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Instrument and Automation Engineers' Handbook

Process Measurement and Analysis, Fifth Edition - Two Volume Set

CRC Press The Instrument and Automation Engineers' Handbook (IAEH) is the Number 1 process automation handbook in the world. The two volumes in this greatly expanded Fifth Edition deal with measurement devices and analyzers. Volume one, Measurement and Safety, covers safety sensors and the detectors of physical properties, while volume two, Analysis and Analysis, describes the measurement of such analytical properties as composition. Complete with 245 alphabetized chapters and a thorough index for quick access to specific information, the IAEH, Fifth Edition is a must-have reference for instrument and automation engineers working in the chemical, oil/gas, pharmaceutical, pollution, energy, plastics, paper, wastewater, food, etc. industries.

Analysis and Analyzers

Volume II

CRC Press The Instrument and Automation Engineers' Handbook (IAEH) is the #1 process automation handbook in the world. Volume two of the Fifth Edition, Analysis and Analyzers, describes the measurement of such analytical properties as composition. Analysis and Analyzers is an invaluable resource that describes the availability, features, capabilities, and selection of analyzers used for determining the quality and compositions of liquid, gas, and solid products in many processing industries. It is the first time that a separate volume is devoted to analyzers in the IAEH. This is because, by converting the handbook into an international one, the coverage of analyzers has almost doubled since the last edition. Analysis and Analyzers: Discusses the advantages and disadvantages of various process analyzer designs Offers application- and method-specific guidance for choosing the best analyzer Provides tables of analyzer capabilities and other practical information at a glance Contains detailed descriptions of domestic and overseas products, their features, capabilities, and suppliers, including suppliers' web addresses Complete with 82 alphabetized chapters and a thorough index for quick access to specific information, Analysis and Analyzers is a must-have reference for instrument and automation engineers working in the chemical, oil/gas, pharmaceutical, pollution, energy, plastics, paper, wastewater, food, etc. industries. About the eBook The most important new feature of the IAEH, Fifth Edition is its availability as an eBook. The eBook provides the same content as the print edition, with the addition of thousands of web addresses so that readers can reach suppliers or reference books and articles on the hundreds of topics covered in the handbook. This feature includes a complete bidders' list that allows readers to issue their specifications for competitive bids from any or all potential product suppliers.

Reaching Zero with Renewables

International Renewable Energy Agency (IRENA) Energy emissions from industry and transport could be cut to zero by 2060 with pro-active policies and investments. Renewables will be crucial.

Introduction to Environmental Forensics

Academic Press The third edition of Introduction to Environmental Forensics is a state-of-the-art reference for the practicing environmental forensics consultant, regulator, student, academic, and scientist, with topics including compound-specific isotope analysis (CSIA), advanced multivariate statistical techniques, surrogate approaches for contaminant source identification and age dating, dendroecology,

hydrofracking, releases from underground storage tanks and piping, and contaminant-transport modeling for forensic applications. Recognized international forensic scientists were selected to author chapters in their specific areas of expertise and case studies are included to illustrate the application of these methods in actual environmental forensic investigations. This edition provides updates on advances in various techniques and introduces several new topics. Provides a comprehensive review of all aspects of environmental forensics Coverage ranges from emerging statistical methods to state-of-the-art analytical techniques, such as gas chromatography-combustion-isotope ratio mass spectrometry and polytopic vector analysis Numerous examples and case studies are provided to illustrate the application of these forensic techniques in environmental investigations

Gas Turbine Combustion

Alternative Fuels and Emissions, Third Edition

CRC Press Reflecting the developments in gas turbine combustion technology that have occurred in the last decade, *Gas Turbine Combustion: Alternative Fuels and Emissions, Third Edition* provides an up-to-date design manual and research reference on the design, manufacture, and operation of gas turbine combustors in applications ranging from aeronautical to power generation. Essentially self-contained, the book only requires a moderate amount of prior knowledge of physics and chemistry. In response to the fluctuating cost and environmental effects of petroleum fuel, this third edition includes a new chapter on alternative fuels. This chapter presents the physical and chemical properties of conventional (petroleum-based) liquid and gaseous fuels for gas turbines; reviews the properties of alternative (synthetic) fuels and conventional-alternative fuel blends; and describes the influence of these different fuels and their blends on combustor performance, design, and emissions. It also discusses the special requirements of aircraft fuels and the problems encountered with fuels for industrial gas turbines. In the updated chapter on emissions, the authors highlight the quest for higher fuel efficiency and reducing carbon dioxide emissions as well as the regulations involved. Continuing to offer detailed coverage of multifuel capabilities, flame flashback, high off-design combustion efficiency, and liner failure studies, this best-selling book is the premier guide to gas turbine combustion technology. This edition retains the style that made its predecessors so popular while updating the material to reflect the technology of the twenty-first century.

Strategies for Sustainable

Architecture

Taylor & Francis Filling a gap in existing literature on sustainable design, this new guide introduces and illustrates sustainable design principles through detailed case studies of sustainable buildings in Europe, North America and Australia. The guide will provide the reader with a deeper understanding of the design issues involved in delivering sustainable buildings, and giving detailed description of the process of integrating principles into practice. Approximately one hundred case studies of sixty buildings, ranging from small dwellings to large commercial buildings, and drawn from a range of countries, demonstrate best current practice. The sections of the book are divided into design issues relating to sustainable development, including site and ecology, community and culture, health, materials, energy and water. With over 400 illustrations, this highly visual guide will be an invaluable reference to all those concerned with architecture and sustainability issues.

