
Advanced Electric Drive Vehicles Energy Power Electronics And Machines

Energy Management Strategies

Power Electronics, Drives, and Advanced Applications

Electric Vehicle Machines and Drives

Modeling, Design, and Control

Hearing Before the Committee on Energy and Natural Resources, United States Senate, One Hundred Twelfth Congress, First Session, to Receive Testimony on Policies to Reduce Oil Consumption Through the Promotion of Advanced Vehicle Technologies and Accelerated Deployment of Electric-drive Vehicles, as Proposed in S. 734 and S. 948, May 19, 2011

Electromagnetic Compatibility of Electric Vehicle

Power Converters for Electric Vehicles

Energy Management Strategies for Electric and Plug-in Hybrid Electric Vehicles

Thermal Management of Power Electronics and Electric Motors for Electric-Drive Vehicles (Presentation).

Electric Vehicle Technology Explained

Advanced Hybrid and Electric Vehicles

Electric Powertrain

Plug-In Electric Vehicles

Hybrid Electric Vehicles

Design, Analysis and Application

Modern Technologies and Trends

Advanced Electric Drive Vehicles

Advanced Electric Drives

Advanced Electrical Drives

Analysis, Modeling, Control

Recovery Act - Sustainable Transportation

Hybrid Electric Vehicles
Artificial Intelligent Techniques for Electric and Hybrid Electric Vehicles
Fourth Report
Modern Electric, Hybrid Electric, and Fuel Cell Vehicles, Third Edition
Electric Vehicle Integration into Modern Power Networks
Battery Technology for Electric Vehicles
Behaviour of Lithium-Ion Batteries in Electric Vehicles
Building the U.S. Battery Industry for Electric Drive Vehicles
Principles and Applications with Practical Perspectives
Advanced Electrical Drives
Advances in Battery Technologies for Electric Vehicles
Advanced Electric Drive Vehicle Education Program
Electric Vehicles
Emerging Power Converters for Renewable Energy and Electric Vehicles
Progress, Challenges, and Opportunities: Summary of a Symposium
Advanced Control Systems for Electric Drives
Advanced Electric Drive Vehicles (Energy, Power Electronics, and Machines)
Review of the Research Program of the U.S. DRIVE Partnership

*Advanced Electric Drive Vehicles
Energy Power Electronics And
Machines*

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SALAZAR TAYLOR

Energy Management Strategies CRC Press

This book provides extensive information about advanced control techniques in electric drives. Multiple control and estimation methods are studied for position and speed tracking in different drives. Artificial intelligence tools, such as fuzzy logic and neural

networks, are used for specific applications using electric drives.
Power Electronics, Drives, and Advanced Applications John Wiley & Sons

A theoretical and technical guide to the electric vehicle lithium-ion battery management system Covers the timely topic of battery management systems for lithium batteries. After introducing the problem and basic background theory, it discusses battery modeling and state estimation. In addition to theoretical modeling it also contains practical information on charging and discharging control technology, cell equalisation

and application to electric vehicles, and a discussion of the key technologies and research methods of the lithium-ion power battery management system. The author systematically expounds the theory knowledge included in the lithium-ion battery management systems and its practical application in electric vehicles, describing the theoretical connotation and practical application of the battery management systems. Selected graphics in the book are directly derived from the real vehicle tests. Through comparative analysis of the different system structures and different graphic symbols, related concepts are clear and the understanding of the battery management systems is enhanced. Contents include: key technologies and the difficulty point of vehicle power battery management system; lithium-ion battery performance modeling and simulation; the estimation theory and methods of the lithium-ion battery state of charge, state of energy, state of health and peak power; lithium-ion battery charge and discharge control technology; consistent evaluation and equalization techniques of the battery pack; battery management system design and application in electric vehicles. A theoretical and technical guide to the electric vehicle lithium-ion battery management system Using simulation technology, schematic diagrams and case studies, the basic concepts are described clearly and offer detailed analysis of battery charge and discharge control principles Equips the reader with the understanding and concept of the power battery, providing a clear cognition of the application and management of lithium ion batteries in electric vehicles Arms audiences with lots of case studies Essential reading for Researchers and professionals working in energy

technologies, utility planners and system engineers.

