Knowledge Service Engineering Handbook Ergonomics Design And Management Theory And Applications

This book offers a broad perspective on the field of cognitive engineering and neuroergonomics, covering emerging practices and future trends toward the harmonious integration of human operators with computational systems. It reports on novel theoretical findings on mental workload and stress, activity theory, human reliability, error and risk, and neuroergonomic measures alike, together with a wealth of cutting-edge applications. Further, the book describes key advances in our understanding of cognitive processes, including mechanisms of perception, memory, reasoning, and motor response, with a special emphasis on their role in interactions between humans and other elements of computer-based systems. Based on the AHFE's main track on Neuroergonomics and Cognitive Engineering, held on July 17–21, 2017 in Los Angeles, California, USA, it provides readers with a comprehensive overview of the current challenges in cognitive computing and factors influencing human performance.

The management of organizational resources is extremely difficult. Managers face serious and complex challenges when managing the required resources for the benefit of their organization. This book presents a unique approach that aims to tackle these management challenges. This approach is based on four propositions that together form a solid frame

Edited by Jussi Kantola, the founding faculty member of the world's first university Knowledge Service Engineering Department at Korea Advanced Institute of Science and Technology, and Waldemar Karwowski from the Department of Industrial Engineering and Management Systems at UCF, Knowledge Service Engineering Handbook defines what knowledge services engineering means and how it is different from service engineering and service production. This groundbreaking handbook explores recent advances in knowledge service engineering from the accomplished researchers and practitioners in this field from around the world and provides engineering, systemic, industry, and consumer use viewpoints to knowledge service systems and engineering paradigms. The handbook outlines how to acquire and utilize knowledge in the 21st century presenting multiple cultural aspects including US, European, and Asian perspectives. Organized into four parts, it begins with an introduction to the main concepts of knowledge services. It then explores data, information and knowledge based engineering methods and applications that can be used to develop knowledge services, followed by discussions of the importance of human networks in knowledge services. The handbook concludes with descriptions of high-performance knowledge service systems. This structure allows different uses: the information can be looked up as needed or read in the order presented. As with any new field, the excitement lies in seeing how to combine these advances in data, information, and human parts of knowledge services in the future. While most books on this subject concentrate on data, information, or knowledge, this handbook integrates coverage of all three, thus providing a complete examination of sustainable knowledge services. The handbook has been carefully designed to be of use to professionals who develop new knowledge services and related businesses, for academic researchers and lecturers to start new research projects, and for students studying knowledge services, knowledge service production, and knowledge service business.

A comprehensive resource, this handbook covers consumer product research, case study, and application. It discusses the unique perspective a human factors approach lends to product design and how this perspective can be critical to success in the market place. Divided into two volumes, the handbook includes introductory and summary chapters on case study design, design methods and process, error and hazards, evaluation methods, focus groups, and more. It discusses white goods, entertainment systems, personnel audio devices, mobile phones, gardening products, computer systems, and leisure goods.

Clinical Engineering Handbook, Second Edition, covers modern clinical engineering topics, giving experienced professionals the necessary skills and knowledge for this fast-evolving field. Featuring insights from leading international experts, this book presents traditional practices, such as healthcare technology management, medical device service, and technology application. In addition, readers will find valuable information on the newest research and groundbreaking developments in clinical engineering, such as health technology assessment, disaster preparedness, decision support systems, mobile medicine, and prospects and guidelines on the future of clinical engineering. As the biomedical engineering field expands throughout the world, clinical engineers play an increasingly important role as translators between the medical, engineering and business professions. In addition, they influence procedures and policies at research facilities, universities, and in private and government agencies. This book explores their current and continuing reach and its importance. Presents a definitive, comprehensive, and up-to-date resource on clinical engineering Written by worldwide experts with ties to IFMBE, IUPESM, Global CE Advisory Board, IEEE, ACCE, and more Includes coverage of new topics, such as Health Technology Assessment (HTA), Decision Support Systems (DSS), Mobile Apps, Success Stories in Clinical Engineering, and Human Factors Engineering

