

2008 Ashrae Environmental Guidelines For Datacom Equipment

This book provides basic and fundamental knowledge of various aspects of energy-aware computing at the component, software, and system level. It provides a broad range of topics dealing with power-, energy-, and temperature-related research areas for individuals from industry and academia.

This book is about how to reduce carbon emissions and achieve other environmental benefits by using computers and telecommunications technology. It is designed to be used within an online course for professionals, using mentored and collaborative learning techniques.

"Provides a summary of what is understood within ASHRAE about dampness-related health risks in buildings along with suggestions for HVAC system designers that can help avoid such risks as well as a simple and easily recognizable description of dampness that is sufficient to increase the probability of negative health effects and practical quantitative tools and techniques that can alert managers to the risk of a building or an indoor space becoming damp to an extent that affects health in the future"--

Cloud Control Systems: Analysis, Design and Estimation introduces readers to the basic definitions and various new developments in the growing field of cloud control systems (CCS). The book begins with an overview of cloud control systems (CCS) fundamentals, which will help beginners to better understand the depth and scope of the field. It then discusses current techniques and developments in CCS, including event-triggered cloud control, predictive cloud control, fault-tolerant and diagnosis cloud control, cloud estimation methods, and secure control/estimation under cyberattacks. This book benefits all researchers including professors, postgraduate students and engineers who are interested in modern control theory, robust control, multi-agents control. Offers insights into the innovative application of cloud computing principles to control and automation systems Provides an overview of cloud control systems (CCS) fundamentals and introduces current techniques and developments in CCS Investigates distributed denial of service attacks, false data injection attacks, resilient design under cyberattacks, and safety assurance under stealthy cyberattacks

Analysis, Design and Estimation

Contemporary High Performance Computing

Advances and Emerging Research

ICT SUSTAINABILITY

Infrastructure Building Blocks and Concepts

The Green Business Guide

Implementing energy-efficient CPUs and peripherals as well as reducing resource consumption have become emerging trends in computing. As computers increase in speed and power, their energy issues become more and more prevalent. The need to develop and promote environmentally friendly computer technologies and systems has also come to the forefront

Data Center HandbookJohn Wiley & Sons

"Provides in-depth design recommendations and proven, cost effective, and reliable solutions for health care HVAC design that provide low maintenance cost and high reliability based on best practices from consulting and hospital engineers with decades of experience in the design, construction, and operation of health care facilities"--

A comprehensive resource that builds a bridge between engineering disciplines and the building sciences and trades, Forensic Engineering: Damage Assessments for Residential and Commercial Structures provides an extensive look into the world of forensic engineering. With a focus on investigations associated with insurance industry claims, the book describes methodologies for performing insurance-related investigations including the causation and origin of damage to residential and commercial structures and/or unhealthy interior environments and adverse effects on the occupants of these structures. Edited by an industry expert with more than 30 years of experience, and authors with more than 100 years of experience in the field, the book takes the technical aspects of engineering and scientific principles and applies them to real-world issues in a non-technical manner. It provides readers with the experiences, investigation methodologies, and investigation protocols used in, and derived from completing thousands of forensic engineering investigations. It begins with providing a baseline methodology for completing forensic investigations and closes with advice on testifying as an expert witness. Much of what must be known in this field is not learned in school, but is based upon experience since recognizing the cause of a building system failure requires a blending of skills from the white collar and blue collar worlds. Such knowledge can be vital since failures (e.g., water entry) often result from construction activities completed out of sequence.. This book details proven methodologies based on over 7,000 field investigations, methodologies which can be followed by both professionals and laymen alike.

Energy Efficient Thermal Management of Data Centers

Cloud Control Systems

The Road to a Modern IT Factory

It Infrastructure Architecture

Damp Buildings, Human Health, and HVAC Design

Case Studies

Present design strategies, operational approaches, and technologies to help data centers improve energy efficiency and become eco-friendly.

