits. Using a balance of thorough analysis and insight, readers are shown how to work with electronic circuits and apply the techniques they have learnt. The textbook's structure makes it useful as a self-study introduction to the subject. All mathematics is kept to a suitable level, and there are several exercises throughout the book. Password-protected solutions for instructors, together with eight laboratory exercises that parallel the text, are available online at www.cambridge.org/Eggleston. **A Practical Introduction to Electronic Instrumentation** *Kendall/Hunt Publishing Company* **Mechatronics Principles and Applications** *Elsevier* Mechatronics is a core subject for engineers, combining elements of mechanical and electronic engineering into the development of computer-controlled mechanical devices such as DVD players or anti-lock braking systems. This book is the most comprehensive text available for both

mechanical and electrical engineering students and will enable them to engage fully with all stages of mechatronic system design. It offers broader and more integrated coverage than other books in the field with practical examples, case studies and exercises throughout and an Instructor's Manual. A further key feature of the book is its integrated coverage of programming the PIC microcontroller, and the use of MATLAB and Simulink programming and modelling, along with code files for downloading from the accompanying website. * Integrated coverage of PIC microcontroller programming, MATLAB and Simulink modelling * Fully developed student exercises, detailed practical examples * Accompanying website with Instructor's Manual, downloadable code and image bank Renewable Energy Integration Challenges and Solutions *Springer Science & Business Media* This book presents different aspects of renewable energy integration, from the latest developments in renewable energy technologies to the currently growing smart grids. The importance of different renewable energy sources is discussed, in order to identify the advantages and challenges for each technology. The rules of connecting the renewable energy sources have also been covered along with practical examples. Since solar and wind energy are the most popular forms of renewable energy sources, this book provides the challenges of integrating these renewable generators along with some innovative solutions. As the complexity of power system operation has been raised due to the renewable energy integration, this book also includes some analysis to investigate the characteristics of power systems in a smarter way. This book is intended for those working in the area of renewable energy integration in distribution networks. *Electrical Engineering Principles and Applications Prentice Hall CD-ROMs* contains: 2 CDs, "one contains the Student Edition of LabView 7 Express, and the other contains OrCAD Lite 9.2." *Handbook of Automotive Power Electronics and Motor Drives CRC Press* Initially, the only electric loads encountered in an automobile were for lighting and the starter motor. Today, demands on performance, safety, emissions, comfort, convenience, entertainment, and communications have seen the working-in of seemingly innumerable advanced electronic devices. Consequently, vehicle electric systems require larger capacities and more complex configurations to deal with these demands. Covering applications in conventional, hybrid-electric, and electric vehicles, the *Handbook of Automotive Power Electronics and Motor Drives* provides a comprehensive reference for automotive electrical systems. This authoritative handbook features contributions from an outstanding international panel of experts from industry and academia, highlighting existing and emerging technologies. Divided into five parts, the *Handbook of Automotive Power Electronics and Motor Drives* offers an overview of automotive power systems, discusses semiconductor devices, sensors, and other components, explains different power electronic converters, examines electric machines and associated drives, and details various advanced electrical loads as well as battery technology for automobile applications. As we seek to answer the call for safer, more efficient, and lower-emission

vehicles from regulators and consumer insistence on better performance, comfort, and entertainment, the technologies outlined in this book are vital for engineering advanced vehicles that will satisfy these criteria.

Introduction to Modeling and Control of Internal Combustion Engine Systems *Springer Science & Business Media* Internal combustion engines still have a potential for substantial improvements, particularly with regard to fuel efficiency and environmental compatibility. These goals can be achieved with help of control systems. **Modeling and Control of Internal Combustion Engines (ICE)** addresses these issues by offering an introduction to cost-effective model-based control system design for ICE. The primary emphasis is put on the ICE and its auxiliary devices. Mathematical models for these processes are developed in the text and selected feedforward and feedback control problems are discussed. The appendix contains a summary of the most important controller analysis and design methods, and a case study that analyzes a simplified idle-speed control problem. The book is written for students interested in the design of classical and novel ICE control systems.

Battery Management Systems Accurate State-of-Charge Indication for Battery-Powered Applications *Springer Science & Business Media* This book describes the field of State-of-Charge (SoC) indication for rechargeable batteries. An overview of the state-of-the-art of SoC indication methods including available market solutions from leading semiconductor companies is provided. All disciplines are covered, from electrical, chemical, mathematical and measurement engineering to understanding battery behavior. This book will therefore is for persons in engineering and involved in battery management.