Electric Vehicle Machines and Drives Springer

Modelling, Dynamics and Control of Electrified Vehicles provides a systematic overview of EV-related key components, including batteries, electric motors, ultracapacitors and system-level approaches, such as energy management systems, multi-source energy optimization, transmission design and control, braking system control and vehicle dynamics control. In addition, the book covers selected advanced topics, including Smart Grid and connected vehicles. This book shows how EV work, how to design them, how to save energy with them, and how to maintain their safety. The book aims to be an all-in-one reference for readers who are interested in EVs, or those trying to understand its state-of-the-art technologies and future trends. Offers a comprehensive knowledge of the multidisciplinary research related to EVs and a system-level understanding of technologies Provides the state-of-the-art technologies and future trends Covers the fundamentals of EVs and their methodologies Written by successful researchers that show the deep understanding of EVs

Modeling, Design, and Control Springer Nature

This presentation is an overview of the power electronics and electric motor thermal management and reliability activities at NREL. The focus is on activities funded by the Department of Energy Vehicle Technologies Office Advanced Power Electronics and Electric Motors Program.

Hearing Before the Committee on Energy and Natural Resources, United States Senate, One Hundred Twelfth Congress, First Session, to Receive Testimony on Policies to Reduce Oil Consumption Through the Promotion of

Advanced Vehicle Technologies and Accelerated Deployment of Electric-drive Vehicles, as Proposed in S. 734 and S. 948, May 19, 2011 John Wiley & Sons

Plug-in electric vehicles are coming. Major automakers plan to commercialize their first models soon, while Israel and Denmark have ambitious plans to electrify large portions of their vehicle fleets. No technology has greater potential to end the United States' crippling dependence on oil, which leaves the nation vulnerable to price shocks, supply disruptions, environmental degradation, and national security threats including terrorism. What does the future hold for this critical technology, and what should the U.S. government do to promote it? Hybrid vehicles now number more than one million on America's roads, and they are in high demand from consumers. The next major technological step is the plug-in electric vehicle. It combines an internal combustion engine and electric motor, just as hybrids do. But unlike their precursors, PEVs can be recharged from standard electric outlets, meaning the vehicles would no longer be dependent on oil. Widespread growth in the use of PEVs would dramatically reduce oil dependence, cut driving costs and reduce pollution from vehicles. National security would be enhanced, as reduced oil dependence decreases the leverage and resources of petroleum exporters. Brookings fellow David Sandalow heads up an authoritative team of experts including former government officials, private-sector analysts, academic experts, and nongovernmental advocates. Together they explain the current landscape for PEVs: the technology, the economics, and the implications for national security and the environment. They examine how the national interest could be served by federal

promotion and investment in PEVs. For example, can tax or procurement policy advance the cause of PEVs? Should the public sector contribute to greater research and development? Should the government insist on PEVs to replenish its huge fleet of official vehicles? Plug-in electric vehicles are coming. But how soon, in what numbers, and to what effect? Federal policies in the years ahead will go a long way toward answering those questions. David Sandalow and his colleagues examine what could be done in that regard, as well as what should be done.

Electromagnetic Compatibility of Electric Vehicle CRC Press

The why, what and how of the electric vehicle powertrain Empowers engineering professionals and students with the knowledge and skills required to engineer electric vehicle powertrain architectures, energy storage systems, power electronics converters and electric drives. The modern electric powertrain is relatively new for the automotive industry, and engineers are challenged with designing affordable, efficient and high-performance electric powertrains as the industry undergoes a technological evolution. Co-authored by two electric vehicle (EV) engineers with decades of experience designing and putting into production all of the powertrain technologies presented, this book provides readers with the hands-on knowledge, skills and expertise they need to rise to that challenge. This four-part practical guide provides a comprehensive review of battery, hybrid and fuel cell EV systems and the associated energy sources, power electronics, machines, and drives. The first part of the book begins with a historical overview of electromobility and the related environmental impacts motivating the development of the electric powertrain. Vehicular requirements for

electromechanical propulsion are then presented. Battery electric vehicles (BEV), fuel cell electric vehicles (FCEV), and conventional and hybrid electric vehicles (HEV) are then described, contrasted and compared for vehicle propulsion. The second part of the book features in-depth analysis of the electric powertrain traction machines, with a particular focus on the induction machine and the surface- and interior-permanent magnet ac machines. The brushed dc machine is also considered due to its ease of operation and understanding, and its historical place, especially as the traction machine on NASA's Mars rovers. The third part of the book features the theory and applications for the propulsion, charging, accessory, and auxiliary power electronics converters. Chapters are presented on isolated and non-isolated dc-dc converters, traction inverters, and battery charging. The fourth part presents the introductory and applied electromagnetism required as a foundation throughout the book.