Nanoparticles and the Environment

de Gruyter This book covers the concepts of size-dependent properties, processes, behavior, and implications of phenomena associated with nanoparticles for materials science and earth and environmental science applications. The text is aimed largely at the geoscience community, but it will also be accessible to materials scientists and chemists interested in environmental problems.

Air Pollution

Health and Environmental Impacts

CRC Press Air pollution is recognized as one of the leading contributors to the global environmental burden of disease, even in countries with relatively low concentrations of air pollution. *Air Pollution: Health and Environmental Impacts* examines the effect of this complex problem on human health and the environment in different settings around the world. |

Life Cycle Design

A Manual for Small and Medium-Sized Enterprises

Springer Science & Business Media Small and medium-sized enterprises can serve as promising cradles for challenging ideas and pioneering initiatives. That is exactly what is required in order to make progress towards sustainable levels and patterns of production and consumption. Of all the continents of the world, Europe is most likely to lead the way towards a more sustainable relation with the environment.

Having been the cradle of the industrialized world as we know it today, Europe again will lead the way in the journey of discovery to sustainable industrial practice, that is, if suitable conditions exist, and engaged and motivated entrepreneurs take the challenge and the role of the pioneer. Essential to these conditions is a set of values regarding the availability and properties of resources, the functioning of products and the impact upon the environment, now and well into the future, in Europe as well as globally. Furthermore, imagination, information and encouragement will be essential. This manual provides ideas, tools, examples and guidance for small and medium-sized enterprises (SMEs) that wish to develop products with the environment and the future in mind. It addresses product development and design with consideration for the whole life cycle of the product. This cycle is a process ranging from the identification and formulation of a need at the early stage of product development to the disposal of the product, after repeated usage, at the end of its life. A particular focus has been given to principles and criteria in the design of complex products.

Gas Turbine Emissions

Cambridge University Press The development of clean, sustainable energy systems is one of the preeminent issues of our time. Most projections indicate that combustion-based energy conversion systems will continue to be the predominant approach for the majority of our energy usage, and gas turbines will continue to be important combustion-based energy conversion devices for many decades to come, used for aircraft propulsion, ground-based power generation, and mechanical-drive applications. This book compiles the key scientific and technological knowledge associated with gas turbine emissions into a single authoritative source. The book has three sections: the first section reviews major issues with gas turbine combustion, including design approaches and constraints, within the context of emissions. The second section addresses fundamental issues associated with pollutant formation, modeling, and prediction. The third section features case studies from manufacturers and technology developers, emphasizing the system-level and practical issues that must be addressed in developing different types of gas turbines that emit pollutants at acceptable levels.

Night Noise Guidelines for Europe

WHO Regional Office Europe The WHO Regional Office for Europe set up a working group of experts to provide scientific advice to the Member States for the development of future legislation and policy action in the area of assessment and control of night noise exposure. The working group reviewed available scientific evidence on the health effects of night noise, and derived health-based guideline values. In December 2006, the working group and stakeholders from industry, government and nongovernmental organizations reviewed and reached general agreement on the guideline values and key texts for the final document of the "Night noise guidelines for Europe". Considering the scientific evidence on the thresholds of night noise exposure indicated by "L_{night,outside}" [L suffix night,outside] as defined

in the Environmental Noise Directive (2002/49/EC), an L_{night, outside} of 40 dB should be the target of the night noise guideline (NNG) to protect the public, including the most vulnerable groups such as children, the chronically ill and the elderly. "L_{night, outside}" value of 55 dB is recommended as an interim target for the countries where the NNG cannot be achieved in the short term for various reasons, and where policy-makers choose to adopt a stepwise approach. These guidelines are applicable to the Member States of the European Region, and may be considered as an extension to, as well as an update of, the previous WHO "Guidelines for community noise" (1999). [Ed.]

Fundamentals of Aircraft and Rocket Propulsion

Springer This book provides a comprehensive basics-to-advanced course in an aero-thermal science vital to the design of engines for either type of craft. The text classifies engines powering aircraft and single/multi-stage rockets, and derives performance parameters for both from basic aerodynamics and thermodynamics laws. Each type of engine is analyzed for optimum performance goals, and mission-appropriate engines selection is explained. Fundamentals of Aircraft and Rocket Propulsion provides information about and analyses of: thermodynamic cycles of shaft engines (piston, turboprop, turboshaft and propfan); jet engines (pulsejet, pulse detonation engine, ramjet, scramjet, turbojet and turbofan); chemical and non-chemical rocket engines; conceptual design of modular rocket engines (combustor, nozzle and turbopumps); and conceptual design of different modules of aero-engines in their design and off-design state. Aimed at graduate and final-year undergraduate students, this textbook provides a thorough grounding in the history and classification of both aircraft and rocket engines, important design features of all the engines detailed, and particular consideration of special aircraft such as unmanned aerial and short/vertical takeoff and landing aircraft. End-of-chapter exercises make this a valuable student resource, and the provision of a downloadable solutions manual will be of further benefit for course instructors.