Research suggests that ergonomists tend to restrict themselves to two or three of their favorite methods in the design of systems, despite a multitude of variations in the problems that they face. Human Factors and Ergonomics Methods delivers an authoritative and practical account of methods that incorporate human capabilities and limitations, envi

Occupational ergonomics and safety studies the application of human behavior, abilities, limitations, and other characteristics to the design, testing, and evaluation of tools, machines, systems, tasks, jobs, and environments for productive, safe, comfortable, and effective use. Occupational Ergonomics Handbook provides current, comprehensive knowledge in this broad field, providing essential, state-of-the-art information from nearly 150 international leaders of this discipline. The text assesses the knowledge and expertise applied to industrial environments: Providing engineering guidelines for redesigning tools, machines, and work layouts Evaluating the demands placed on workers by current jobs Simulating alternative work methods Determining the potential for reducing physical job demands based on the implementation of new methods Topics also include: Fundamental ergonomic design principles at work Work-related musculoskeletal injuries, such as cumulative trauma to the upper extremity (CTDs) and low back disorders (LBDs), which affect several million workers each year with total costs exceeding $100 billion annually Current knowledge used for minimizing human suffering, potential for occupational disability, and related worker's compensation costs Working conditions under which musculoskeletal injuries might occur Engineering design measures for eliminating or reducing known job-risk factors Optimal manufacturing processes regarding human perceptual and cognitive abilities as well as task reliability Identifying the worker population affected by adverse conditions Early medical and work intervention efforts Economics of an ergonomics maintenance program Ergonomics as an essential cost to doing business Ergonomics intervention includes design for manufacturability, total quality management, and work organization. Occupational Ergonomics Handbook demonstrates how ergonomics serves as a vital component for the activities of the company and enables an advantageous cooperation between

management and labor. This new handbook serves a broad segment of industrial practitioners, including industrial and manufacturing engineers; managers; plant supervisors and ergonomics professionals; researchers and students from academia, business, and government; human factors and safety specialists; physical therapists; cognitive and work psychologists; sociologists; and human-computer communications specialists.

Full coverage of manufacturing and management in mechanicalengineering Mechanical Engineers' Handbook, Fourth Edition provides aquick guide to specialized areas that engineers may encounter intheir work, providing access to the basics of each and pointingtoward trusted resources for further reading, if needed. The book'saccessible information offers discussions, examples, and analysesof the topics covered, rather than the straight data, formulas, andcalculations found in other handbooks. No single engineer can be aspecialist in all areas that they are called upon to work in. It'sa discipline that covers a broad range of topics that are used asthe building blocks for specialized areas, including aerospace,chemical, materials, nuclear, electrical, and generalengineering. This third volume of Mechanical Engineers' Handbookcovers Manufacturing & Management, and provides accessible andin-depth access to the topics encountered regularly in thediscipline: environmentally benign manufacturing, productionplanning, production processes and equipment, manufacturing systemsevaluation, coatings and surface engineering, physical vapordeposition, mechanical fasteners, seal technology, statisticalquality control, nondestructive inspection, intelligent control ofmaterial handling systems, and much more. Presents the most comprehensive coverage of the entirediscipline of Mechanical Engineering Focuses on the explanation and analysis of the conceptspresented as opposed to a straight listing of formulas and datafound in other handbooks Offers the option of being purchased as a four-book set or assingle books Comes in a subscription format through the Wiley Online Libraryand in electronic and other custom formats Engineers at all levels of industry, government, or privateconsulting practice will find Mechanical Engineers' Handbook,Volume 3 an "off-the-shelf" reference they'll turn to again andagain.