Please click here for information on Set 1: Thermal Packaging Techniques Thermal and mechanical packaging -- the enabling technologies for the physical implementation of electronic systems -- are responsible for much of the progress in miniaturization, reliability, and functional density achieved by electronic, microelectronic, and nanoelectronic products during the past 50 years. The inherent inefficiency of electronic devices and their sensitivity to heat have placed thermal packaging on the critical path of nearly every product development effort in traditional, as well as emerging, electronic product categories.

Successful thermal packaging is the key differentiator in electronic products, as diverse as supercomputers and cell phones, and continues to be of pivotal importance in the refinement of traditional products and in the development of products for new applications. The Encyclopedia of Thermal Packaging, compiled in four multi-volume sets (Set 1: Thermal Packaging Techniques, Set 2: Thermal Packaging Tools, Set 3: Thermal Packaging Applications, and Set 4: Thermal Packaging Configurations) will provide a comprehensive, one-stop treatment of the techniques, tools, applications, and configurations of electronic thermal packaging.

Each of the author-written sets presents the accumulated wisdom and shared perspectives of a few luminaries in the thermal management of electronics. Set 2: Thermal Packaging Tools The second set in the encyclopedia, Thermal Packaging Tools, includes volumes dedicated to thermal design of data centers, techniques and models for the design and optimization of heat sinks, the development and use of reduced-order "compact" thermal models of electronic components, a database of critical material thermal properties, and a comprehensive exploration of thermally-informed electronic design. The numerical and analytical techniques described in these volumes are among the primary tools used by thermal packaging practitioners and researchers to accelerate product and system development and achieve "correct by design" thermal packaging solutions. The four sets in the Encyclopedia of Thermal Packaging will provide the novice and student with a complete reference for a quick ascent on the thermal packaging "learning curve," the practitioner with a validated set of techniques and tools to face every challenge, and researchers with a clear definition of the state-of-the-art and emerging needs to guide their future efforts. This encyclopedia will, thus, be of great interest to packaging engineers, electronic product development engineers, and product managers, as well as to researchers in thermal management of electronic and photonic components and systems, and most beneficial to undergraduate and graduate students studying mechanical, electrical, and electronic engineering. Foreword Foreword (English) (42 KB) Foreword (Japanese) (342 KB) Please click here for information on Set 1: Thermal Packaging Techniques Thermal and mechanical packaging -- the enabling technologies for the physical implementation of electronic systems -- are responsible for much of the progress in miniaturization, reliability, and functional density achieved by electronic, microelectronic, and nanoelectronic products during the past 50 years. The inherent inefficiency of electronic devices and their sensitivity to heat have placed thermal packaging on the critical path of nearly e

Thermofluid Modeling for Sustainable Energy Applications provides a collection of the most recent, cutting-edge developments in the application of fluid mechanics modeling to energy systems and energy efficient technology. Each chapter introduces relevant theories alongside detailed, real-life case studies that demonstrate the value of thermofluid modeling and simulation as an integral part of the engineering process. Research problems and modeling solutions across a range of energy efficiency scenarios are presented by experts, helping users build a sustainable engineering knowledge base. The text offers novel examples of the use of computation fluid dynamics in relation to hot topics, including passive air cooling and thermal storage. It is a valuable resource for academics, engineers, and students undertaking research in thermal engineering. Includes contributions from experts in energy efficiency modeling across a range of engineering fields Places thermofluid modeling and simulation at the center of engineering design and development, with theory supported by detailed, real-life case studies Features hot topics in energy and sustainability engineering, including thermal storage and passive air cooling Provides a valuable resource for academics, engineers, and students undertaking research in thermal engineering

Energy Efficient Thermal Management of Data Centers examines energy flow in today's data centers. Particular focus is given to the state-of-the-art thermal management and thermal design approaches now being implemented across the multiple length scales involved. The impact of future trends in information technology hardware, and emerging software paradigms such as cloud computing and virtualization, on thermal management are also addressed. The book explores computational and experimental characterization approaches for determining temperature and air flow patterns within data centers. Thermodynamic analyses using the second law to improve energy efficiency are introduced and used in proposing improvements in cooling methodologies. Reduced-order modeling and robust multi-objective design of next generation data centers are discussed.