- Introduces and holistically integrates the key EV powertrain technologies.
- Provides a comprehensive overview of existing and emerging automotive solutions.
- Provides experience-based expertise for vehicular and powertrain system and sub-system level study, design, and optimization.
- Presents many examples of powertrain technologies from leading manufacturers.
- Discusses the dc traction machines of the Mars rovers, the ultimate EVs from NASA.
- Investigates the environmental motivating factors and impacts of electromobility.
- Presents a structured university teaching stream from introductory undergraduate to postgraduate.
- Includes real-world problems and assignments of use to design engineers, researchers, and students alike.
- Features a companion website with numerous references,

problems, solutions, and practical assignments.

- Includes introductory material throughout the book for the general scientific reader.
- Contains essential reading for government regulators and policy makers.

Electric Powertrain: Energy Systems, Power Electronics and Drives for Hybrid, Electric and Fuel Cell Vehicles is an important professional resource for practitioners and researchers in the battery, hybrid, and fuel cell EV transportation industry. The book is a structured holistic textbook for the teaching of the fundamental theories and applications of energy sources, power electronics, and electric machines and drives to engineering undergraduate and postgraduate students.

Textbook Structure and Suggested Teaching Curriculum This is primarily an engineering textbook covering the automotive powertrain, energy storage and energy conversion, power electronics, and electrical machines. A significant additional focus is placed on the engineering design, the energy for transportation, and the related environmental impacts. This textbook is an educational tool for practicing engineers and others, such as transportation policy planners and regulators. The modern automobile is used as the vehicle upon which to base the theory and applications, which makes the book a useful educational reference for our industry colleagues, from chemists to engineers. This material is also written to be of interest to the general reader, who may have little or no interest in the power electronics and machines. Introductory science, mathematics, and an inquiring mind suffice for some chapters. The general reader can read the introduction to each of the chapters and move to the next as soon as the material gets too advanced for him or her. Part I Vehicles and Energy Sources

Chapter 1 Electromobility and the Environment Chapter 2 Vehicle Dynamics Chapter 3 Batteries Chapter 4 Fuel Cells Chapter 5 Conventional and Hybrid Powertrains Part II Electrical Machines Chapter 6 Introduction to Traction Machines Chapter 7 The Brushed DC Machine Chapter 8 Induction Machines Chapter 9 Surface-permanent-magnet AC Machines Chapter 10: Interior-permanent-magnet AC Machines Part III Power Electronics Chapter 11 DC-DC Converters Chapter 12 Isolated DC-DC Converters Chapter 13 Traction Drives and Three-phase Inverters Chapter 14 Battery Charging Chapter 15 Control of the Electric Drive Part IV Basics Chapter 16 Introduction to Electromagnetism, Ferromagnetism, and Electromechanical Energy Conversion

The first third of the book (Chapters 1 to 6), plus parts of Chapters 14 and 16, can be taught to the general science or engineering student in the second or third year. It covers the introductory automotive material using basic concepts from mechanical, electrical, environmental, and electrochemical engineering. Chapter 14 on electrical charging and Chapter 16 on electromagnetism can also be used as a general introduction to electrical engineering. The basics of electromagnetism, ferromagnetism and electromechanical energy conversion (Chapter 16) and dc machines (Chapter 7) can be taught to second year (sophomore) engineering students who have completed introductory electrical circuits and physics. The third year (junior) students typically have covered ac circuit analysis, and so they can cover ac machines, such as the induction machine (Chapter 8) and the surface permanent-magnet ac machine (Chapter 9). As the students typically have studied control theory, they can investigate the control of the speed and

torque loops of the motor drive (Chapter 15). Power electronics, featuring non-isolated buck and boost converters (Chapter 11), can also be introduced in the third year. The final-year (senior) students can then go on to cover the more advanced technologies of the interior-permanent-magnet ac machine (Chapter 10). Isolated power converters (Chapter 12), such as the full-bridge and resonant converters, inverters (Chapter 13), and power-factor-corrected battery chargers (Chapter 14), are covered in the power electronics section. This material can also be covered at the introductory postgraduate level. Various homework, simulation, and research exercises are presented throughout the textbook. The reader is encouraged to attempt these exercises as part of the learning experience. Instructors are encouraged to contact the author, John Hayes, direct to discuss course content or structure.