The Mechatronics Handbook - 2 Volume Set *CRC Press* The first comprehensive reference on mechatronics, **The Mechatronics Handbook** was quickly embraced as the gold standard in the field. From washing machines, to coffeemakers, to cell phones, to the ubiquitous PC in almost every household, what, these days, doesn't take advantage of mechatronics in its design and function? In the scant five years since the initial publication of the handbook, the latest generation of smart products has made this even more obvious. Too much material to cover in a single volume Originally a single-volume reference, the handbook has grown along with the field. The need for easy access to new material on rapid changes in technology, especially in computers and software, has made the single volume format unwieldy. The second edition is offered as two easily digestible books, making the material not only more accessible, but also more focused. Completely revised and updated, Robert Bishop's seminal work is still the most exhaustive, state-of-the-art treatment of the field available.

Modern Database Management The fifth edition of **Modern Database Management** has been updated to reflect the most current database content available. It provides sound, clear, and current coverage of the concepts, skills, and issues needed to cope with an expanding organisational resource. While sufficient technical detail is provided, the emphasis remains on management and implementation issues pertinent in a business information systems curriculum.

Introduction to Mechatronics and

Measurement Systems *McGraw-Hill Science, Engineering & Mathematics* **INTRODUCTION TO MECHATRONICS AND MEASUREMENT SYSTEMS** provides comprehensive and accessible coverage of the evolving field of mechatronics for mechanical, electrical and aerospace engineering majors. The authors present a concise review of electrical circuits, solid-state devices, digital circuits, and motors- all of which are fundamental to understanding mechatronic systems. Mechatronics design considerations are presented throughout the text, and in "Design Example" features. The text's numerous illustrations, examples, class discussion items, and chapter questions & exercises provide an opportunity to understand and apply mechatronics concepts to actual problems encountered in engineering practice. This text has been tested over several years to ensure accuracy. A text web site is available at <http://www.engr.colostate.edu/~dga/mechatronics/> and contains numerous supplemental resources.

Introduction to MATLAB for Engineers *McGraw-Hill Medical Publishing* **Fundamentals of Electrical Power Systems Analysis** *Springer Nature* This book covers the topic from introductory to advanced levels for undergraduate students of Electrical Power and related fields, and for professionals who need a fundamental grasp of power systems engineering. The book also analyses and simulates selected power circuits using appropriate software, and includes a wealth of worked-out examples and practice problems to enrich readers' learning experience. In addition, the exercise problems provided can be used in teaching courses.

Energy Management Strategies for Electric and Plug-in Hybrid Electric Vehicles *Springer Science & Business Media* This book addresses the practical issues for commercialization of current and future electric and plug-in hybrid electric vehicles (EVs/PHEVs). The volume focuses on power electronics and motor drives based solutions for both current as well as future EV/PHEV technologies. Propulsion system requirements and motor sizing for EVs is also discussed, along with practical system sizing examples. PHEV power system architectures are discussed in detail. Key EV battery technologies are explained as well as corresponding battery management issues are summarized. Advanced power electronic converter topologies for current and future charging infrastructures will also be discussed in detail. EV/PHEV interface with renewable energy is discussed in detail, with practical examples.

Engineering Circuit Analysis Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles *National Academies Press* The light-duty vehicle fleet is expected to undergo substantial technological changes over the next several decades. New powertrain designs, alternative fuels, advanced materials and significant changes to the vehicle body are being driven by increasingly stringent fuel economy and greenhouse gas emission standards. By the end of the next decade, cars and light-duty trucks will be more fuel efficient, weigh less, emit less air pollutants, have more safety features, and will be more expensive to purchase relative to current vehicles. Though the gasoline-powered spark ignition engine will continue to be the dominant powertrain configuration even through 2030, such

vehicles will be equipped with advanced technologies, materials, electronics and controls, and aerodynamics. And by 2030, the deployment of alternative methods to propel and fuel vehicles and alternative modes of transportation, including autonomous vehicles, will be well underway. What are these new technologies - how will they work, and will some technologies be more effective than others? Written to inform The United States Department of Transportation's National Highway Traffic Safety Administration (NHTSA) and Environmental Protection Agency (EPA) Corporate Average Fuel Economy (CAFE) and greenhouse gas (GHG) emission standards, this new report from the National Research Council is a technical evaluation of costs, benefits, and implementation issues of fuel reduction technologies for next-generation light-duty vehicles. **Cost, Effectiveness, and Deployment of Fuel Economy Technologies for Light-Duty Vehicles** estimates the cost, potential efficiency improvements, and barriers to commercial deployment of technologies that might be employed from 2020 to 2030. This report describes these promising technologies and makes recommendations for their inclusion on the list of technologies applicable for the 2017-2025 CAFE standards.