With an updated edition including new material in additional chapters, this one-of-a-kind handbook covers not only current standardization efforts, but also anthropometry and optimal working postures, ergonomic human computer interactions, legal protection, occupational health and safety, and military human factor principles. While delineating the crucial role that standards and guidelines play in facilitating the design of advantageous working conditions to enhance individual performance, the handbook suggests ways to expand opportunities for global economic and ergonomic development. This book features: Guidance on the design of work systems including tasks, equipment, and workspaces as well as the work environment in relation to human capacities and limitations Emphasis on important human factors and ergonomic standards that can be utilized to improve product and process to ensure efficiency and safety A focus on quality control to ensure that standards are met throughout the worldwide market

Human Computer Interaction (HCI) is no longer limited to trained software users. Today people interact with various devices such as mobile phones, tablets, and laptops. How can such interaction be made more user friendly, even when user proficiency levels vary? This book explores methods for assessing the psychological complexity of compute

The definitive "bible" for the field of biomedical engineering, this collection of volumes is a major reference for all practicing biomedical engineers and students. Now in its fourth edition, this work presents a substantial revision, with all sections updated to offer the latest research findings. New sections address drugs and devices, personali

This book covers how to analyze awkward working postures, particularly of the spine and lower limbs, in specific groups exposed. The methods covered suggests how to evaluate the postures correctly, taking account of the duration and sequence of the tasks involved, even in very complex scenarios where workers are involved with multiple tasks and work cycles varying from day to day. Excel spreadsheets located on the authors’ website (www.epmresearch.org) have been developed to gather, condense, and automatically process the data. The tools serve to implement the strategy for calculating risk associated with exposure to awkward postures, i.e. the TACOS method. Included are 5 case studies which include physiotherapists, workers from construction, archaeological digs, vineyards, and kindergarten teachers.

As the service sector expands into the global economy, a new science of service is emerging, one that is dedicated to encouraging service innovation by applying scientific understanding, engineering discipline, and management practice to designing, improving, and scaling service systems. Handbook of Service Science takes the first major steps to clarifying the definition, role, and future of this nascent field. Incorporating work by scholars from across the spectrum of service research, the volume presents multidisciplinary perspectives on the nature and theory of service, on current research and practice in design, operations, delivery, and innovation of service, and on future opportunities and potential of service research. Handbook of Service Science provides a comprehensive reference suitable for a wide-reaching audience including researchers, practitioners, managers, and students who aspire to learn about or to create a deeper scientific foundation for service design and engineering, service experience and marketing, and service management and innovation.

Although often taken for granted, safety doesn’t just happen. It requires a deep understanding of the principles of safety culture that then must be applied in all of your actions. Safety Management in a Competitive Business Environment discusses the meaning of the culture of safety in all areas of industrial manufacturing, focusing on risk management preventative measures. It explores the new and emerging risks and underlines the significance of effective education methods as prerequisites for acquiring appropriate risk management skills. The book provides an integrated and systematic point of view on the field of occupational health and safety management, safety of machines and machinery, and certain complex technologies. It touches on civil safety as a part of safety culture in the sense of national culture—an area that is now becoming very topical. The author details the risk assessment methods available and the many factors that come into play such as deterioration due to ageing, construction issues, and workplace noise, to name just a few. He also covers the importance of education for risk management professionals of all levels and the integration of safety related to industrial technology and civil security into comprehensive safety and security. The culture of safety provides space for adopting principles leading to risk minimization or, in some areas, risk elimination. It creates a legal basis for

obligatory application of risk management methods adjusted to particular work environment, technology, and machinery. This book demonstrates how risk management systems form component parts of comprehensive managerial systems, especially in integration with quality management systems. It gives you the tools necessary for systematic management of traditional and emerging risks in the man–machine–environment system, especially in industrial technologies.