Evaluation and Decision Models with Multiple Criteria

Thermofluid Modeling for Energy Efficiency Applications

Green IT For Dummies

A Model for Sustainable Design Education

From Petascale toward Exascale, Volume Two

Forensic Engineering

This book provides a collection of recent research works, helping contribute to the systematization and dissemination of the latest findings on building pathologies (structural and hygrothermal), salt attack and corrosion, durability and service-life prediction. It reflects a number of recent advances concerning the above-mentioned topics, particularly in concrete structures. Intended as an overview of the current state of knowledge, the book will benefit scientists, students, practitioners, lecturers and other interested parties. At the same time, the topics covered are relevant to a variety of scientific and engineering disciplines, including civil, materials and mechanical engineering.

This book is highly suitable for advanced courses as it introduces state-of-the-art information and the latest research results on diverse problems in the environmental wind engineering field. The topics include indoor natural ventilation, pedestrian wind environment, pollutant dispersion, urban heat island phenomena, urban ventilation, indoor/outdoor thermal comfort, and experimental/numerical techniques to analyze those issues. Winds have a great influence on the outdoor environment, especially in urban areas. Problems that they cause can be attributed to either strong wind or weak wind issues. Strong winds around high-rise buildings can bring about unpleasant, and in some cases dangerous, situations for people in the outdoor environment. On the other hand, weak wind conditions can also cause problems such as air pollution and heat island phenomena in urban areas. Winds enhance urban ventilation and reduce those problems. They also enhance natural ventilation in buildings, which can reduce the energy consumption of mechanical ventilation fans and air conditioners for cooling. Moderate winds improve human thermal comfort in both indoor and outdoor environments in summer. Environmental wind engineering associated with wind tunnel experiments and numerical analysis can contribute to solutions to these issues.

Introductory technical guidance for mechanical and electrical engineers and construction managers interested in improved energy efficiency for electronic data centers. Here is what is discussed: 1. INTRODUCTION 2. INFORMATION TECHNOLOGY (IT) SYSTEMS 3. ENVIRONMENTAL CONDITIONS 4. AIR MANAGEMENT 5. COOLING SYSTEMS 6. ELECTRICAL SYSTEMS 7. OTHER OPPORTUNITIES FOR ENERGY-EFFICIENT DESIGN 8. DATA CENTER METRICS AND BENCHMARKING.

"Provides information on liquid cooling for datacom equipment centers. Concerned with energy efficiency"--

Health, Safety, and Environmental Considerations

Data Center Handbook

Grow a Greener Data Center

Liquid Cooling Guidelines for Datacom Equipment Centers

The Official (ISC)2 Guide to the CCSP CBK

Vision 2020: Looking Back 10 Years and Forging New Frontiers

ICDL conferences are recognized on of the most important platform in the world where noted expert share their experiences. Many DL experts have contributed thought provoking papers in ICDL 2013. These important papers are reviewed and conceptualized into ICDL on different areas of DL proceedings. The Proceedings have two volumes and has over 1100 pages.

The first edition of Handbook of Human Factors and Ergonomics in Health Care and Patient Safety took the medical and ergonomics communities by storm with in-depth coverage of human factors and ergonomics research, concepts, theories, models, methods, and interventions and how they can be applied in health care. Other books focus on particular human factors and ergonomics issues such as human error or design of medical devices or a specific application such as emergency medicine. This book draws on both areas to provide a compendium of human factors and ergonomics issues relevant to health care and patient safety. The second edition takes a more practical approach with coverage of methods, interventions, and applications and a greater range of domains such as medication safety, surgery, anesthesia, and infection prevention. New topics include: work schedules error recovery telemedicine workflow analysis simulation health information technology development and design patient safety management Reflecting developments and advances in the five years since the first edition, the book explores medical technology and telemedicine and puts a special emphasis on the contributions of human factors and ergonomics to the improvement of patient safety and quality of care. In order to take patient safety to the next level, collaboration between human factors professionals and health care providers must occur. This book brings both groups closer to achieving that goal.