Green Aviation

Reduction of Environmental Impact Through Aircraft Technology and Alternative Fuels

CRC Press Aircraft emissions currently account for ~3.5% of all greenhouse gas emissions. The number of passenger miles has increased by 5% annually despite 9/11, two wars and gloomy economic conditions. Since aircraft have no viable

alternative to the internal combustion engine, improvements in aircraft efficiency and alternative fuel development become essential. This book comprehensively covers the relevant issues in green aviation. Environmental impacts, technology advances, public policy and economics are intricately linked to the pace of development that will be realized in the coming decades. Experts from NASA, industry and academia review current technology development in green aviation that will carry the industry through 2025 and beyond. This includes increased efficiency through better propulsion systems, reduced drag airframes, advanced materials and operational changes. Clean combustion and emission control of noise, exhaust gases and particulates are also addressed through combustor design and the use of alternative fuels. Economic imperatives from aircraft lifetime and maintenance logistics dictate the drive for "drop-in" fuels, blending jet-grade and biofuel. New certification standards for alternative fuels are outlined. Life Cycle Assessments are used to evaluate worldwide biofuel approaches, highlighting that there is no single rational approach for sustainable buildup. In fact, unless local conditions are considered, the use of biofuels can create a net increase in environmental impact as a result of biofuel manufacturing processes. Governmental experts evaluate current and future regulations and their impact on green aviation. Sustainable approaches to biofuel development are discussed for locations around the globe, including the US, EU, Brazil, China and India.

Turning the Right Corner Ensuring Development Through a Low-Carbon Transport Sector

World Bank Publications Transport provides access to public services for the poor, opens up trade opportunities, and maximizes the benefits of urbanization: the mobility of people and goods drives development. So how can we protect the role of transport in times of scarcer fuels, costly and harmful carbon emissions, and the rising threat of extreme weather events? This is the central question that this book seeks to answer. *Turning the Right Corner: Ensuring Development through a Low-Carbon Transport Sector* finds that adopting new vehicle technologies and alternative fuels will not be enough to curb greenhouse gas emissions from transport: new patterns of mobility will also be needed. In developing countries where past infrastructure investments have not yet locked in particular transport modes, there is an opportunity to contain emissions by harnessing low-emission modes of transport. The book argues that the transition to low-carbon mobility is not only urgently needed if economies are to avoid becoming locked into high-carbon growth, but is also affordable. It outlines how countries can combine policies to reduce greenhouse gas emissions with broader sector reforms that generate new fiscal resources to finance the transition in addition to carbon financing and international assistance. *Turning the Right Corner: Ensuring Development through a Low-Carbon Transport Sector* will be of interest to policy makers, academics, and development

practitioners with an interest in transport. It will help decisionmakers better understand how to contain the transport sector's contribution to climate change and protect transport infrastructure and services from severe weather events.

Reverse Engineering Technology of Reinvention

CRC Press The process of reverse engineering has proven infinitely useful for analyzing Original Equipment Manufacturer (OEM) components to duplicate or repair them, or simply improve on their design. A guidebook to the rapid-fire changes in this area, *Reverse Engineering: Technology of Reinvention* introduces the fundamental principles, advanced methodologies, and other essential aspects of reverse engineering. The book's primary objective is twofold: to advance the technology of reinvention through reverse engineering and to improve the competitiveness of commercial parts in the aftermarket. Assembling and synergizing material from several different fields, this book prepares readers with the skills, knowledge, and abilities required to successfully apply reverse engineering in diverse fields ranging from aerospace, automotive, and medical device industries to academic research, accident investigation, and legal and forensic analyses. With this mission of preparation in mind, the author offers real-world examples to: Enrich readers' understanding of reverse engineering processes, empowering them with alternative options regarding part production Explain the latest technologies, practices, specifications, and regulations in reverse engineering Enable readers to judge if a "duplicated or repaired" part will meet the design functionality of the OEM part This book sets itself apart by covering seven key subjects: geometric measurement, part evaluation, materials identification, manufacturing process verification, data analysis, system compatibility, and intelligent property protection. Helpful in making new, compatible products that are cheaper than others on the market, the author provides the tools to uncover or clarify features of commercial products that were either previously unknown, misunderstood, or not used in the most effective way.

Environmental Life Cycle Assessment of Goods and Services An Input-Output Approach

Routledge Environmental life cycle assessment is often thought of as cradle to grave and therefore as the most complete accounting of the environmental costs and benefits of a product or service. However, as anyone who has done an environmental life cycle assessment knows, existing tools have many problems: data is difficult to assemble and life cycle studies take months of effort. A truly comprehensive analysis

is prohibitive, so analysts are often forced to simply ignore many facets of life cycle impacts. But the focus on one aspect of a product or service can result in misleading indications if that aspect is benign while other aspects pollute or are otherwise unsustainable. This book summarizes the EIO-LCA method, explains its use in relation to other life cycle assessment models, and provides sample applications and extensions of the model into novel areas. A final chapter explains the free, easy-to-use software tool available on a companion website. (www.eiolca.net) The software tool provides a wealth of data, summarizing the current U.S. economy in 500 sectors with information on energy and materials use, pollution and greenhouse gas discharges, and other attributes like associated occupational deaths and injuries. The joint project of twelve faculty members and over 20 students working together over the past ten years at the Green Design Institute of Carnegie Mellon University, the EIO-LCA has been applied to a wide range of products and services. It will prove useful for research, industry, and in economics, engineering, or interdisciplinary classes in green design.