A collection of works authored by leading scientists from the US and Russia, Human-Computer Interaction and Operators' Performance: Optimizing Work Design with Activity Theory describes applied and systemic-structural activity theory as it is used to study human-computer interaction, aviation, design, and training. Important from a theoretical and practical perspective, the book describes new analytical and experimental methods in the study of human work. The book facilitates the exchange of ideas between scientists working in ergonomics, human factors, human-computer interaction, industrial/organizational psychology, economics, management training, and other related areas. Drawing on their theoretical perspectives, the authors provide a comparative analysis of the various schools working in activity theory and a new approach to the study of human work derived from applied and systemic-structural activity theory. They cover special topics such as functional analysis of attention and classification of professions developed utilizing applied activity theory methods. In addition the book presents comparative analysis of work activity theory and applications. Representing the next significant step in the development of applied and systemic-structural activity theory, the book offers a balanced picture of theoretical and applied issues in the study of human work from general, applied, and systemic-structural activity theory points of view. It provides state-of-the art information and emphasizes its application to the study of human work while interacting with advanced technology.

There is an urgent need to disseminate ergonomics "know-how" to the work place. This book meets that need by providing clear guidelines and problem solving recommendations to assist the practitioner in decisions that directly protect the health, safety and well-being of the worker. The guidelines have evolved from a series of symposia on Ergonomic Guidelines and Problem Solving. Initially experts in each area selected were asked to write draft guidelines. These guidelines were circulated to participants at the symposia and to other experts for review before being comprehensively revised. In some instances these guidelines cannot be considered complete but it is important now to put some recommendations forward as guidelines. It is hoped that as new research emerges each guideline will be updated. Each guideline has been divided into two parts. Part I contains the guidelines for the practitioner and Part II provides the scientific basis or the knowledge for the guide. Such separation of the applied and theoretical content was designed to facilitate rapid incorporation of the guide into practice. The target audience for this book is the practitioner. The practitioner may be a manager, production system designer, shop supervisor, occupational health and safety professional, union representative, labor inspector or production engineer. For each of the guidelines, relevant practitioners are described. Topics covered include work space design, tool design, work-rest schedules, illumination and maintenance.

This book offers analytical methods for studying human work in ergonomics and psychology that are similar to ones utilized by the engineering sciences. SSAT offers not only new qualitative but also formalized and quantitative methods of analysis. This book will describe quantitative methods of task complexity and reliability assessment, application of queuing theory, etc. The book will also present new data in the area of efficiency of labor force and its evaluation.

Every complex human-machine system includes a computer as a critically important means of work. However, an operator's interaction with a computerized system cannot be reduced to only performing computer-based tasks. Today human-computer interaction (HCI) is not limited to trained software users. People of all ages use all different kinds of gadget

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.

Written by experts with real-world experience in applying ergonomics methodology in a range of contexts, Evaluation of Human Work, Fourth Edition explores ergonomics and human factors from a "doing it" perspective. More than a cookbook of ergonomics methods, the book encourages students to think about which methods they should apply, when, and why.

As the biomedical engineering field expands throughout the world, clinical engineers play an evermore-important role as translators between the medical, engineering, and business professions. They influence procedure and policy at research facilities, universities, as well as private and government agencies including the Food and Drug Administration and the World Health Organization. The profession of clinical engineering continues to seek its place amidst the myriad of professionals that comprise the health care field. The Clinical Engineering Handbook meets a long felt need for a comprehensive book on all aspects of clinical engineering that is a suitable reference in hospitals, classrooms, workshops, and governmental and non-governmental organization. The Handbook's thirteen sections address the following areas: Clinical Engineering; Models of Clinical Engineering Practice; Technology Management; Safety Education and Training; Design, Manufacture, and Evaluation and Control of Medical Devices; Utilization and Service of Medical Devices; Information Technology; and Professionalism and Ethics. The Clinical Engineering Handbook provides the reader with prospects for the future of clinical engineering as well as guidelines and standards for best practice around the world. From telemedicine and IT issues, to sanitation and disaster planning, it brings together all the important aspects of clinical engineering. Clinical Engineers are the safety and quality faciltators in all medical facilities The most definitive, comprehensive, and up-to-date book available on the subject of clinical engineering Over 170 contributions by leaders in the field of clinical engineering

This book covers the application of the OCRA (Occupational Repetitive Actions) method. The methods make up a system dedicated to the analysis and management of the risk of biomechanical overload of the upper limbs. The book focuses on the OCRA checklist which presents

various models from the most simplified, to the most complex. It describes methods, criteria, procedures and tools on how to perform such an assessment, in line with international standards. The book provides you with the correct methods and tools for prevention of upper limb work related musculoskeletal disorders no matter what the working environment is or what the international standards dictates.

