Human Factors In Safety Critical Systems

This book contains the full complement of papers presented at the sixteenth annual Safety-critical Systems Symposium, held at Bristol, UK, in February 2008. The Symposium is for engineers, managers and academics in the field of safety, across all industry sectors, and so the papers included offer a wide-ranging coverage of major safety issues as well as a good blend of academic research and industrial experience. They include discussions of some of the most recent developments.

This is the first volume of the two-volume set (CCIS 617 and CCIS 618) that contains extended abstracts of the posters presented during the 18th International Conference on Human-Computer Interaction, HCII 2016, held in Toronto, Canada, in July 2016. The total of 1287 papers and 186 posters presented at the HCII 2016 conferences was carefully reviewed and selected from 4354 submissions. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers 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 papers included in this volume are organized in the following topical sections: design thinking, education and expertise; design and evaluation methods, techniques and tools; cognitive issues in HCI; information presentation and visualization; interaction design; design for older users; usable security and privacy; human modeling and ergonomics.

Human Factors in the Chemical and Process Industries: Making it Work in Practice is a comprehensive overview of human factors within this sector, focusing on the practical application. It has been written by acknowledged industry experts from the Keil Centre, which is a leading practice of chartered ergonomics and human factors specialists, chartered safety specialists, registered occupational psychologists, and registered clinical psychologists. The book was inspired by the international human factors training course run by the Keil Centre with the IChemE, which has reached four continents across the world. The book is written for those who want a comprehensive overview of the subject, focusing on the practical application of human factors. It has been written for safety professionals, engineers and operational disciplines within industry, and those aspiring to these disciplines, who either deal with human factors issues or any aspect of the 'human element' in their core role. The book explains what 'human factors' is about and how human factors issues are best managed from a practical perspective. It will help readers develop a greater

understanding of the area and how to establish more effective solutions for human factors related issues. Provides comprehensive coverage of the most relevant human factors within this sector, with succinct overviews of each topic Uses case studies and practical examples to illustrate topics and explains the material in a fully accessible, easy to understand style Written by a single team of eleven industry practitioners, drawing on the combined expertise of different human factors specialisms which are rarely comprehensively combined in a single resource

This book discusses the latest findings on ensuring employees' safety, health, and welfare at work. It combines a range of disciplines – e.g. work physiology, health informatics, safety engineering, workplace design, injury prevention, and occupational psychology – and presents new strategies for safety management, including accident prevention methods such as performance testing and participatory ergonomics. The book, which is based on the AHFE 2018 International Conference on Safety Management and Human Factors, held on July 21–25, 2018, in Orlando, Florida, USA, provides readers, including decision makers, professional ergonomists and program managers in government and public authorities, with a timely snapshot of the state of the art in the field of safety, health, and welfare management. It also addresses agencies such as the Occupational Safety and Health Administration (OSHA) and the National Institute for Occupational Safety and Health (NIOSH), as well as other professionals dealing with occupational safety and health.

Human Error, Safety and Systems Development

Proceedings of the international conference on Ergonomics & Human Factors 2012, Blackpool, UK, 16-19 April 2012

Proceedings of the Fourth Safety-critical Systems Symposium Leeds, UK 6–8 February 1996

Applications and Future Directions

Advances in Safety Management and Human Performance

Human Factors in the Chemical and Process Industries

The broad and developing scope of ergonomics - the application of scientific knowledge to improve people's interaction with products, systems and environments - has been illustrated for 25 years by the books which make up the Contemporary Ergonomics series. This book presents the proceedings of the international conference on Ergonomics and Human F