Electrical Engineering: Concepts and Applications International Edition *Pearson Higher Ed* For non-electrical engineering majors taking the introduction to electrical engineering course. **Electrical Engineering: Concepts and Applications** is the result of a multi-disciplinary effort at Michigan Technological University to create a new curriculum that is attractive, motivational, and relevant to students by creating many application-based problems; and provide the optimal level of both range and depth of coverage of EE topics in a curriculum package.

Loose Leaf for Fundamentals of Electrical Engineering *McGraw-Hill Education* **Fundamentals of Electrical Engineering** represents an effort to make the principles of electrical and computer engineering accessible to students in various engineering disciplines. The principal objective of the book is to present the fundamentals of electrical, electronic, and electromechanical engineering to an audience of engineering majors enrolled in introductory and more advanced or specialized electrical engineering courses. A second objective is to present these fundamentals with a focus on important results and common yet effective analytical and computational tools to solve practical problems. Finally, a third objective of the book is to illustrate, by way of concrete, fully worked examples, a number of relevant applications of electrical engineering. These examples are drawn from the authors' industrial research experience and from ideas contributed by practicing engineers and industrial partners.

The Art of Electronics: The x Chapters *Cambridge University Press* **The Art of Electronics: The x-Chapters** expands on topics introduced in the best-selling third edition of **The Art of Electronics**, completing the broad discussions begun in the latter. In addition to covering more advanced materials relevant to its companion, **The x-Chapters** also includes extensive treatment of many topics in electronics that are particularly novel, important, or just exotic and intriguing. Think of **The x-Chapters** as the missing pieces of **The Art of Electronics**, to be used either as its

complement, or as a direct route to exploring some of the most exciting and oft-overlooked topics in advanced electronic engineering. This enticing spread of electronics wisdom and expertise will be an invaluable addition to the library of any student, researcher, or practitioner with even a passing interest in the design and analysis of electronic circuits and instruments. You'll find here techniques and circuits that are available nowhere else. **Introduction to Electrical Engineering Sustainability Prospects for Autonomous Vehicles Environmental, Social, and Urban** *Routledge* **The Autonomous Vehicle (AV) has been strongly heralded as the most exciting innovation in automobility for decades. Autonomous Vehicles are no longer an innovation of the future (seen only in science fiction) but are now being road-tested for use. And yet while the technical and economic success and possibilities of the AV have been widely debated, there has been a notable lack of discussion around the social, behavioural, and environmental implications. This book is the first to address these issues and to deeply consider the environmental and social sustainability outlook for the AV and how it will impact on communities. Environmental and social sustainability are goals unlike those of technical development (a new tool) and economic development (a new investment). The goal of sustainability is development of societies that live well and equitably within their ecological limits. Is it reasonable and desirable that only technical and economic success comprise the swelling AV parade, or should we be looking at the wider impacts on personal well-being, wider society, and the environment? The uptake for AVs looks to be lengthy, disjointed, and episodic, in large measure because it faces a range of known unknown risks. This book assesses the environmental and social sustainability potential for AVs based on their prospective energy use and their impacts on climate change, urban landscapes, public health, mobility inequalities, and individual and social well-being. It examines public attitudes about AV use and its risk of fostering a rebound effect that compromises potential sustainability gains. The book concludes with a discussion of critical issues involved in sustainable AV diffusion.** **Mechatronics Electronics in Products and Processes** *Routledge* **Mechatronics: Electronics in Products and Processes identifies the concepts which underpin the mechatronic approach to engineering design and brings together its principle components - sensors and transducers, embedded microprocessors, actuators and drives - to explore their interrelationships. The text focuses primarily on hardware elements and the impact of system architecture. Modern technology is set in an historical background and each chapter comes with learning objectives and chapter outlines. The book includes numerous case studies illustrating the concepts applied in such areas as automatic cameras, aerospace parts manufacturing, fly-by-wire systems, and boat autopilot.** **Solid State Chemistry and Its Applications** *John Wiley & Sons* **The first broad account offering a non-mathematical, unified treatment of solid state chemistry. Describes synthetic methods, X-ray diffraction, principles of inorganic crystal structures, crystal chemistry and bonding in solids; phase diagrams of 1, 2 and 3**