[Power Converters for Electric Vehicles](#) Wiley Global Education

A comprehensive examination of advanced battery management technologies and practices in modern electric vehicles Policies surrounding energy sustainability and environmental impact have become of increasing interest to governments, industries, and the general public worldwide. Policies embracing strategies that reduce fossil fuel dependency and greenhouse gas emissions have driven the widespread adoption of electric vehicles (EVs), including hybrid electric vehicles (HEVs), pure electric vehicles (PEVs) and plug-in electric vehicles (PHEVs). Battery management systems (BMSs) are crucial components of such vehicles, protecting a battery system from operating outside its Safe Operating Area (SOA), monitoring its working conditions, calculating and reporting its states, and charging and balancing

the battery system. *Advanced Battery Management Technologies for Electric Vehicles* is a compilation of contemporary model-based state estimation methods and battery charging and balancing techniques, providing readers with practical knowledge of both fundamental concepts and practical applications. This timely and highly-relevant text covers essential areas such as battery modeling and battery state of charge, energy, health and power estimation methods. Clear and accurate background information, relevant case studies, chapter summaries, and reference citations help readers to fully comprehend each topic in a practical context. Offers up-to-date coverage of modern battery management technology and practice Provides case studies of real-world engineering applications Guides readers from electric vehicle fundamentals to advanced battery management topics Includes chapter introductions and summaries, case studies, and color charts, graphs, and illustrations Suitable for advanced undergraduate and graduate coursework, *Advanced Battery Management Technologies for Electric Vehicles* is equally valuable as a reference for professional researchers and engineers.

Energy Management Strategies for Electric and Plug-in Hybrid Electric Vehicles CRC Press

Concern for reliable power supply and energy-efficient system design has led to usage of power electronics-based systems, including efficient electric power conversion and power semiconductor devices. This book provides integration of complete fundamental theory, design, simulation and application of power electronics, and drives covering up-to-date subject components. It contains twenty-one chapters arranged in four

sections on power semiconductor devices, basic power electronic converters, advanced power electronics converters, power supplies, electrical drives and advanced applications. Aimed at senior undergraduate and graduate students in electrical engineering and power electronics including related professionals, this book • Includes electrical drives such as DC motor, AC motor, special motor, high performance motor drives, solar, electrical/hybrid vehicle and fuel cell drives • Reviews advances in renewable energy technologies (wind, PV, hybrid power systems) and their integration • Explores topics like distributed generation, microgrid, and wireless power transfer system • Includes simulation examples using MATLAB®/Simulink and over four hundred solved, unsolved and review problems *Thermal Management of Power Electronics and Electric Motors for Electric-Drive Vehicles (Presentation)*. Woodhead Publishing *Electric Vehicle Integration into Modern Power Networks* provides coverage of the challenges and opportunities posed by the progressive integration of electric drive vehicles. Starting with a thorough overview of the current electric vehicle and battery state-of-the-art, this work describes dynamic software tools to assess the impacts resulting from the electric vehicles deployment on the steady state and dynamic operation of electricity grids, identifies strategies to mitigate them and the possibility to support simultaneously large-scale integration of renewable energy sources. New business models and control management architectures, as well as the communication infrastructure required to integrate electric vehicles as active demand are presented. Finally, regulatory issues of integrating electric vehicles into modern power systems are addressed.

Inspired by two courses held under the EES-UETP umbrella in 2010 and 2011, this contributed volume consists of nine chapters written by leading researchers and professionals from the industry as well as academia.

Electric Vehicle Technology Explained MDPI

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.