During the course of any sporting event, critical cognitive and physical tasks are performed within a dynamic, complex, collaborative system comprising multiple humans and artifacts, under pressurized, complex, and rapidly changing conditions. Highly skilled, well-trained individuals walk a fine line

between task success and failure, with only slightly inadequate task execution leading to the latter. Promoting cross-disciplinary interaction between the human factors and sports science disciplines, Human Factors Methods and Sports Science: A Practical Guide provides practical guidance on a range of methods for describing, representing, and evaluating human, team, and system performance in sports domains. Traditionally, the application of human factors and ergonomics methods in sports has focused on the biomechanical, physiological, environmental, and equipment-related aspects of sports performance. However, various human factors methods, applied historically in the complex safety critical domains, are suited to describing and understanding sports performance. This book delineates the similarities in the concepts requiring investigation within sports and the more typical human factors domains. The book's focus on cognitive and social human factors methods rather than mainly on the application of physiological ergonomics approaches sets it apart from other books in either field. It covers eight categories of human factor methods: data collection, task analysis, cognitive task analysis, human error identification, situation awareness measurement, workload measurement, team performance assessment, and interface evaluation methods. Constructed so that each chapter can be read non-linearly and independently from one another, the book provides an introduction and overview to each Human Factors topic area, and of each method discussed, along with practical guidance on how to apply them. It also includes detailed descriptions of the different methods, example applications, and theoretical rationale. This allows the concepts to be easily found and digested, and the appropriate method to be easily selected and applied.

This publication is aimed at managers in all industries. It explains why human factors are important in health and safety and how they need to be assessed and managed in the same way as other risk factors. It gives practical advice on how to develop systems designed to take account of human capabilities and fallibilities.

"Reliability and Risk Issues in Large Scale Safety-critical Digital Control Systems" provides a comprehensive coverage of reliability issues and their corresponding countermeasures in the field of large-scale digital control systems, from the hardware and software in digital systems to the human operators who supervise the overall process of large-scale systems. Unlike other books which examine theories and issues in individual fields, this book reviews important problems and countermeasures across the fields of software reliability, software verification

and validation, digital systems, human factors engineering and human reliability analysis. Divided into four sections dealing with software reliability, digital system reliability, human reliability and human operators in large-scale digital systems, the book offers insights from professional researchers in each specialized field in a diverse yet unified approach.

Human Factors Assessment of Safety Critical Tasks

Human Factors and Aerospace Safety

Human Error in Aviation

Proceedings of the AHFE 2017 International Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation, July 17-21, 2017, The Westin Bonaventure Hotel, Los Angeles, California, USA

The Safety Critical Systems Handbook

Contemporary Issues in Human Factors and Aviation Safety

Safety-critical systems are found in almost every sector of industry. An understanding of the basis for the functioning of these systems is therefore vital to all involved in their operation. This book provides an overview of the whole subject

"Sport, either through participation or spectatorship, represents a part of everyday life and plays a key role in our health and well being. It is also big business. When this is considered with the fact that most sports exhibit many of the characteristics of complex safety critical systems, it is not surprising that human factors and ergonomics theory and methods are being used to optimize these systems. This relates to enhancing sport performance, injury prevention, product and equipment design, performance assessment, and systems issues. This book will be a source for communicating sports human factors and ergonomics research, showcase key issues, and inspire further applications"--

th HESSD 2009 was the 7 IFIP WG 13.5 Working Conference in the series on Human Error, Safety and Systems Development which looks at integration of usability, human factors and human–computer interaction within system - th velopment. This edition was jointly organized with the 8 TAMODIA event on Tasks, Models and Diagrams for User Interface Development. There is an obvious synergy between the two previously separated events, as a rigorous, - gineering approach to user interface development can help in the prevention of human error and the maintenance of safety in critical interactive systems. Following the tradition of