component systems; the electrical, magnetic, and optical properties of solids; three groups of industrially important inorganic solids--glass, cement, and refractories; and certain aspects of organic solid state chemistry, including the "organic metal" of new materials. **Electrical Engineering Principles and Applications** *Prentice Hall* **ALERT: Before you purchase, check with your instructor or review your course syllabus to ensure that you select the correct ISBN. Several versions of Pearson's MyLab & Mastering products exist for each title, including customized versions for individual schools, and registrations are not transferable. In addition, you may need a CourseID, provided by your instructor, to register for and use Pearson's MyLab & Mastering products. Packages Access codes for Pearson's MyLab & Mastering products may not be included when purchasing or renting from companies other than Pearson; check with the seller before completing your purchase. Used or rental books If you rent or purchase a used book with an access code, the access code may have been redeemed previously and you may have to purchase a new access code. Access codes Access codes that are purchased from sellers other than Pearson carry a higher risk of being either the wrong ISBN or a previously redeemed code. Check with the seller prior to purchase. -- For undergraduate introductory or survey courses in electrical engineering A clear introduction to electrical engineering fundamentals **Electrical Engineering: Principles and Applications, 6e** helps students learn electrical-engineering fundamentals with minimal frustration. Its goals are to present basic concepts in a general setting, to show students how the principles of electrical engineering apply to specific problems in their own fields, and to enhance the overall learning process. Circuit analysis, digital systems, electronics, and electromechanics are covered. A wide variety of pedagogical features stimulate student interest and engender awareness of the material's relevance to their chosen profession. **NEW: This edition is now available with MasteringEngineering, an innovative online program created to emulate the instructor's office--hour environment, guiding students through engineering concepts from Electrical Engineering with self-paced individualized coaching. Note: If you are purchasing the standalone text or electronic version, MasteringEngineering does not come automatically packaged with the text. To purchase MasteringEngineering, please visit: masteringengineering.com or you can purchase a package of the physical text + MasteringEngineering by searching the Pearson Higher Education website. Mastering is not a self-paced technology and should only be purchased when required by an instructor.** **Technologies and Applications for Smart Charging of Electric and Plug-in Hybrid Vehicles** *Springer* This book outlines issues related to massive integration of electric and plug-in hybrid electric vehicles into power grids. Electricity is becoming the preferred energy vector for the next new generation of road vehicles. It is widely acknowledged that road vehicles based on full electric or hybrid drives can mitigate problems related to fossil fuel dependence. This book explains the emerging and understanding of storage systems for electric and plug-in hybrid vehicles. The recharging**

stations for these types of vehicles might represent a great advantage for the electric grid by facilitating integration of renewable and distributed energy production. This book presents a broad review from analyzing current literature to on-going research projects about the new power technologies related to the various charging architectures for electric and plug-in hybrid vehicles. Specifically focusing on DC fast charging operations, as well as, grid-connected power converters and the full range of energy storage systems. These key components are analyzed for distributed generation and charging system integration into micro-grids. The authors demonstrate that these storage systems represent effective interfaces for the control and management of renewable and sustainable distributed energy resources. New standards and applications are emerging from micro-grid pilot projects around the world and case studies demonstrate the convenience and feasibility of distributed energy management. The material in this unique volume discusses potential avenues for further research toward achieving more reliable, more secure and cleaner energy.

Electromechanical Dynamics: Discrete systems Loose Leaf for Principles and Applications of Electrical Engineering *McGraw-Hill Education* Principles and Applications of Electrical Engineering provides an overview of the electrical engineering discipline specifically geared toward non-electrical engineering students. The hallmark feature of the text is its use of practical applications to illustrate important principles. The applications come from every field of engineering and feature exciting technologies. The principal objective of the book is to present the principles of electrical, electronic, and electromechanical engineering to an audience of engineering majors enrolled in introductory and more advanced or specialized electrical engineering courses. A second objective is to present these principles with a focus on important results and common yet effective analytical and computational tools to solve practical problems. Finally, a third objective of the book is to illustrate, by way of concrete, fully worked examples, a number of relevant applications of electrical engineering. These examples are drawn from the authors' industrial research experience and from ideas contributed by practicing engineers and industrial partners.

Automation, Production Systems, and Computer-integrated Manufacturing *Prentice Hall* For advanced undergraduate/ graduate-level courses in Automation, Production Systems, and Computer-Integrated Manufacturing. This exploration of the technical and engineering aspects of automated production systems provides the most advanced, comprehensive, and balanced coverage of the subject of any text on the market. It covers all the major cutting-edge technologies of production automation and material handling, and how these technologies are used to construct modern manufacturing systems.