Advanced Hybrid and Electric Vehicles National Academies Press
This book is part of a three-book series. Ned Mohan has been a leader in EES education and research for decades, as author of the best-selling text/reference *Power Electronics*. This book emphasizes applications of electric machines and drives that are essential for wind turbines and electric and hybrid-electric vehicles. The approach taken is unique in the following respects: A systems approach, where Electric Machines are covered in the context of the overall drives with applications that students can appreciate and get enthusiastic about; A fundamental and physics-based approach that not only teaches the analysis of electric machines and drives, but also prepares students for learning how to control them in a graduate level course; Use of the space-vector-theory that is made easy to understand. They are introduced in this book in such a way that students can

appreciate their physical basis; A unique way to describe induction machines that clearly shows how they go from the motoring-mode to the generating-mode, for example in wind and electric vehicle applications, and how they ought to be controlled for the most efficient operation.

Electric Powertrain John Wiley & Sons

This updated and expanded second edition of the *Advanced Electric Drive Vehicles (Energy, Power Electronics, and Machines)* provides a user-friendly introduction to the subject. Taking a clear structural framework, it guides the reader through the subject's core elements. A flowing writing style combines with the use of illustrations and diagrams throughout the text to ensure the reader understands even the most complex of concepts. This succinct and enlightening overview is a required reading for all those interested in the subject. We hope you find this book useful in shaping your future career & Business.

Plug-In Electric Vehicles John Wiley & Sons

This book covers advancements of power electronic converters and their control techniques for grid integration of large-scale renewable energy sources and electrical vehicles. Major emphasis are on transformer-less direct grid integration, bidirectional power transfer, compensation of grid power quality issues, DC system protection and grounding, interaction in mixed AC/DC system, AC and DC system stability, magnetic design for high-frequency high power density systems with advanced soft magnetic materials, modelling and simulation of mixed AC/DC system, switching strategies for enhanced efficiency, and protection and reliability for sustainable grid integration. This book is an invaluable resource for professionals active in the field

of renewable energy and power conversion.

Hybrid Electric Vehicles John Wiley & Sons

This research focuses on the technical issues that are critical to the adoption of high-energy-producing lithium ion batteries. In addition to high energy density / high power density, this publication considers performance requirements that are necessary to assure lithium ion technology as the battery format of choice for electrified vehicles. Presentation of prime topics includes: Long calendar life (greater than 10 years) Sufficient cycle life Reliable operation under hot and cold temperatures Safe performance under extreme conditions End-of-life recycling . To achieve aggressive fuel economy standards, carmakers are developing technologies to reduce fuel consumption, including hybridization and electrification. Cost and affordability factors will be determined by these relevant technical issues which will provide for the successful implementation of lithium ion batteries for application in future generations of electrified vehicles.

Design, Analysis and Application John Wiley & Sons

The latest developments in the field of hybrid electric vehicles Hybrid Electric Vehicles provides an introduction to hybrid vehicles, which include purely electric, hybrid electric, hybrid hydraulic, fuel cell vehicles, plug-in hybrid electric, and off-road hybrid vehicular systems. It focuses on the power and propulsion systems for these vehicles, including issues related to power and energy management. Other topics covered include hybrid vs. pure electric, HEV system architecture (including plug-in & charging control and hydraulic), off-road and other industrial utility vehicles, safety and EMC, storage technologies, vehicular power and energy management, diagnostics and prognostics,

and electromechanical vibration issues. Hybrid Electric Vehicles, Second Edition is a comprehensively updated new edition with four new chapters covering recent advances in hybrid vehicle technology. New areas covered include battery modelling, charger design, and wireless charging. Substantial details have also been included on the architecture of hybrid excavators in the chapter related to special hybrid vehicles. Also included is a chapter providing an overview of hybrid vehicle technology, which offers a perspective on the current debate on sustainability and the environmental impact of hybrid and electric vehicle technology. Completely updated with new chapters Covers recent developments, breakthroughs, and technologies, including new drive topologies Explains HEV fundamentals and applications Offers a holistic perspective on vehicle electrification Hybrid Electric Vehicles: Principles and Applications with Practical Perspectives, Second Edition is a great resource for researchers and practitioners in the automotive industry, as well as for graduate students in automotive engineering.