Air Pollution Control Engineering

Springer Science & Business Media A panel of respected air pollution control educators and practicing professionals critically survey the both principles and practices underlying control processes, and illustrate these with a host of detailed design examples for practicing engineers. The authors discuss the performance, potential, and limitations of the major control processes-including fabric filtration, cyclones, electrostatic precipitation, wet and dry scrubbing, and condensation-as a basis for intelligent planning of abatement systems,. Additional chapters critically examine flare processes, thermal oxidation, catalytic oxidation, gas-phase activated carbon adsorption, and gas-phase biofiltration. The contributors detail the Best Available Technologies (BAT) for air pollution control and provide cost data, examples, theoretical explanations, and engineering methods for the design, installation, and operation of air pollution process equipment. Methods of practical design calculation are illustrated by numerous numerical calculations.

Biochar for Environmental Management Science and Technology

Routledge Biochar is the carbon-rich product when biomass (such as wood, manure or crop residues) is heated in a closed container with little or no available air. It can be used to improve agriculture and the environment in several ways, and its stability in soil and superior nutrient-retention properties make it an ideal soil amendment to increase crop yields. In addition to this, biochar sequestration, in combination with sustainable biomass production, can be carbon-negative and therefore used to actively remove carbon dioxide from the atmosphere, with major implications for

mitigation of climate change. Biochar production can also be combined with bioenergy production through the use of the gases that are given off in the pyrolysis process. This book is the first to synthesize the expanding research literature on this topic. The book's interdisciplinary approach, which covers engineering, environmental sciences, agricultural sciences, economics and policy, is a vital tool at this stage of biochar technology development. This comprehensive overview of current knowledge will be of interest to advanced students, researchers and professionals in a wide range of disciplines.

Climate Change and Air Pollution The Impact on Human Health in Developed and Developing Countries

Springer This book discusses regional and international climate-change, air-pollution and human-health scenarios. The research, from both industrialized and developing countries, focuses on region-specific perspectives of climate change impacts on air pollution. After analyzing the variations of climate data over recent decades, the authors consider the different effects of climate change on air pollution and health. As stressed by the IPCC, "pollen, smoke and ozone levels are likely to increase in a warming world, affecting the health of residents of major cities. Rising temperatures will worsen air quality through a combination of more ozone in cities, bigger wild fires and worse pollen outbreaks," according to a major UN climate report. The report follows the World Health Organization in finding that air pollution is the world's greatest environmental health risk, killing 7 million people in 2014 (compared to 0.4 million deaths due to malaria). Deteriorating air quality will most affect the elderly, children, people with chronic ill-health and expectant mothers. Another report suggests that more than 5.5 million people die prematurely each year due to air pollution with over half of those deaths occurring in China and India. A study on the air pollution in the USA, suggests that more than half of US population lives in areas with potentially dangerous air pollution, and about six out of 10 of the top cities for air pollution in the USA are located in the state of California. In the face of future climate change, scientists have urged stronger emission controls to avoid worsening air pollution and the associated exacerbation of health problems, especially in more populated regions of the world. It is hoped that the implementation of the Paris Climate Agreement will help minimize air pollution. Additionally the authors consider the various measures that different countries and groups of countries, like the European Union, have adopted to mitigate the problems arising from climate change and to safeguard the health of population. The book examines the increasing incidence of diseases largely caused by climate change. The countries/regions covered in this study include the USA, Northern Europe

(U.K.), Southern Europe (Italy), Canada, Australia, East Asia, Russia, Hong Kong, Taiwan, Thailand, Malaysia, Indonesia, India, South Africa, Mexico, Brazil, Caribbean countries, and Argentina.

Environmental Life Cycle Assessment (Open Access)

CRC Press Environmental Life Cycle Assessment is a pivotal guide to identifying environmental problems and reducing related impacts for companies and organizations in need of life cycle assessment (LCA). LCA, a unique sustainability tool, provides a framework that addresses a growing demand for practical technological solutions. Detailing each phase of the LCA methodology, this textbook covers the historical development of LCA, presents the general principles and characteristics of LCA, and outlines the corresponding standards for good practice determined by the International Organization for Standardization. It also explains how to identify the critical aspects of an LCA, provides detailed examples of LCA analysis and applications, and includes illustrated problems and solutions with concrete examples from water management, electronics, packaging, automotive, and other industries. In addition, readers will learn how to: Use consistent criteria to realize and evaluate an LCA independently of individual interests Understand the LCA methodology and become familiar with existing databases and methods based on the latest results of international research Analyze and critique a completed LCA Apply LCA methodology to simple case studies Geared toward graduate and undergraduate students studying environmental science and industrial ecology, as well as practicing environmental engineers, and sustainability professionals who want to teach themselves LCA good practices, *Environmental Life Cycle Assessment* demonstrates how to conduct environmental assessments for products throughout their life cycles. It presents existing methods and recent developments in the growing field of LCA and systematically covers goal and system definition, life cycle inventory, life cycle impact assessment, and interpretation.