HESSD events, the papers in these proceedings address the problem of developing systems that support human interaction with complex, safety-critical applications. The last 30 years have seen a signi?cant reduction in the accident rates across many di?erent industries. Given these achievements, why do we need further research in this area? Recent accidents in a range of industries have increased concern over the design, management and control of safety-critical systems. Therefore, any system that involves human lives in its functioning is subject to safety-criticalaspects. Contributions such as the one by Holloway and Johnson (2004) report that over 80% of accidents in aeronautics are attributed to human error.
Every issue of Ashgate's Human Factors and Aerospace Safety: An International Journal publishes an invited, critical review of a key area from a widely-respected researcher. To celebrate a successful first three years of the journal and to make these papers available to a wider audience, they have been collated here into a single volume. The book is divided into three sections, with articles addressing safety issues in flight deck design, aviation operations and training, and air traffic management. These articles describe the state of current research within a practical context and present a potential future research agenda. Contemporary Issues in Human Factors and Aviation Safety will appeal to both professionals and researchers in aviation and associated industries who are interested in learning more about current issues in flight safety.
The Field Guide to Human Error Investigations
Human Factors in the Nuclear Industry
A Practical Guide
Safety Differently
Proceedings of the AHFE 2018 International Conference on Safety Management and Human Factors, July 21-25, 2018, Loews Sapphire Falls Resort at Universal Studios, Orlando, Florida, USA
Human Factors in Safety-critical Systems

The second edition of a bestseller, Safety Differently: Human Factors for a New Era is a complete update of Ten Questions About Human Error: A New View of Human Factors and System Safety. Today, the unrelenting pace of technology change and growth of complexity calls for a different kind of safety thinking. Automation and new technologies have resulted in new roles, decisions, and vulnerabilities whilst practitioners are also

faced with new levels of complexity, adaptation, and constraints. It is becoming increasingly apparent that conventional approaches to safety and human factors are not equipped to cope with these challenges and that a new era in safety is necessary. In addition to new material covering changes in the field during the past decade, the book takes a new approach to discussing safety. The previous edition looked critically at the answers human factors would typically provide and compared/contrasted them with current research and insights at that time. The edition explains how to turn safety from a bureaucratic accountability back into an ethical responsibility for those who do our dangerous work, and how to embrace the human factor not as a problem to control, but as a solution to harness. See What�s in the New Edition: New approach reflects changes in the field Updated coverage of system safety and technology changes Latest human factors/ergonomics research applicable to safety Organizations, companies, and industries are faced with new demands and pressures resulting from the dynamics and nature of the modern marketplace and from the development and introduction of new technologies. This new era calls for a different kind of safety thinking, a thinking that sees people as the source of diversity, insight, creativity, and wisdom about safety, not as the source of risk that undermines an otherwise safe system. It calls fo
This book provides an introduction to the field of human factors for individuals who are involved in the delivery and/or improvement of prehospital emergency care and describes opportunities to advance the practical application of human factors research in this critical domain. Relevant theories of human performance, including systems engineering principles, teamwork, training, and decision making are reviewed in light of the needs of current day prehospital emergency care. The primary focus is to expand awareness human factors and outlay the potential for novel and more effective solutions to the issues facing prehospital care and its practitioners.
Safety management and human factors disciplines are often regarded as subjective and nebulous. This perhaps stems from a variety of, sometimes disparate, activities in the realms of education, industry and research. Aviation is one of the safety-critical industries that has led the development of safety systems and human factors. However, in recent years, safety management and human factors are seen to be progressing well in the road, rail and the medical arena. Multimodal Safety Management and Human Factors is a wide-ranging compendium of contemporary approaches in the aviation, road, rail and medical domains. It brings together 28 chapters from both the academic and professional worlds that focus on applications, tools and strategies in safety management and human factors. It is a wellspring of the practical rather than the theoretical. Safety scientists, human factors industry practitioners, change management advocates, educators and students will find this book extremely relevant and challenging.
Recent accidents in a range of industries have increased concern over the design, development, management and control of safety-critical systems. Attention has now focused upon the role of human error both in the development and in the operation of complex processes. Human Error,