If there is any one element to the engineering of service systems that is unique, it is the extent to which the suitability of the system for human use, human service, and excellent human experience has been and must always be considered. An exploration of this emerging area of research and practice, Advances in the Human Side of Service Engineering covers a broad spectrum of ergonomics and human factors issues highlighting the design of contemporary manufacturing systems. Topics include: Adoption of health information technology (HIT) Aging society: the impact of age on traditional service system constructs Anthropology in service science Applying service design techniques to healthcare Co-creating value Cognitive systems modeling of service systems Context-related service: the human aspect of service systems Designing services for underserved populations Ethics dividend in services: how it may be cultivated, grown, and measured Governance of service systems Human aspects of change when applying Lean Six Sigma methods and tools Human side of service dominant logic in B2B settings Human-computer interaction and HF in software technologies Service network configuration impacts on customer experience Simulating employees and customers in service systems Systems design and the customer experience Usability and human side of electronic financial services The book also discusses issues that arise in shop floor and office environments in the quest for manufacturing agility, i.e. enhancement and integration of human skills with hardware performance for improved market competitiveness, management of change, product and process quality, and human-system reliability. It provides a foundation upon which researchers and practitioners can contribute to this quickly evolving area and make lasting contributions.

The fourth edition of the Handbook of Human Factors and Ergonomicshas been completely revised and updated. This includes allexisting third edition chapters plus new chapters written to covernew areas. These include the following subjects: Managing low-back disorder risk in the workplace Online interactivity Neuroergonomics Office ergonomics Social networking HF&E in motor vehicle transportation User requirements Human factors and ergonomics in aviation Human factors in ambient intelligent environments As with the earlier editions, the main purpose of this handbookis to serve the needs of the human factors and ergonomicsresearchers, practitioners, and graduate students. Each chapter hasa strong theory and scientific base, but is heavily focused on realworld applications. As such, a significant number of case studies,examples, figures, and tables are included to aid in theunderstanding and application of the material covered.

During the last 60 years the discipline of human factors (HF) has evolved alongside progress in engineering, technology, and business. Contemporary HF is clearly shifting towards addressing the human-centered design paradigm for much larger and complex societal systems, the effectiveness of which is affected by recent advances in engineering, science, and education. Human Factors of a Global Society: A System of Systems Perspective explores the future challenges and potential contributions of the human factors discipline in the Conceptual Age of human creativity and social responsibility. Written by a team of experts and pioneers, this book examines the human aspects related to contemporary societal developments in science, engineering, and higher education in the context of unprecedented progress in those areas. It also discusses new paradigms for higher education, including education delivery, and administration from a systems of systems perspective. It then examines the future challenges and potential contributions of the human factors discipline. While there are other books that focus on systems engineering or on a specific area of human factors, this book unifies these different perspectives into a holistic point of view. It gives you an understanding of human factors as it relates to the global enterprise system and its newly emerging characteristics such as quality, system complexity, evolving management system and its role in social and behavioral changes. By exploring the human aspects related to actual societal developments in science, the book opens a new horizon for the HF community.

The ebook edition of this title is Open Access and freely available to read online. Ethical Issues in Covert, Security and Surveillance Research showcases that it is only when the integrity of research is carefully pursued can users of the evidence produced be assured of its value and its ethical credentials.