Air Quality Act of 1967

Hearings, Ninetieth Congress, First Session, on H. R. 9509, a Bill to Amend the Clean Air Act...S. 780,

an Act to Amend the Clean Air

Act...August 15, 16, 17, 18, 21, 22,
23, 24, 1967

Structural Design for Fire Safety

John Wiley & Sons Structural Design for Fire Safety, 2nd edition Andrew H. Buchanan, University of Canterbury, New Zealand Anthony K. Abu, University of Canterbury, New Zealand A practical and informative guide to structural fire engineering This book presents a comprehensive overview of structural fire engineering. An update on the first edition, the book describes new developments in the past ten years, including advanced calculation methods and computer programs. Further additions include: calculation methods for membrane action in floor slabs exposed to fires; a chapter on composite steel-concrete construction; and case studies of structural collapses. The book begins with an introduction to fire safety in buildings, from fire growth and development to the devastating effects of severe fires on large building structures. Methods of calculating fire severity and fire resistance are then described in detail, together with both simple and advanced methods for assessing and designing for structural fire safety in buildings constructed from structural steel, reinforced concrete, or structural timber. *Structural Design for Fire Safety, 2nd edition* bridges the information gap between fire safety engineers, structural engineers and building officials, and it will be useful for many others including architects, code writers, building designers, and firefighters. Key features: • Updated references to current research, as well as new end-of-chapter questions and worked examples. • Authors experienced in teaching, researching, and applying structural fire engineering in real buildings. • A focus on basic principles rather than specific building code requirements, for an international audience. An essential guide for structural engineers who wish to improve their understanding of buildings exposed to severe fires and an ideal textbook for introductory or advanced courses in structural fire engineering.

Combustion Engineering, Second Edition

CRC Press Combustion Engineering, Second Edition maintains the same goal as the original: to present the fundamentals of combustion science with application to today's energy challenges. Using combustion applications to reinforce the fundamentals of combustion science, this text provides a uniquely accessible introduction to combustion for undergraduate students, first-year graduate students, and professionals in the workplace. Combustion is a critical issue impacting energy

utilization, sustainability, and climate change. The challenge is to design safe and efficient combustion systems for many types of fuels in a way that protects the environment and enables sustainable lifestyles. Emphasizing the use of combustion fundamentals in the engineering and design of combustion systems, this text provides detailed coverage of gaseous, liquid and solid fuel combustion, including focused coverage of biomass combustion, which will be invaluable to new entrants to the field. Eight chapters address the fundamentals of combustion, including fuels, thermodynamics, chemical kinetics, flames, detonations, sprays, and solid fuel combustion mechanisms. Eight additional chapters apply these fundamentals to furnaces, spark ignition and diesel engines, gas turbines, and suspension burning, fixed bed combustion, and fluidized bed combustion of solid fuels. Presenting a renewed emphasis on fundamentals and updated applications to illustrate the latest trends relevant to combustion engineering, the authors provide a number of pedagogic features, including: Numerous tables with practical data and formulae that link combustion fundamentals to engineering practice Concise presentation of mathematical methods with qualitative descriptions of their use Coverage of alternative and renewable fuel topics throughout the text Extensive example problems, chapter-end problems, and references These features and the overall fundamentals-to-practice nature of this book make it an ideal resource for undergraduate, first level graduate, or professional training classes. Students and practitioners will find that it is an excellent introduction to meeting the crucial challenge of engineering sustainable combustion systems in a cost-effective manner. A solutions manual and additional teaching resources are available with qualifying course adoption.

Autonomous Driving

Technical, Legal and Social Aspects

Springer This book takes a look at fully automated, autonomous vehicles and discusses many open questions: How can autonomous vehicles be integrated into the current transportation system with diverse users and human drivers? Where do automated vehicles fall under current legal frameworks? What risks are associated with automation and how will society respond to these risks? How will the marketplace react to automated vehicles and what changes may be necessary for companies? Experts from Germany and the United States define key societal, engineering, and mobility issues related to the automation of vehicles. They discuss the decisions programmers of automated vehicles must make to enable vehicles to perceive their environment, interact with other road users, and choose actions that may have ethical consequences. The authors further identify expectations and concerns that will form the basis for individual and societal acceptance of autonomous driving. While the safety benefits of such vehicles are tremendous, the authors demonstrate that these benefits will only be achieved if vehicles have an appropriate safety concept at the heart of their design. Realizing the potential of automated vehicles to reorganize traffic and transform mobility of people and goods

requires similar care in the design of vehicles and networks. By covering all of these topics, the book aims to provide a current, comprehensive, and scientifically sound treatment of the emerging field of "autonomous driving".