Safety and Systems Development gathers contributions from practitioners and researchers presenting and discussing leading edge techniques that can be used to mitigate the impact of error (both system and human) on safety-critical systems. Some of these contributions can be easily integrated into existing systems engineering practices while others provide a more theoretical and fundamental perspective on the issues raised by these kinds of interactive systems. More precisely the contributions cover the following themes: –Techniques for incident and accident analysis; –Empirical studies of operator behaviour in safety-critical systems; –Observational studies of safety-critical systems; –Risk assessment techniques for interactive systems; –Safety-related interface design, development and testing; –Formal description techniques for the design and development of safety-critical interactive systems. Many diverse sectors are covered, including but not limited to aviation, maritime and the other transportation industries, the healthcare industry, process and power generation and military applications. This volume contains 20 original and significant contributions addressing these critical questions. The papers were presented at the 7th IFIP Working Group 13.5 Working Conference on Human Error, Safety and Systems Development, which was held in August 2004 in conjunction with the 18th IFIP World Computer Congress in Toulouse, France, and sponsored by the International Federation for Information Processing (IFIP).
Aviation and Human Factors
How to Incorporate Human Factors into the Field

Decision Making, Theory, and Practice
Guide to Applying Human Factors Methods
A Practitioner's Experiential Approach
Air safety is right now at a point where the chances of being killed in an aviation accident are far lower than the chances to winning a jackpot in any of the major lotteries. However, keeping or improving that performance level requires a critical analysis of some events that, despite scarce, point to structural failures in the learning process. The effect of these failures could increase soon if there is not a clear and right development path. This book tries to identify what is wrong, why there are things to fix, and some human factors principles to keep in aircraft design and operations. Features Shows, through different events, how the system learns through technology, practices, and regulations and the pitfalls of that learning process Discusses the use of information technology in safety-critical environments and why procedural knowledge is not enough Presents air safety management as a successful process, but at the same time, failures coming from technological and organizational features are shown Offers ways to improve from the human factors side by getting the right lessons from recent events

This title was first published in 2003. An international journal targeted specifically at the study of the human element in the aerospace system, and its role in either avoiding or contributing to accidents and incidents, and in promoting safe operations. The journal contains both formal research and practitioner papers, describing new research in the area of human factors and aerospace safety, and activities such as successful safety and regulatory initiatives or accident case studies. In every issue there is also an invited position paper by an internationally respected author, providing a critical overview of a particular area of human factors and aerospace safety, with the aim of developing theory and setting a research agenda for the future. Other features of the journal include: a critical incidents section describing recent aviation incidents with human factors root causes, a calendar of events, listing forthcoming international conferences, seminars and workshops of interest to the reader, and occasional book reviews. Whether used for aviation, manufacturing, oil and gas extraction, energy distribution, nuclear or fossil fuel power generation, surveillance or security, all control rooms share two common features. The people operating them are often remote from the processes that they are monitoring and controlling and the operations work 24/7. The twin demands of remote and continuous operation place special considerations on the design of central control rooms. Human Factors in the Design and Evaluation of Central Control Room Operations provides an analysis of Human Factors and Ergonomics in this complex area and the implications for control room staff. This information contained within this book can then be used to design, assessed and evaluate control rooms. Taking an integrated approach to Human Factors and Ergonomics in the control room environment, the book presents fourteen human factors topics: competencies, training, procedures, communications, workload, automation, supervision, shift patterns, control room layout, SCADA interfaces, alarms, control room environment, human error, and safety culture. Although there are many resources available on each of these topics, this book the information together under one cover with a focus on central control room operations. Each chapter is self-contained and can be read in any order, as the information is required. Most aviation accidents are attributed to human error, pilot error especially. Human error also greatly effects productivity and profitability. In his overview of this collection of papers, the editor points out that these facts are often misinterpreted as evidence of deficiency on the part of operators involved in accidents. Human factors research reveals a more accurate and

useful perspective: The errors made by skilled human operators – such as pilots, controllers, and mechanics – are not root causes but symptoms of the way industry operates. The papers selected for this volume have strongly influenced modern thinking about why skilled experts make errors and how to make aviation error resilient.

