

Concurrent Engineering Journal

This Book Is Written By A Group Of International Experts On Concurrent Product And Process Design And Development. It Reflects Modern Trends And Approaches In Concurrent Engineering, With Particular Emphasis On Product Development Cycle. A Multi-Disciplinary Approach Is Adopted Throughout The Book. The Book Highlights Concurrent Engineering Organization; Enabling Tools And Techniques For Successful Concurrent Engineering; Manufacturing Strategy Decision Support Tools; Measure Of Manufacturing Performance For Concurrent Engineering; Economic Justification In A Concurrent Engineering Environment; Product Data Requirements In Concurrent Engineering. All These Features Make This Book An Extremely Valuable Reference Source For Practising Professionals And Engineering Students. A Number Of Prominent Scientists And Experts From Different Countries Have Jointly Worked To Compile The Chapters Of This Book Reflecting The Latest Developments And Modern Approaches To Concurrent Engineering. Advances in Concurrent Engineering Proceedings of the 9th ISPE International Conference on Concurrent Engineering, Cranfield, UK, 27-31 July 2002 CRC Press

The two-volume Advances in Information Systems Development: Bridging the Gap between Academia and Industry constitutes the collected proceedings of the Fourteenth International Conference on Information Systems Development: Methods and Tools, Theory and Practice – ISD'2005 Conference. The focus of these volumes is to examine the exchange of ideas between academia and industry and aims to explore new solutions. The proceedings follow the seven conference tracks highlighted at the Conference: Co-design of Business and IT; Communication and Methods; Human Values of Information Technology; Service Development and IT; Requirements Engineering in the IS Life-Cycle; Semantic Web Approaches and Applications; and Management and IT.

These proceedings contain lectures presented at the NATO Advanced Study Institute on Concurrent Engineering Tools and Technologies for Mechanical System Design held in Iowa City, Iowa, 25 May -5 June, 1992. Lectures were presented by leaders from Europe and North America in disciplines contributing to the emerging international focus on Concurrent Engineering of mechanical systems. Participants in the Institute were specialists from throughout NATO in disciplines constituting Concurrent Engineering, many of whom presented contributed papers during the Institute and all of whom participated actively in discussions on technical aspects of the subject. The proceedings are organized into the following five parts: Part 1 Basic Concepts and Methods Part 2 Application Sectors Part 3 Manufacturing Part 4 Design Sensitivity Analysis and Optimization Part 5 Virtual Prototyping and Human Factors Each of the parts is comprised of papers that present state-of-the-art concepts and methods in fields contributing to Concurrent Engineering of mechanical systems. The lead-off papers in each part are based on invited lectures, followed by papers based on contributed presentations made by participants in the Institute.

Concurrent Engineering is based on the concept that different phases of a product life cycle should be conducted concurrently and initiated as early as possible within the Product Creation Process (PCP). Its main goal is to increase the efficiency and effectiveness of the PCP and reduce errors in the later stages, and to incorporate considerations for the full lifecycle, through-life operations, and environmental issues of the product. It has become the substantive basic methodology in many industries, and the initial basic concepts have matured and become the foundation of many new ideas, methodologies, initiatives, approaches and tools. This book presents the proceedings of the 24th ISPE Inc. International Conference on Transdisciplinary (formerly: Concurrent) Engineering (TE 2017), held in Singapore, in July 2017. The 120 peer-reviewed papers in the book are divided into 16 sections: air transport and traffic operations and management; risk-aware supply chain intelligence; product innovation and marketing management; human factors in design; human engineering; design methods and tools; decision supporting tools and methods; concurrent engineering; knowledge-based engineering; collaborative engineering; engineering for sustainability; service design; digital manufacturing; design automation; artificial intelligence and data analytics; smart systems and the Internet of Things. The book provides a comprehensive overview of recent advances in transdisciplinary concurrent engineering research and applications, and will be of interest to researchers, design practitioners and educators working in the field.

Presents a top-down approach to the design, development, testing and recyclability of products, components and systems across a wide range of industries. Starting with the desired result and working back through the details, it shows how to produce goods, taking into account the challenges of actual manufacture, what the reliability requirements should be, quality control, associated costs, customer needs and more. Additional features include case studies and team negotiating. Also well-illustrated with figures, photographs, charts and tables and includes an extensive bibliography. This state-of-the-art book explores the concept of knowledge-intensive CAD systems. The topics covered range from ontology to knowledge representation, making it essential reading for researchers, engineers, and technical managers involved in the development of advanced applications for knowledge management, engineering design, and manufacturing.

This Proceedings volume contains articles presented at the CIRP-Sponsored International Conference on Digital Enterprise Technology (DET2009) that takes place December 14–16, 2009 in Hong Kong. This is the 6th DET conference in the series and the first to be held in Asia. Professor Paul Maropoulos initiated, hosted and chaired the 1st International DET Conference held in 2002 at the University of D- ham. Since this inaugural first DET conference, DET conference series has been successfully held in 2004 at Seattle, Washington USA, in 2006 at Setubal Portugal, in 2007 at Bath England, and in 2008 at Nantes France. The DET2009 conference continues to bring together International expertise from the academic and industrial fields, pushing forward the boundaries of research knowledge and best practice in digital enterprise technology for design and manufacturing, and logistics and supply chain management. Over 120 papers from over 10 countries have been accepted for presentation at DET2009 and inclusion in this Proceedings

volume after stringent refereeing process. On behalf of the organizing and program committees, the Editors are grateful to the many people who have made DET2009 possible: to the authors and presenters, especially the keynote speakers, to those who have diligently reviewed submissions, to members of International Scientific Committee, Organizing Committee and Advisory Committees, and to colleagues for their hard work in sorting out all the arrangements. We would also like to extend our gratitude to DET2009 sponsors, co-organizers, and supporting organizations.