One of the latest developments being pursued by the World Health Organization (WHO) and other international organizations (ILO, ISO), in relation to preventing work-related diseases and disorders, concerns the creation of "toolkits" and, within them, of simple tools. This book suggests a methodology and a comprehensive simple tool (ERGOCHECK, downloadable for free from the website www.epmresearch.org) for bringing together various potential risk factors to undertake a preliminary mapping of discomfort/danger in the workplaces and to assess consequent priorities for prevention, especially (but not only) in small and very small businesses. The tool is primarily designed to be used by employers, OSH (Occupational Health and Safety) operators and trade union representatives, but it may also be useful for occupational medical staff conducting periodical inspections and drafting health surveillance protocols, and for supervisory bodies (labor inspectors) conducting inspections in the workplace needing to rapidly detect potentially dangerous situations requiring specific preventive interventions. Daniela Colombini is a certified European ergonomist and a senior researcher at the Research Unit Ergonomics of Posture and Movement, Milan, where she developed methods for the analysis, evaluation and management of risk and damage from occupational biomechanical overload. She was a professor at the School of Specialization in Occupational Medicine in University of Milan and University of Florence. She is the coauthor of the OCRA method (EN 1005-5 standard and ISO 11228-3). She is the founder and president of the EPM International Ergonomics School (EPMIES). She has been working with accredited native teachers in countries such as the USA, France, India, Spain, Chile, Colombia, Guatemala, Costa Rica, Brazil and other South American countries. She is a member of the Ergonomics Committee of UNI working in the international commissions of European Committee for Normalization (CEN) and International Organization for Standardization (ISO). Enrico Occhipinti is a certified European ergonomist. He is a professor at the School of Specialization in Occupational Medicine in University of Milano, and the director of the Research Unit Ergonomics of Posture and Movement (EPM) at Fondazione Don Gnocchi ONLUS-Milano. He developed and coauthored the OCRA method. He is a member and has been a coordinator (up to 2012) of the Technical Committee on Prevention of Musculoskeletal Disorders of the International Ergonomics Association (IEA), and represents Italy in international commissions of the CEN and the ISO dealing with ergonomics and biomechanics.

The previous edition of the International Encyclopedia of Ergonomics and Human Factors made history as the first unified source of reliable information drawn from many realms of science and technology and created specifically with ergonomics professionals in mind. It was also a winner of the Best Reference Award 2002 from the Engineering Libraries Division, American Society of Engineering Education, USA, and the Outstanding Academic Title 2002 from Choice Magazine. Not content to rest on his laurels, human factors and ergonomics expert Professor Waldemar Karwowski has overhauled his standard-setting resource, incorporating coverage of tried and true methods, fundamental principles, and major paradigm shifts in philosophy, thought, and design. Demonstrating the truly interdisciplinary nature of this field, these changes make the second edition even more comprehensive, more informative, more, in a word, encyclopedic. Keeping the format popularized by the first edition, the new edition has been completely revised and updated. Divided into 13 sections and organized alphabetically within each section, the entries provide a clear and simple outline of the topics as well as precise and practical information. The book reviews applications, tools, and innovative concepts related to ergonomic research. Technical terms are defined (where possible) within entries as well as in a glossary. Students and professionals will find this format invaluable, whether they have ergonomics, engineering, computing, or psychology backgrounds. Experts and researchers will also find it an excellent source of information on areas beyond the range of their direct interests.

Emphasizing customer oriented design and operation, Introduction to Human Factors and Ergonomics for Engineers explores the behavioral,

physical, and mathematical foundations of the discipline and how to apply them to improve the human, societal, and economic well being of systems and organizations. The book discusses product design, such as tools, machines, or systems as well as the tasks or jobs people perform, and environments in which people live. The authors explore methods of obtaining these objectives, uniquely approaching the topic from an engineering perspective as well as a psychological standpoint. The 22 chapters of this book, coupled with the extensive appendices, provide valuable tools for students and practicing engineers in human centered design and operation of equipment, work place, and organizations in order to optimize performance, satisfaction, and effectiveness. Covering physical and cognitive ergonomics, the book is an excellent source for valuable information on safe, effective, enjoyable, and productive design of products and services that require interaction between humans and the environment.