Human Factors and Ergonomics in Sport

An International Journal: v.2: No.4

Advances in Safety Management and Human Factors

18th International Conference, HCI International 2016, Toronto, Canada, July 17-22, 2016, Proceedings, Part I

IFIP 18th World Computer Congress TC13 / WG13.5 7th Working Conference on Human Error, Safety and Systems Development 22-27 August 2004 Toulouse, France

Human Factors Methods and Sports Science

Human Factors in Safety-critical SystemsRoutledge

Human Factors in the Nuclear Industry: A Systemic Approach to Safety presents the latest research and studies of human factors in the nuclear industry. It models and highlights scientific and technological foundations before providing practical examples of applications within the nuclear facility of human performance at an individual, group, organization, and system level. Editors Dr. Teperi and Dr. Gotcheva supply concrete models, tools and techniques based on research to provide the reader with knowledge of how to facilitate and support human performance in this dynamic and fast moving safety critical field. Models and case studies are provided to add practical benefits for the reader to apply to their own projects, including user friendly state-of-the-art equipment, fluent work processes for information flow, functional control room resource management, and scope for competence and learning in the work place. This book will benefit nuclear researchers, safety experts, human factors professionals and power plant operators, as well as those with an interest in human factors outside of the nuclear field. Provides a comprehensive framework for human factors, considering not only the individual, but also the team, organizational and industrial levels Presents tried and tested tools and techniques based on research from the nuclear industry Includes models, examples and case studies of user-friendly equipment, fluent work processes and functional control room resource management

This book brings together studies broadly addressing human error and safety management from the perspectives of various disciplines, and shares the latest findings on ensuring employees' safety, health, and welfare at work. It combines a diverse range of disciplines – e.g. work physiology, health informatics, safety engineering, workplace design, injury prevention, and occupational psychology – and presents new strategies for safety management, including accident prevention methods such as performance testing and participatory ergonomics. It reports on cutting-edge methods and findings concerning safety-critical systems, defense, and security, and discusses advanced topics regarding human performance, human variability, and reliability analysis; medical, driver and pilot error, as well as automation error; and cognitive modeling of human error. Further, it highlights cutting-edge applications in safety management, defense, security, transportation, process controls, and medicine.

Gathering the proceedings of the AHFE 2020 International Conference on Safety Management and Human Factors and the AHFE 2020 Virtual Conference on Human Error, Reliability, Resilience, and Performance, held on July 16–20, 2020, USA, the book offers an extensive, timely, and multidisciplinary guide for researchers and practitioners dealing with safety management and human error.

Human Factors Methods and Accident Analysis is the first book to offer a practical guide for investigators, practitioners and researchers wishing to apply accident analysis methods. It is also unique in presenting a series of novel applications of accident analysis methods, including HF methods not previously used for these purposes (e.g. EAST, critical path analysis), as well as applications of methods in new domains.

Human Factors for a New Era, Second Edition

Advances in Human Factors in Sports, Injury Prevention and Outdoor Recreation

Orthopaedic Pathology and Imaging

Reliability and Risk Issues in Large Scale Safety-critical Digital Control Systems

A Systemic Approach to Safety

7th IFIP WG 13.5 Working Conference, HESSD 2009, Brussels, Belgium, September 23-25, 2009, Revised Selected Papers

Safety-critical systems, in the sense of software-based systems used in safety critical applications, are 'high-tech'. They are products of modern technology. Their effective, efficient and safe functioning depends not only on the devel opment of the right technologies but also on the right use of them. The safety of a system may be compromised not only by faults in the system but also by the use in the first place of an unreliable, unsafe, or unproved technology in its development. The key to the development and use of both technologies and systems is the human being. Until recently, the importance of human involvement, other than at the direct operational level, was hardly admitted. But now the unreliability of humans is recognised, as is the potential for latent faults to be introduced into systems at any point in their life cycles, by all who are in volved with them, including designers and strategic decision makers.