Modern Technologies and Trends Routledge

Electrical drives convert in a controlled manner, electrical energy into mechanical energy. Electrical drives comprise an electrical machine, i.e. an electro-mechanical energy converter, a power electronic converter, i.e. an electrical-to-electrical converter, and a controller/communication unit. Today, electrical drives are used as propulsion systems in high-speed trains, elevators, escalators, electric ships, electric forklift trucks and electric vehicles. Advanced control algorithms (mostly digitally implemented) allow torque control over a high-bandwidth. Hence, precise motion control can be achieved. Examples are drives in robots, pick-and-

place machines, factory automation hardware, etc. Most drives can operate in motoring and generating mode. Wind turbines use electrical drives to convert wind energy into electrical energy. More and more, variable speed drives are used to save energy for example, in air-conditioning units, compressors, blowers, pumps and home appliances. Key to ensure stable operation of a drive in the aforementioned applications are torque control algorithms. In *Advanced Electrical Drives*, a unique approach is followed to derive model based torque controllers for all types of Lorentz force machines, i.e. DC, synchronous and induction machines. The rotating transformer model forms the basis for this generalized modeling approach that ultimately leads to the development of universal field-oriented control algorithms. In case of switched reluctance machines, torque observers are proposed to implement direct torque algorithms. From a didactic viewpoint, tutorials are included at the end of each chapter. The reader is encouraged to execute these tutorials to familiarize him or herself with all aspects of drive technology. Hence, *Advanced Electrical Drives* encourages “learning by doing”. Furthermore, the experienced drive specialist may find the simulation tools useful to design high-performance controllers for all sorts of electrical drives.

Advanced Electric Drive Vehicles Brookings Institution Press
A timely comprehensive reference consolidates the research and development of electric vehicle machines and drives for electric and hybrid propulsions • Focuses on electric vehicle machines and drives • Covers the major technologies in the area including fundamental concepts and applications • Emphasis the design criteria, performance analyses and application examples or

potentials of various motor drives and machine systems • Accompanying website includes the simulation models and outcomes as supplementary material

Advanced Electric Drives McGraw Hill Professional

This book surveys state-of-the-art research on and developments in lithium-ion batteries for hybrid and electric vehicles. It summarizes their features in terms of performance, cost, service life, management, charging facilities, and safety. Vehicle electrification is now commonly accepted as a means of reducing fossil-fuels consumption and air pollution. At present, every electric vehicle on the road is powered by a lithium-ion battery. Currently, batteries based on lithium-ion technology are ranked first in terms of performance, reliability and safety. Though other systems, e.g., metal-air, lithium-sulphur, solid state, and aluminium-ion, are now being investigated, the lithium-ion system is likely to dominate for at least the next decade – which is why several manufacturers, e.g., Toyota, Nissan and Tesla, are chiefly focusing on this technology. Providing comprehensive information on lithium-ion batteries, the book includes contributions by the world’s leading experts on Li-ion batteries and vehicles.

Advanced Electrical Drives John Wiley & Sons

Electrification is an evolving paradigm shift in the transportation industry toward more efficient, higher performance, safer, smarter, and more reliable vehicles. There is in fact a clear trend to move from internal combustion engines (ICEs) to more integrated electrified powertrains. Providing a detailed overview of this growing area, *Advanced Electric Drive Vehicles* begins with an introduction to the automotive industry, an explanation of the

need for electrification, and a presentation of the fundamentals of conventional vehicles and ICEs. It then proceeds to address the major components of electrified vehicles—i.e., power electronic converters, electric machines, electric motor controllers, and energy storage systems. This comprehensive work: Covers more electric vehicles (MEVs), hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), range-extended electric vehicles (REEVs), and all-electric vehicles (EVs) including battery electric vehicles (BEVs) and fuel cell vehicles (FCVs) Describes the electrification technologies applied to nonpropulsion loads, such as power steering and air-conditioning systems Discusses hybrid battery/ultra-capacitor energy storage systems, as well as 48-V electrification and belt-driven starter generator systems Considers vehicle-to-grid (V2G) interface and electrical infrastructure issues, energy management, and optimization in advanced electric drive vehicles Contains numerous illustrations, practical examples, case studies, and challenging questions and problems throughout to ensure a solid understanding of key

concepts and applications Advanced Electric Drive Vehicles makes an ideal textbook for senior-level undergraduate or graduate engineering courses and a user-friendly reference for researchers, engineers, managers, and other professionals interested in transportation electrification.

John Wiley & Sons

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.