Information is considered essential in every business model, which is why staying abreast of the latest resources can help combat many challenges and aid businesses in creating a synthesis between people and information, keeping up with evolving technologies, and keeping data accurate and secure. The Handbook of Research on Knowledge Management for Contemporary Business Environments is a critical scholarly publication that examines the management of knowledge resources in modern business contexts. Including a wide range of topics such as information systems, sustainable competitive advantage, and knowledge sharing, this publication is a vital reference source for managers, academicians, researchers, and students seeking current research on strategies that are able to manage the information in more than one context for present and future generations.

"This book discusses the new technologies of semantic Web, transforming the way we use information and knowledge"--Provided by publisher.

This two-volume set (LNAI 8019 and LNAI 8020) constitutes the refereed proceedings of the 10th International Conference on Engineering Psychology and Cognitive Ergonomics, EPCE 2013, held as part of the 15th International Conference on Human-Computer Interaction, HCII 2013, held in Las Vegas, USA in July 2013, jointly with 12 other thematically similar conferences. The total of 1666 papers and 303 posters presented at the HCII 2013 conferences was carefully reviewed and selected from 5210 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas. The total of 81 contributions included in the EPCE proceedings were carefully reviewed and selected for inclusion in this two-volume set. The papers included in this volume are organized in the following topical sections: driving and transportation safety, cognitive issues in aviation, military applications, cognitive issues in health and well-being.

Broadly defined as the science and technology of systems responding to neural processes in the brain, neuroadaptive systems (NASs) has become a rapidly developing area of study. One of the first books available in this emerging area, Neuroadaptive Systems: Theory and Applications synthesizes knowledge about human behavior, cognition, neural processing, and technology and how it can be used to optimize the design, development, modeling, simulation, and applications of complex neuro-based systems. Balancing coverage of theory and applications, the book examines the general aims of NASs and how neurogenomics can be applied in training applications. It includes important results and findings gathered from approximately two decades of brain computer interaction research. But more than this, the book details the underlying rationale for using NASs compared to other kinds of human-machine systems and raises questions and concerns about budding neuro-scientific areas that gives insight into the way humans may interact with neuro-technological systems in the future. With contributions from international professionals and researchers, this book presents state-of-the-art developments in neuroscience, human factors, and brain activity measurement. Packed with models, case studies, research results, and illustrations, it discusses approaches to understanding the functions of neuronal networks, and then explores challenges and applications of neuroadaptive systems. It provides tools for future development and the theory to support it.

Every day we interact with thousands of consumer products. We not only expect them to perform their functions safely, reliably, and efficiently, but also to do it so seamlessly that we don’t even think about it. However, with the many factors involved in consumer product design, from the application of human factors and ergonomics principles to reducing risks of malfunction and the total life cycle cost, well, the process just seems to get more complex. Edited by well-known and well-respected experts, the two-volumes of Handbook of Human Factors and Ergonomics in Consumer Product Design simplify this process. The second volume, Human Factors and Ergonomics in Consumer Product Design: Uses and Applications, discusses challenges and opportunities in the design for product safety and focuses on the critical aspects of human-centered design for usability. The book contains 14 carefully selected case studies that demonstrate application of a variety of innovative approaches that incorporate Human Factor and Ergonomics (HF/E) principles, standards, and best practices of user-centered design, cognitive psychology, participatory macro-ergonomics, and mathematical modeling. These case studies also identify many unique aspects of new product development projects, which have adopted a user-centered design paradigm as a way to attend to user requirements. The case studies illustrate how incorporating HF/E principles and knowledge in the design of consumer products can improve levels of user satisfaction, efficiency of use, increase comfort, and assure safety under normal use as well as foreseeable misuse of the product. The book provides a comprehensive source of information regarding new methods, techniques, and software applications for consumer product design.