Principles for Evaluating Building Materials in Sustainable Construction: Healthy and Sustainable Materials for the Built Environment provides a comprehensive overview of the issues associated with the selection of materials for sustainable construction, proposing a holistic and integrated approach. The book evaluates the issues involved in choosing materials from an ecosystem services perspective, from the design stage to the impact of materials on the health of building users. The three main sections of the book discuss building materials in relation to ecosystem services, the implications of materials choice at the design stage, and the impact of materials on building users and their health. The final section focuses on specific case studies that illustrate the richness of solutions that existed before the rise of contemporary construction and that are consistent with a sustainable approach to creating built environments. These are followed by modern examples which apply some, if not all, of the principles discussed in the first three sections of the book.

Provides a holistic and integrated approach to the issues associated with the selection of materials for sustainable construction Provides a thorough understanding of ecosystem services based on ecology research for built environment design Provides an original review of the impact of materials on human health Provides case studies to illustrate the points above

In 2007, scientists estimated the direct cost of diseases associated with mould and dampness on the US population to be in the range of 4 billion dollars, and the indirect costs of lost work and school days are gauged even higher. The US Centers for Disease Control recently concluded that elimination of moisture and mouldy materials in the home definitively results in improved health. Unfortunately, problems of accurate assessment and precise identification plague the full understanding of the effects of mould on human health.

Addressing exposure assessment and identification, Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control, Second Edition discusses the methodology for conducting investigations on indoor environments, including details on key fungi and actinobacteria, and reflects advances in predicting their occurrence in buildings in various parts of the world. Beginning with a review of types of microorganisms in outdoor and indoor air, their growth and control in home and work environments, and their role in respiratory disease, this second edition presents new studies on pollen and its allergenic effects, the mechanistic basis for the effects of toxins and inflammatory agents on lung biology, and the use of molecular methods for determining microbial contaminants. On the practical side, this edition examines remediation, control, and quality assurance; occupational exposures in a wide range of environments; and infectious fungi and bacterial endotoxins in the built environment. Bringing together the state-of-the-science in this health-critical field, this accurate and timely book offers researchers, public health officials, and industrial hygienists crucial information on specific microorganisms in the built environment, along with current measurement and assessment solutions to clean up indoor air and keep residents and workers healthy in the future.

An Introduction to Energy Efficiency for Buildings
An Introduction to Energy Efficiency for Data Centers
Diversity, Health Impacts, Investigation and Control, Second Edition
Cooling of Microelectronic and Nanoelectronic Equipment
Toxicological Evaluation of Electronic Nicotine Delivery Products
Damage Assessments for Residential and Commercial Structures