Sustainable Fashion and Textiles

Design Journeys

Routledge Praise for the previous edition: "[A] fascinating book." John Thackara, *Doors of Perception* "Provides the foundations for a radical new perspective." *Ethical Pulse* "At last a book that dispels the idea that fashion is only interested in trend-driven fluff: not only does it have a brain, but it could be a sustainable one." Lucy Siegle, *Crafts Magazine* Fully revised and updated, the second edition of *Sustainable Fashion and Textiles: Design Journeys* continues to define the field of design in fashion and textiles. Arranged in two sections, the first four chapters represent key stages of the lifecycle: material cultivation/extraction, production, use and disposal. The remaining four chapters explore design approaches for altering the scale and nature of consumption, including service design, localism, speed and user involvement. While each chapter is complete in and of itself, their real value comes from what they represent together: innovative ways of thinking about textiles and garments based on sustainability values and an interconnected approach to design. Including a new preface, updated content and a new conclusion reflecting and critiquing developments in the field, as well as discussing future developments, the second edition promises to provide further impetus for future change, sealing *Sustainable Fashion and Textiles: Design Journeys* as the must-buy book for fashion and textiles professionals and students interested in sustainability.

The Geography of Transport Systems

Routledge Mobility is fundamental to economic and social activities such as commuting, manufacturing, or supplying energy. Each movement has an origin, a potential set of intermediate locations, a destination, and a nature which is linked with geographical attributes. Transport systems composed of infrastructures, modes and terminals are so embedded in the socio-economic life of individuals, institutions and corporations that they are often invisible to the consumer. This is paradoxical as the perceived invisibility of transportation is derived from its efficiency. Understanding how mobility is linked with geography is main the purpose of this book. The third edition of *The Geography of Transport Systems* has been revised and updated to provide an overview of the spatial aspects of transportation. This text provides greater discussion of security, energy, green logistics, as well as new and updated case studies, a revised content structure, and new figures. Each chapter covers a specific conceptual dimension including networks, modes, terminals, freight transportation, urban transportation and environmental impacts. A final chapter

contains core methodologies linked with transport geography such as accessibility, spatial interactions, graph theory and Geographic Information Systems for transportation (GIS-T). This book provides a comprehensive and accessible introduction to the field, with a broad overview of its concepts, methods, and areas of application. The accompanying website for this text contains a useful additional material, including digital maps, PowerPoint slides, databases, and links to further reading and websites. The website can be accessed at: <http://people.hofstra.edu/geotrans> This text is an essential resource for undergraduates studying transport geography, as well as those interest in economic and urban geography, transport planning and engineering.

Synthetics, Mineral Oils, and Bio-Based Lubricants

Chemistry and Technology

CRC Press As the field of tribology has evolved, the lubrication industry is also progressing at an extraordinary rate. Updating the author's bestselling publication, Synthetic Lubricants and High-Performance Functional Fluids, this book features the contributions of over 60 specialists, ten new chapters, and a new title to reflect the evolving nature of the

Climate Change Signals and Response

A Strategic Knowledge Compendium for India

Springer This book provides a synthesis of research findings, in terms of strategic knowledge outcomes regarding emergence of recent regional climate signals, implications for impacts assessment, and mitigation and adaptation response, relevant in the Indian context. The first part discusses evidence of climate change and its underlying scientific processes across India, chiefly focusing on impacts that are already visible and attributable to anthropogenic activities. The latter part deals with the responses to climate change, highlighting the mitigation and adaptation strategies in various sectors and communities. The book presents a concise interpretation, distilling practical recommendations and policy prescriptions at national and sub-national levels. It serves as a reference point for understanding scientific advances and persisting uncertainty, future vulnerability and response capacity of interlinked human and natural systems, pertaining to India. It is an

excellent resource for policy makers and industry watchers in addition to the research fraternity.

Carbon Inequality

The Role of the Richest in Climate Change

Routledge With a specific focus on the United States and the United Kingdom, Carbon Inequality studies the role of the richest people in contributing to climate change via their luxury consumption and their investments. In an innovative contribution, it attempts to quantify personal responsibility for shareholdings in large fossil fuel companies. This book explores the implications of the richest people's historic responsibility for global warming, the impacts of which affect them less than most others in global society. Kenner analyses how the richest people running large oil and gas companies have successfully used their political influence to lobby the US and UK government. This assessment of their growing political power is particularly pertinent at a time of increasing inequality and growing public awareness of the impact of climate change. The book also highlights the crucial role of the richest in blocking the low-carbon transition in the US and the UK, exploring how this could be countered to ensure fossil fuels are fully replaced by renewable energy. This book will be of great relevance to scholars and policy makers with an interest in inequality, climate change and sustainability transitions.

Energy and the Environment

Oxford University Press, USA In an age of mounting energy crises, James A. Fay and Dan S. Golomb's Energy and the Environment offers a timely treatment of a critical problem in urban-industrial societies: the worldwide growth of energy use and the destructive relationship between this energy use and environmental degradation. This comprehensive text provides the scientific and technological background for understanding how our ever-increasing use of energy threatens the natural environment at local, regional, and global scales and how this threat could be mitigated by more efficient use of conventional energy sources and their replacement by renewable energy sources. Designed for upper-level undergraduate and first-year graduate students, Energy and the Environment is essential reading for students and professionals in energy and environmental sciences and technology. Features · Describes energy technologies and their effectiveness in transforming fossil, nuclear, and renewable energy into useful mechanical or electrical power · Emphasizes the generation of electric power and the technological improvements that increase power generation efficiency and reduce air pollutant emissions from power plants · Examines the use of energy in the transportation sector and how vehicle design and engine efficiency improvements could reduce fuel use and pollutant emissions · Objectively surveys the field of renewable energy

technologies and the prospects of increasing the share of renewable energy among all energy sources · Analyzes the energy sources of toxic emissions to air, water, and land and their effects on environmental quality at local and regional scales · Examines global climate change, energy consumption's contribution to it, and the salient technologies being developed to mitigate this effect · Equips engineering majors, science majors, and professionals with the basic facts needed to develop solutions to these pressing environmental problems