This title was first published in 2002: This field guide assesses two views of human error - the old view, in which human error becomes the cause of an incident or accident, or the new view, in which human error is merely a symptom of deeper trouble within the system. The two parts of this guide concentrate on each view, leading towards an appreciation of the new view, in which human error is the starting point of an investigation, rather than its conclusion. The second part of this guide focuses on the circumstances which unfold around people, which causes their

assessments and actions to change accordingly. It shows how to "reverse engineer" human error, which, like any other componant, needs to be put back together in a mishap investigation.

Process Safety Management and Human Factors: A Practitioner's Experiential Approach addresses human factors in process safety management (PSM) from a reflective learning approach. The book is written by engineers and technical specialists who spent the last 15-20 years of their professional career looking at behavioral-based safety, human factor research, and safety culture development in organizations. It is a fundamental resource for operational, technical and safety managers in high-risk industries who need to focus on personal and occupational safety management to prevent safety accidents. Real-life examples illustrate how a good, effective understanding of human factors supports PSM and positive impacts on accident occurrence. Covers the evolution and background of process safety management Shows how to integrate and augment process safety management with operational excellence and health, safety and environment management systems Focuses on human factors in process safety management Includes many real-life case studies from the collective experience of the book's authors

This book describes cutting-edge applications of human factors for sports, injury prevention and outdoor recreation disciplines and provide practical guidance on a range of methods for describing, representing, and evaluating human, team, and system performance in various domains. Contributions in this book show how various human factors methods, applied historically in the complex safety critical domains, are suited to describing and understanding sports performance and sports injury prevention. The book discusses a wealth of methods for different purposes, such as data collection, task analysis (including cognitive task analysis), workload measurement, assessing situation awareness, performance assessment (including team performance assessment),decision making and cognition in sports, human error identification, and interface evaluation methods. With respect to other publications in human factors and ergonomics, which have been more focused on the biomechanical, physiological, environmental, and equipment-related aspects of sports performance, this book gives a

special emphasis to research on analysis of individual and team sports, cognitive and social human factors, and covers both sports and outdoor recreation disciplines. Based on the AHFE 2017 Conference on Human Factors in Sports, Injury Prevention and Outdoor Recreation, held on July 17–21, 2017, in Los Angeles, California, USA, this book provides readers with a timely survey of new methods that can be implemented during any sport or outdoor recreation event, and for analyzing and improving the performance and safety of both individuals and teams.

Safety-Critical Systems: The Convergence of High Tech and Human Factors

Proceedings of the AHFE 2020 Virtual Conferences on Safety Management and Human Factors, and Human Error, Reliability, Resilience, and Performance, July 16–20, 2020, USA

Contemporary Ergonomics and Human Factors 2012

Reducing Error and Influencing Behaviour

Understanding Human Error in Mine Safety

Multimodal Safety Management and Human Factors

Human error plays a significant role in many accidents involving safety-critical systems, and it is now a standard requirement in both the US and Europe for Human Factors (HF) to be taken into account in system design and safety assessment. This book will be an essential guide for anyone who uses HF in their everyday work, providing them with consistent and ready-to-use procedures and methods that can be applied to real-life problems. The first part of the book looks at the theoretical framework, methods and techniques that the engineer or safety analyst needs to use when working on a HF-related project. The second part presents four case studies that show the reader how the above framework and guidelines work in practice. The case studies are based on real-life projects carried out by the author for a major European railway system, and in collaboration with international companies such as the International Civil Aviation Organisation, Volvo, Daimler-Chrysler and FIAT.