To celebrate Professor Avi Bar-Cohen's 65th birthday, this unique volume is a collection of recent advances and emerging research from various luminaries and experts in the field. Cutting-edge technologies and research related to thermal management and thermal packaging of micro- and nanoelectronics are covered, including enhanced heat transfer, heat sinks, liquid cooling, phase change materials, synthetic jets, computational heat transfer, electronics reliability, 3D packaging, thermoelectrics, data centers, and solid state lighting. This book can be used by researchers and practitioners of thermal engineering to gain insight into next generation thermal packaging solutions. It is an excellent reference text for graduate-level courses in heat transfer and electronics packaging. Contents:A Review of Cooling Road Maps for 3D Chip Packages (Dereje Agonafer)Thermal Performance Mapping of Direct Liquid Cooled 3D Chip Stacks (Karl J L Geisler and Avram Bar-Cohen)Dynamic Thermal Management Considering Accurate Temperature-Leakage Interdependency (Bing Shi and Ankur Srivastava)Energy Reduction and Performance Maximization Through Improved Cooling (David Copeland)Optimal Choice of Heat Sinks from an Industrial Point of View (Clemens J M Lasance)Synthetic Jets for Heat Transfer Augmentation in Microelectronics Systems (Mehmet Arik and Enes Tamdogan)Recent Advance in Thermoelectric Devices for Electronics Cooling (Peng Wang)Energy Efficient Solid-State Cooling for Hot Spot Removal (Kazuaki Yazawa, Andrei Fedorov, Yogendra Joshi and Ali Shakouri)An Overview of the Use of Phase Change Materials for the Thermal Management of Transient Portable Electronics: Benefits and Challenges (Amy S Fleischer)Estimation of Cooling Performance of Phase Change Material (PCM) Module (Masaru Ishizuka and Tomoyuki Hatakeyama)Optimization Under Uncertainty for Electronics Cooling Design (Karthik K Bodla, Jayathi Y Murthy and Suresh V Garimella)Hydrophilic CNT-Sintered Copper Composite Wick for Enhanced Cooling (Glen A Powell, Anuradha Bulusu, Justin A Weibel, Sungwon S Kim, Suresh V Garimella and Timothy S Fisher)A Cabinet Level Thermal Test Vehicle to Evaluate Hybrid Double-Sided Cooling Schemes (Qihong Nie and Yogendra Joshi)Energy Efficiency and Reliability Risk Mitigation of Data Centers Through Prognostics and Health Management (Jun Dai, Michael Ohadi and Michael Pecht)Damage Pre-Cursors Based Assessment of Accrued Thermomechanical Damage and Remaining Useful Life in Field Deployed Electronics (Pradeep Lall, Mahendra Harsha, Kai Goebel and Jim Jones)Towards Embedded Cooling – Gen 3 Thermal Packaging Technology (Avram Bar-Cohen) Readership: Researchers, practitioners, and postgraduates in mechanical engineering, nanoelectronics, computer engineering, and electrical & electronic engineering. Keywords:Electronics Cooling;Electronics Packaging;Thermal Management;Thermal Sciences;Electronics Reliability;Thermoelectrics;Computational Heat Transfer;Liquid Cooling

Provides the fundamentals, technologies, and best practices in designing, constructing and managing mission critical, energy efficient data centers Organizations in need of high-speed connectivity and nonstop systems operations depend upon data centers for a range of deployment solutions. A data center is a facility used to house computer systems and associated components, such as telecommunications and storage systems. It generally includes multiple power sources, redundant data communications connections, environmental controls (e.g., air conditioning, fire suppression) and security devices. With contributions from an international list of experts, The Data Center Handbook instructs readers to: Prepare strategic plan that includes location plan, site selection, roadmap and capacity planning Design and build "green" data centers, with mission critical and energy-efficient infrastructure Apply best practices to reduce energy consumption and carbon emissions Apply IT technologies such as cloud and virtualization Manage data centers in order to sustain operations with minimum costs Prepare and practice disaster reovery and business continuity plan The book imparts essential knowledge needed to implement data center design and construction, apply IT technologies, and continually improve data center operations. This book describes the use of free air cooling to improve the efficiency of, and cooling of, equipment for use in telecom infrastructures. Discussed at length is the cooling of communication installation rooms such as data centers or base stations, and this is intended as a valuable tool for the people designing and manufacturing key parts of communication networks. This book provides an introduction to current cooling methods used for energy reduction, and also compares present cooling methods in use in the field. The qualification methods and standard reliability assessments are reviewed, and their inability to assess the risks of free air cooling is discussed. The method of identifying the risks associated with free air cooling on equipment performance and reliability is introduced. A novel method of assessment for free air cooling is also proposed that utilizes prognostics and health management (PHM). This book also: Describes how the implementation of free air cooling can save energy for cooling within the telecommunications infrastructure. Analyzes the potential risks and failures of mechanisms possible in the implementation of free air cooling, which benefits manufacturers and equipment designers. Presents prognostics-based assessments to identify and mitigate the risks of telecommunications equipment under free air cooling conditions, which can provide the early warning of equipment failures at operation stage without disturbing the data centers' service. Optimum Cooling for Data Centers is an ideal book for researchers and engineers interested in designing and manufacturing equipment for use in telecom infrastructures.