Climate Change and Aviation

Issues, Challenges and Solutions

Routledge 'This is a timely, challenging and fascinating book on a topic of central importance to the success or otherwise of our climate change policies. It sets down a clear marker for what has to be done in the aviation sector.' Professor John Whitelegg, Stockholm Environment Institute, University of York, UK 'Climate Change and Aviation presents a clear picture of the transport sector's greatest challenge: how to reconcile aviation's immense popularity with its considerable environmental damage and its dependence on liquid hydrocarbon energy sources. This book avoids wishful thinking and takes the much harder, but more productive, path of considering difficult solutions that clash with short-term and short-sighted expectations about the unlimited growth potential for flying.' Professor Anthony Perl, Urban Studies Program, Simon Fraser University, Canada 'A convincing and timely collection that brings together an impressive range of expertise. The book integrates various perspectives into a powerful core argument - we must do something, and quickly, to tackle the impact of aviation on our environment. The authors recognise the political difficulties associated with promoting change but present constructive options for policy makers. Required reading, especially for transport ministers set on promoting the growth of air travel.' Professor Jon Shaw, Director of the Centre for Sustainable Transport, University of Plymouth, UK Trends such as the massive growth in availability of air travel and air freight are among those which have led to aviation becoming one of the fastest growing emitters of greenhouse gases. These trends have also caused a shift in expectations of how we do business, where we go on holiday, and what food and goods we can buy. For these reasons aviation is (and is set to stay) high up on global political, organizational and media agendas. This textbook is the first to attempt a comprehensive review of the topic, bringing together an international team of leading scientists. Starting with the science of the environmental issues, it moves on to cover drivers and trends of growth, socio-economics and politics, as well as mitigation options, the result being a broad yet detailed examination of the field. This is essential reading for undergraduate and postgraduate courses in transport, tourism, the environment, geography and beyond, while also being a valuable resource for professionals and policymakers seeking a clear understanding of this complex yet urgently pressing issue.

Urban Drainage

CRC Press Urban Drainage has been thoroughly revised and updated to reflect changes in the practice and priorities of urban drainage. New and expanded coverage includes: Sewer flooding The impact of climate change Flooding models The move towards sustainability Providing a descriptive overview of the issues involved as well as the engineering principles and analysis, it draws on real-world examples as well as models to support and demonstrate the key issues facing engineers dealing with drainage issues. It also deals with both the design of new drainage systems and the analysis and upgrading of existing infrastructure. This is a unique and essential textbook for students of water, environmental, and public health engineering as well as a valuable resource for practising engineers.

Modern Electric, Hybrid Electric, and Fuel Cell Vehicles

CRC Press "This book is an introduction to automotive technology, with specific reference to battery electric, hybrid electric, and fuel cell electric vehicles. It could serve electrical engineers who need to know more about automobiles or automotive engineers who need to know about electrical propulsion systems. For example, this reviewer, who is a specialist in electric machinery, could use this book to better understand the automobiles for which the reviewer is designing electric drive motors. An automotive engineer, on the other hand, might use it to better understand the nature of motors and electric storage systems for application in automobiles, trucks or motorcycles. The early chapters of the book are accessible to technically literate people who need to know something about cars. While the first chapter is historical in nature, the second chapter is a good introduction to automobiles, including dynamics of propulsion and braking. The third chapter discusses, in some detail, spark ignition and compression ignition (Diesel) engines. The fourth chapter discusses the nature of transmission systems." —James Kirtley, Massachusetts Institute of Technology, USA "The third edition covers extensive topics in modern electric, hybrid electric, and fuel cell vehicles, in which the profound knowledge, mathematical modeling, simulations, and control are clearly presented. Featured with design of various vehicle drivetrains, as well as a multi-objective optimization software, it is an estimable work to meet the needs of automotive industry." —Haiyan Henry Zhang, Purdue University, USA "The extensive combined experience of the authors have produced an extensive volume covering a broad range but detailed topics on the principles, design and architectures of Modern Electric, Hybrid Electric, and Fuel Cell Vehicles in a well-structured, clear and concise manner. The volume offers a complete overview of technologies, their selection, integration & control, as well as an interesting Technical Overview of the Toyota Prius. The technical chapters are complemented with example problems and user guides to assist the reader in practical calculations through the use of common scientific computing packages. It will be of interest mainly to research postgraduates

working in this field as well as established academic researchers, industrial R&D engineers and allied professionals.” —Christopher Donaghy-Sparg, Durham University, United Kingdom 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. All the chapters have been updated, and two new chapters on Mild Hybrids and Optimal Sizing and Dimensioning and Control are also included • Chapters updated throughout the text. • New homework problems, solutions, and examples. • Includes two new chapters. • Features accompanying MATLAB™ software.