Sensemaking in Safety Critical and Complex Situations: Human Factors and Design Human factors-based design that supports the strengths and weaknesses of humans are often missed during the concept and design of complex technical systems. With the focus on digitalization and automation, the human actor is often left out of the loop but needs to step in during safety-critical situations. This book describes how human factors and sensemaking can be used as part of the concept and design of safety critical systems in order to improve safety and resilience. This book discusses the challenges of automation and automated systems when humans are left out of the loop and then need to intervene when the situation calls for it. It covers human control and accepts that humans must handle the unexpected and describes methods to support this. It is based on recent accident analysis

involving autonomous systems that move our understanding forward and supports a more modern view on human errors to improve safety in industries such as shipping and marine. The book is for human factors and ergonomists, safety engineers, designers involved in safety critical work and students. Stig Ole Johnsen is a Senior Researcher at SINTEF in Norway. He has a PhD from NTNU in Norway with a focus on resilience in complex socio-technical systems and has a Master's in Technology Management from MIT/NTNU. He chairs the Human Factors in Control network (HFC) in Norway to strengthen the human factors focus during development and implementation of safety critical technology. His research interests include meaningful human control to support safety and resilience during automation and digitalization. Thomas Porathe has a degree in Information Design from Malardalen University in Sweden. He is currently Professor of Interaction Design at the Norwegian University of Science and Technology in Trondheim, Norway. He specializes in maritime human factors and design of maritime information systems, specifically directed towards control room design, e-navigation and autonomous ships. He has been working with e-Navigation since 2006 in EU projects such as BLAST, EfficienSea, MONALISA, ACCSEAS, SESAME and the unmanned ship project MUNIN. He is active in the International Association of Aids to Navigation and Lighthouse Authorities (IALA).
The Safety Critical Systems Handbook: A Straightforward Guide to Functional Safety: IEC 61508 (2010 Edition), IEC 61511 (2015 Edition) and Related Guidance, Fifth Edition presents the latest guidance on safety-related systems that guard workers and the public against injury and death, also discussing environmental risks. This comprehensive resource has been fully revised, with additional material on risk assessment, cybersecurity, COMAH and HAZID, published guidance documents/standards, quantified risk assessment and new worked examples. The book provides a comprehensive guide to the revised IEC 61508 standard as well as the 2016 IEC 61511. This book will have a wide readership, not only in the chemical and process industries, but in oil and gas, power generation, avionics, automotive, manufacturing and other sectors. It is aimed at most engineers, including those in project, control and instrumentation, design and maintenance disciplines. Provides the only comprehensive guide to IEC 61508 and 61511 (updated for 2016) that ensures engineers are compliant with the latest process safety systems design and operation standards Presents a real-world approach that helps users interpret the standard, with new case studies and best practice design examples using revised standards Covers applications of the standard to device design
This book collects a high-quality selection of contemporary research and case studies on the complexity resulting from human/reliability management in industrial plants and critical infrastructures. It includes: Human-error management issues—considering how to reduce human errors as much as possible. Reliability management issues—considering the ability of a system or component to function under certain conditions for a specified period of time. Thus, the

book analyses globally the problem regarding the human and reliability management to reduce human errors as much as possible and to ensure safety and security in critical infrastructures. Accidents continue to be the major concern in "critical infrastructures", and human factors have been proved to be the prime causes to accidents. Clearly, human dynamics are a challenging management function to guarantee reliability, safety and costs reduction in critical infrastructures. The book is enriched by figures, examples and extensive case studies and is a valuable reference resource for those with involved in disaster and emergency planning as well as researchers interested both in theoretical and practical aspects.

Sensemaking in Safety Critical and Complex Situations

Guidance on Human Factors Safety Critical Task Analysis

A Straightforward Guide to Functional Safety: IEC 61508 (2010 Edition), IEC 61511 (2015 Edition) and Related Guidance

Human Error and Accident Management in Safety-Critical Systems

Human Factors and Reliability Engineering for Safety and Security in Critical Infrastructures

Making it Work in Practice