Globally recognized and backed by the Cloud Security Alliance (CSA) and the (ISC)2 the CCSP credential is the ideal way to match marketability and credibility to your cloud security skill set. The Official (ISC)2 Guide to the CCSPSM CBK Second Edition is your ticket for expert insight through the 6 CCSP domains. You will find step-by-step guidance through real-life scenarios, illustrated examples, tables, best practices, and more. This Second Edition features clearer diagrams as well as refined explanations based on extensive expert feedback. Sample questions help you reinforce what you have learned and prepare smarter. Numerous illustrated examples and tables are included to demonstrate concepts, frameworks and real-life scenarios. The book offers step-by-step guidance through each of CCSP's domains, including best practices and techniques used by the world's most experienced practitioners. Developed by (ISC)2, endorsed by the Cloud Security Alliance® (CSA) and compiled and reviewed by cloud security experts across the world, this book brings together a global, thorough perspective. The Official (ISC)2 Guide to the CCSP CBK should be utilized as your fundamental study tool in preparation for the CCSP exam and provides a comprehensive reference that will serve you for years to come.

Guidelines for Laboratory Design

A One Stop Resource for Businesses of All Shapes and Sizes to Implement Eco-friendly Policies, Programs, and Practices

Applications, Benefits, Savings

Optimum Cooling of Data Centers

Microorganisms in Home and Indoor Work Environments

Application of Risk Assessment and Mitigation Techniques

Facility performance evaluations inform the long-term life of a building and do not end with design or construction. To this aim, Patricia Andrasik created LEED Lab, in collaboration with the US Green Building Council, an increasingly popular international interdisciplinary collegiate laboratory course, which utilizes campus buildings as demonstration sites to facilitate the green assessment of existing buildings. LEED Lab: A Model for Sustainable Design Education uses the LEED O+M building rating system to measure and achieve performance-driven campus facilities in which the readers work and operate. The book explains in simple terms the theory, tasks, tools and techniques necessary for credit implementation and achievement, and includes case studies and exercises for practical application in each chapter. Readers will learn the conceptual scientific framework used to understand existing operational performance and how to quantify sustainable synergies, create green campus policies with administrators, and understand systems such as energy and water in a research-based application. The entire manual is accompanied by a vast online ' Teaching Toolkit ' to provide helpful educational resources such as syllabi, lectures, examinations, assignments, Individual Student Progress Presentation (ISSP) templates, web resources, and much more. An excellent guide for undergraduate or graduate students enrolled in LEED Lab or a similar campus building assessment course, as well as construction or architectural professionals and facility managers, this manual navigates the complexities of using a green building diagnostic tool such as LEED O+M towards greater environmental literacy.

This book explains the concepts, history, and implementation of IT infrastructures. Although many of books can be found on each individual infrastructure building block, this is the first book to describe all of them: datacenters, servers, networks, storage, operating systems, and end user devices. The building blocks described in this book provide functionality, but they also provide the non-functional attributes performance, availability, and security. These attributes are explained on a conceptual level in separate chapters, and specific in the chapters about each individual building block. Whether you need an introduction to infrastructure technologies, a refresher course, or a study guide for a computer science class, you will find that the presented building blocks and concepts provide a solid foundation for understanding the complexity of today's IT infrastructures. This book can be used as part of IT architecture courses based on the IS 2010.4 curriculum.

ICT Sustainability is about how to assess, and reduce, the carbon footprint and materials used with computers and telecommunications. These are the notes for an award winning on-line graduate course on strategies for reducing the environmental impact of computers and how to use the Internet to make business more energy efficient. These notes have been used for courses by the Australian Computer Society, Australian National University and Athabasca University (Canada). The book includes an extensive bibliography. Free open access course-ware is available on-line to accompany this text.