The 60th birthday of Prof. Luczak is the reason for this book. He will be honoured for his research work during the "GfA-confernece" in March 2009. This book is the correspondig "Festschrift" for him.

Occupational Ergonomics: Principles of Work Design focuses on the fundamentals in ergonomics design and evaluation. Divided into two parts, Part I covers the background for the discipline and profession of ergonomics and offers an international perspective on ergonomics. Part II describes the foundations of ergonomics knowledge, including fundament

A complete introduction to the field, Ergonomics: Foundational Principles, Applications and Technologies discusses scientific principles, research, applications, and emerging trends in technology. Covering the foundational principles and major topics in physical ergonomics, the book contains the necessary components of a quality ergonomics course, including a sample course syllabus, PowerPoint slides for instructors and students, homework assignments, class

projects, instructor’s manual, suggested lab equipment, proposed lab exercises, and a student laboratory manual. Based on the author’s almost two decades of teaching, the text covers basic ergonomic principles from research and application perspectives. It includes hands-on laboratory activities to complement classroom instruction and cases studies that demonstrate application of ergonomic knowledge. Using an approach that highlights the physical over the cognitive, the author focuses less on kinesiology principles and more on applied kinesiology in ergonomics. Provides a basic explanation of the systems of the body to establish a foundation for understanding and consistently applying ergonomic principles Covers the human senses and the sensory process for each, including tools and techniques for assessing sensory impact Explains the functionality, relationship, and elements of the integrated roles of the muscular system and nervous system Introduces the study of anthropometrics and the principles that can be used to support anthropometric design, including data collection, calculation of statistics, and identification of appropriate data sources Examines the basic ergonomic principles of work place design and evaluation of hand tools Discusses the origin, nature, and impact of work-related musculoskeletal disorders (WMSDs) in the global community Includes coverage of the concepts of information processing, measurement of mental workload, and an introduction to ergonomic design of controls and displays The book supplies everything required to teach the class. Upon completion of a course using this book, students will be prepared to apply the ergonomic knowledge in industry or continue to higher levels of study in the field. The text builds the foundation students and professionals need to understand and improve the environments, equipment, and systems with which humans interact in the workplace, recreational environment, and home. Description of Instructors Manual Available upon course adoption, the instructor’s manual contains resources to assist in quickly establishing a course layout, schedule, and associated documents. This resource genuinely makes the selection of the text a "turn-key" option for the professor to deliver a high-quality ergonomics course. Sample course syllabus Summary of suggested ergonomic lab equipment Sample course schedule Description of assignments such as student projects and more. Description of Laboratory Manual Available for download from www.crcpress.com, the laboratory manual contains multiple laboratory and application assignments to give student a hands-on experience in applying ergonomic material taught in the classroom lectures. The manual has labs for each of the primary topics covered in the course as well as guidelines on how students are to conduct the laboratories and prepare lab reports. Numerous tables, equations, and examples are provided in the lab manual to facilitate student understanding of the material. The use of the lab manual supports the instructor by providing tailored exercises for students to perform that are directly aligned with the textbook material. Assignments are also provided for students taking the course via distance learning or remote resources.

Completely revised and updated, taking the scientific rigor to a whole new level, the second edition of the Occupational Ergonomics Handbook is now available in two volumes. This new organization demonstrates the enormous amount of advances that have occurred in the field since the publication of the first edition. The editors have brought together

Commonly used throughout the world, manual lifting tasks—whether simple or complex—all involve variable loads, postures, and movements. This practical guide discusses how to analyze the intricate lifting function and prevent injury during its execution. Outlining revised NIOSH Lifting Equation (RNLE) methods, the book illustrates their use in assessing manual lifting tasks of varying degrees of difficulty. Using examples to reinforce presented concepts, it explains how RNLE methods can be applied to evaluate single, composite, variable, and sequential lifting tasks. It also explores how to interpret and apply the results according to international standards and guidelines.