Environmental Technology in the Oil Industry

Springer Science & Business Media This significantly updated second edition of a classic work on the subject identifies the issues and constraints for each stage in the production of petroleum products – what they are, who is imposing them and why, their technical and financial implications. It then looks in detail at the technological solutions which have been found or are being developed. It also places these developments in their legal and commercial context.

Understanding the Global Energy Crisis

Purdue University Press We are facing a global energy crisis caused by world population growth, an escalating increase in demand, and continued dependence on fossil-based fuels for generation. It is widely accepted that increases in greenhouse gas concentration levels, if not reversed, will result in major changes to world climate with consequential effects on our society and economy. This is just the kind of intractable problem that Purdue University's Global Policy Research Institute seeks to address in the Purdue Studies in Public Policy series by promoting the engagement between policy makers and experts in fields such as engineering and technology. Major steps forward in the development and use of technology are required. In order to achieve solutions of the required scale and magnitude within a limited timeline, it is essential that engineers be not only technologically-adept but also aware of the wider social and political issues that policy-makers face. Likewise, it is also imperative that policy makers liaise closely with the academic community in order to realize advances. This book is designed to bridge the gap between these two groups, with a particular emphasis on educating the socially-conscious engineers and technologists of the future. In this accessibly-written volume, central issues in

global energy are discussed through interdisciplinary dialogue between experts from both North America and Europe. The first section provides an overview of the nature of the global energy crisis approached from historical, political, and sociocultural perspectives. In the second section, expert contributors outline the technology and policy issues facing the development of major conventional and renewable energy sources. The third and final section explores policy and technology challenges and opportunities in the distribution and consumption of energy, in sectors such as transportation and the built environment. The book's epilogue suggests some future scenarios in energy distribution and use.

Alternative Fuels for Maritime Use

Washington, D.C. : National Academy of Sciences, 1980.

Mercury as a Global Pollutant

Proceedings of the Third International Conference held in Whistler, British Columbia, July 10-14, 1994

Springer Science & Business Media ACKNOWLEDGEMENTS xiv PART I MERCURY AND HUMAN HEALTH B. WHEATLEY and S. PARADIS I Exposure of Canadian Aboriginal Peoples to Methylmercury 3-11 M. GIRARD and C. DUMONT I Exposure of James Bay Cree to Methylmercury during Pregnancy for the Years 1983-91 13-19 M. RICHARDSON, M. MITCHELL, S. COAD and R. RAPHAEL I Exposure to Mercury in Canada: A Multimedia Analysis 21-30 M. RICHARDSON, M. EGYED and D. J. CURRIE I Human Exposure to Mercury may Decrease as Acidic Deposition Increases 31-39 L. E. FLEMING, S. WATKINS, R. KADERMAN, B. LEVIN, D. R. AVYAR, M. BIZZIO, D. STEPHENS and J. A. BEAN I Mercury Exposure in Humans through Food Consumption from the Everglades of Florida 41-48 J. M. GEARHART, H. J. CLEWELL III, K. S. CRUMP, A. M. SHIPP and A. SILVERS I Pharmacokinetic Dose Estimates of Mercury in Children and Dose-Response Curves of Performance Tests in a Large Epidemiological Study 49-58 I. SKARE I Mass Balance and Systemic Uptake of Mercury Released from Dental Amalgam Fillings 59-67 J. DELLINGER, N. KMIECIK, S. GERSTENBERGER and H. NGU I Mercury Contamination of Fish in the Ojibwa Diet: I. Walleye Fillets and Skin-On versus Skin-Off Sampling 69-76 J. DELLINGER, L. MALEK and M. BEATTIE I Mercury Contamination of Fish in the Ojibwa Diet: II. Sensory Evoked Responses in Rats Fed Walleye 77-83 H. AKAGI, O. MALM, F. J. P. BRANCHES, Y. KINJO, Y. KASHIMA, J. R. D. GUIMARAES, R. B. OLIVEIRA, K. HARAGUCHI, W. C. PFEIFFER, Y.

Climate Change and Water

The Technical Paper addresses the issue of freshwater. Sealevel rise is dealt with only insofar as it can lead to impacts on freshwater in coastal areas and beyond. Climate, freshwater, biophysical and socio-economic systems are interconnected in complex ways. Hence, a change in any one of these can induce a change in any other. Freshwater-related issues are critical in determining key regional and sectoral vulnerabilities. Therefore, the relationship between climate change and freshwater resources is of primary concern to human society and also has implications for all living species. -- page vii.

Principles of Environmental Economics

Routledge Can economic growth be environmentally sustainable? This crucial question goes right to the heart of environmental economics and is a matter of increasing concern globally. The first edition of this popular title was the first introductory textbook in environmental economics that truly attempted to integrate economics with not only the environment but also ecology. This new version builds and improves upon the popular formula with new material, new examples, new pedagogical features and new questions for discussion. With international case-studies and examples, this book will prove an excellent choice for introducing both students and other academics to the world of environmental economics.

Fossil Fuel Combustion

A Source Book

Wiley-Interscience This comprehensive handbook presents recent research results on combustion theory. Contributors from both industry and academia present the state of knowledge on flame properties. Includes a review of combustion chemistry and measurement techniques; discusses heterogeneous and homogeneous combustion.