"Focuses on Environmental considerations in addition to health and safety, emphasizing environmental issues in design as well as green lab design. Contains a new section on Sustainable Design. Includes new chapters on Material Sciences and Engineering and Nanotechnology Provides updated information in all sections, especially the chapters on Animal Research and HVAC "--

Advanced Environmental Wind Engineering

Guide to the LEED Green Associate Exam

Industrialization – Automation – Optimization

LEED Lab

International Conference on Digital Libraries (ICDL) 2013

Building Pathology, Durability and Service Life

Introductory technical guidance for professional engineers and others interested in energy efficient design of buildings. Here is what is discussed: 1. HVAC SYSTEM UPGRADES 2. HVAC CONTROLS 3. LIGHTING UPGRADES 4. AIR DISTRIBUTION UPGRADES 5. ENERGY EFFICIENCY FOR DATA CENTERS 6. SOLAR COLLECTORS 7. PASSIVE SOLAR HEATING 8. SOLAR WATER HEATING FUNDAMENTALS 9. SOLAR COOLING SYSTEMS

Providing detailed analysis of the thermal comfort assessment of clothing as the basis for developing standards, this book discusses the thermal protective role of clothing as a way of modelling heat transfer from the body, general thermal regulation of humans, and the importance of globally accepted test methods and standards to improve quality. New materials and discoveries in the study of thermal comfort necessitate the need for standard improvements and update. The development of international standards and the unification of testing methods is of crucial significance to ensure cost reduction and health protection. The book promotes instruments, methods, implementation of unified specifications, and the definition of standards so that a clear quality management system can be established, for both production systems and testing methods. It discusses standards in ergonomics of the thermal environment, clothing thermal characteristics, and subjective assessment of thermal comfort, which allows for systematic control of the measuring methods and the services and final products that are distributed on the global market. This book is aimed at industry professionals, researchers, and advanced students working in textile and clothing engineering, comfort testing, and ergonomics.

Toxicological Evaluation of Electronic Nicotine Delivery Products (ENDP) discusses the scientific basis for the toxicological assessment and evaluation of ENDPs. The book covers aerosol chemistry, in vitro and in vivo studies as well as clinical studies. It provides the basis for the evaluation of short and long term-effects, along with relative risks. It also examines the potential role of ENDPs in tobacco harm reduction and how they may reduce the risk of disease in smokers who switch to them. This book is a comprehensive resource for toxicologists, health practitioners and public health professionals who want the scientific information necessary to assess the relative risk of ENDPs when compared with cigarette smoking and cessation. Delivers a comprehensive overview of current state of science Offers an integrated analysis of e-cigarettes and heated tobacco products Provides guidance for methodologies

IT is currently going through one of its most critical phases of transformation. IT vendors and IT service organizations are revolutionizing their production and service processes, adopting industrial practices. It is only through the consistent transformation into factory-like structures that quality, effectiveness and efficiency can be increased. By integrating professional concepts and methods taken from the context of industrial production, it is possible to meet functional and qualitative requirements from the departments and therefore from the end user. On top of that this new paradigm enables the implementation of optimal processes in the organization. An interdisciplinary team of authors addresses the current challenges for global IT services organizations and describes the process of IT industrialization. The transformation of the IT industry towards the model of an IT factory is the core theme of this book, which takes the latest findings from applied research, consulting and IT business practices and combines them into a consistent and innovative approach to IT services.

Handbook of Human Factors and Ergonomics in Health Care and Patient Safety, Second Edition

Standard Methods for Thermal Comfort Assessment of Clothing

Recovery Act: Federspiel Controls (now Vigilent) and State of California Department of General Services Data Center Energy Efficient Cooling Control Demonstration

Handbook of Energy-Aware and Green Computing, Volume 2

Achieving Instant Energy Savings with Vigilent

This book showcases a large variety of multiple criteria decision applications (MCDAs), presenting them in a coherent framework provided by the methodology chapters and the comments accompanying each case study. The chapters describing MCDAs invite the reader to experiment with MCDA methods and perhaps develop new variants using data from these case studies or other cases they encounter, equipping them with a broader perception of real-world problems and how to overcome them with the help of MCDAs.

For many decades, IT infrastructure has provided the foundation for successful application deployments. Yet, general knowledge of infrastructures is not widespread. Experience shows that software developers, system administrators, and project managers usually have little knowledge of the large influence IT infrastructures have on the performance, availability and security of software applications. This book explains the concepts, history, and implementation of a robust and balanced IT infrastructure. Although many of books can be found on individual infrastructure building blocks, this is the first book to describe all of them: datacenters, servers, networks, storage, virtualization, operating systems, and end user devices. Whether you need an introduction to infrastructure technologies, a refresher course, or a study guide for a computer science class, you will find that the presented building blocks and concepts provide a solid foundation for understanding the complexity of today's IT infrastructures.

HPC is used to solve a number of complex questions in computational and data-intensive sciences. These questions include the simulation and modeling of physical phenomena, such as climate change, energy production, drug design, global security, and materials design; the analysis of large data sets such as those in genome sequencing, astronomical observation, and cybersecurity; and the intricate design of engineered products, such as airplanes and automobiles. This second volume of Contemporary High Performance Computing: From Petascale toward Exascale continues to document international HPC ecosystems, including the sponsors and sites that host them. Each chapter is punctuated with a site's flagship system and: Presents highlights of applications, workloads, and benchmarks Describes hardware architectures, system software, and programming systems Explores storage, visualization, and analytics Examines the data center/facility as well as system statistics Featuring pictures of buildings and systems in production, floorplans, and many block diagrams and charts to illustrate system design and performance, Contemporary High Performance Computing: From Petascale toward Exascale, Volume Two delivers a detailed snapshot of the rich history of practice in modern HPC. This book provides a valuable reference for researchers in HPC and computational science.

The Green Business Guide is a comprehensive resource designed to help organizations incorporate green practices into their operations. Its content blends strategic conversation at the board level with green planning and program management at the middle-level, and with how-to direction that spells out actions at the shop level.

Green Technology Strategies

Energy Management Principles

Consulting-specifying Engineer

HVAC Design Manual for Hospitals and Clinics

Handbook of Energy-Aware and Green Computing - Two Volume Set

Principles for Evaluation

Green technology is not only good for the environment; it's also good for your bottom line. If your organization is exploring ways to save energy and reduce environmental waste, Green IT For Dummies can help you get there. This guide is packed with cost-saving ways to make your company a leader in green technology. The book is also packed with case studies from organizations that have

gone green, so you can benefit from their experience. You'll discover how to: Perform an energy audit to determine your present consumption and identify where to start greening Develop and roll out a green technology project Build support from management and employees Use collaboration tools to limit the need for corporate travel Improve electronic document management Extend hardware life, reduce data center floor space, and improve efficiency Formalize best practices for green IT, understand your company's requirements, and design an infrastructure to meet them Make older desktops and lighting fixtures more efficient with a few small upgrades Lower costs with virtual meetings, teleconferences, and telecommuting options Reduce your organization's energy consumption You'll also learn what to beware of when developing your green plan, and get familiar with all the terms relating to green IT. Green IT For Dummies starts you on the road to saving money while you help save the planet.

Energy Management Principles: Applications, Benefits, Savings, Second Edition is a comprehensive guide to the fundamental principles and systematic processes of maintaining and improving energy efficiency and reducing waste. Fully revised and updated with analysis of world energy utilization, incentives and utility rates, and new content highlighting how energy efficiency can be achieved through 1 of 16 outlined principles and programs, the book presents cost effective analysis, case studies, global examples, and guidance on building and site auditing. This fully revised edition provides a theoretical basis for conservation, as well as the avenues for its application, and by doing so, outlines the potential for cost reductions through an analysis of inefficiencies. Provides extensive coverage of all major fundamental energy management principles Applies general principles to all major components of energy use, such as HVAC, electrical end use and lighting, and transportation Describes how to initiate an energy management program for a building, a process, a farm or an industrial facility

IT Infrastructure Architecture - Infrastructure Building Blocks and Concepts Third Edition

Encyclopedia Of Thermal Packaging, Set 2: Thermal Packaging Tools (A 4-volume Set)

Materials for a Healthy, Ecological and Sustainable Built Environment