This volume features the proceedings of the 14th ISPE Conference on Concurrent Engineering, held in São José dos Campos, São Paulo, Brazil, on the 16th – 20th of July 2007. It highlights the application of concurrent engineering to the development of complex systems.

In recent years the increased awareness of environmental issues has led to the development of new approaches to product design, known as Design for Environment and Life Cycle Design. Although still considered emerging and in some cases radical, their principles will become, by necessity, the wave of the future in design. A thorough exploration of the subject, *Product Design for the Environment: A Life Cycle Approach* presents key concepts, basic design frameworks and techniques, and practical applications. It identifies effective methods and tools for product design, stressing the environmental performance of products over their whole life cycle. After introducing the concepts of Sustainable Development, the authors discuss Industrial Ecology and Design for Environment as defined in the literature. They present the life cycle theory and approach, explore how to apply it, and define its main techniques. The book then covers the main premises of product design and development, delineating how to effectively integrate environmental aspects in modern product design. The authors pay particular attention to environmental strategies that can aid the achievement of the requisites of eco-efficiency in various phases of the product life cycle. They go on to explore how these strategies are closely related to the functional performance of the product and its components, and, therefore, to some aspects of conventional engineering design. The book also introduces phenomena of performance deterioration, together with principles of design for component durability, and methods for the assessment of residual life. Finally, the book defines entirely new methods and tools in relation to strategic issues of Life Cycle Design. Each theme provides an introduction to the problems and original proposals based on the authors' experience. The authors then discuss the implementation of these new concepts in design practice, differentiating between levels of intervention and demonstrating their use and effectiveness in specific case studies. The book not only presents evidence of the potential of the approach and methods proposed, but also analyzes some of the problems involved in developing eco-compatible products in the company context.

The main reason for the premature breakdown of today's electronic products (computers, cars, tools, appliances, etc.) is the failure of the components used to build these products. Today professionals are looking for effective ways to minimize the degradation of electronic components to help ensure longer-lasting, more technically sound products and systems. This practical book offers engineers specific guidance on how to design more reliable components and build more reliable electronic systems. Professionals learn how to optimize a virtual component prototype, accurately monitor product reliability during the entire production process, and add the burn-in and selection procedures that are the most appropriate for the intended applications. Moreover, the book helps system designers ensure that all components are correctly applied, margins are adequate, wear-out failure modes are prevented during the expected duration of life, and system interfaces cannot lead to failure.

This book sets out the innovative practices that have been introduced from other industries and shows how the construction industry has learnt from these.

Concurrent Engineering (CE) is a systematic approach to the integrated and concurrent design of products and related processes, including aspects as diverse as manufacture and support. It is only now being carefully applied to the construction sector and offers considerable potential for increasing efficiency and effectiveness. It enables developers to consider all elements of a building or structure's life cycle from the conception stage right through to disposal, and to include issues of quality, cost, schedule, and user requirements. Drawing together papers that reflect various research efforts on the implementation of CE in construction projects, *Concurrent Engineering in Construction* presents construction professionals and academics with the key issues and technologies important for CE's adoption, starting with fundamental concepts and then going on to the role of organisational enablers and advanced information and communication technologies, then providing conclusions and suggestions of future directions.

The proceedings contain papers accepted for the 17th ISPE International Conference on Concurrent Engineering, which was held in Cracow, Poland, September 6-10, 2010. Concurrent Engineering (CE) has a history of over twenty years. At first, primary focus was on bringing downstream information as much upstream as possible, by introducing parallel processing of processes, in order to prevent errors at the later stage which would sometimes cause irrevocable damage and to reduce time to market. During the period of more than twenty years, numerous new concepts, methodologies and tools have been developed. During this period the background for engineering/manufacturing has changed extensively. Now, industry has to work with global markets. The globalization brought forth a new network of experts and companies across many different domains and fields in distributed environments. These collaborations integrated with very high level of professionalism and specialisation, provided the basis for innovations in design and manufacturing and succeeded in creating new products on a global market.

Serving as a general, nontechnical resource for students and academics, these volumes provide an understanding of the development of business as practiced around the world.

Collaborative product assembly design and assembly planning presents several newly-developed methodologies and applications for collaborative assembly design and assembly planning, two important steps during the product development life cycle. These benefits include effective and rapid assembly design and assembly planning, thereby

reducing the development cost and helping manufacturers enhance profit. With increased development in computer technologies and the Internet, the traditional assembly design and assembly planning have evolved around collaborative assembly design and assembly planning to speed up the product development process. Research in this area has attracted much attention in the past decade. Based on research work in the past few years, this book will present several newly-developed methodologies and applications for collaborative assembly design and assembly planning to improve the efficiency of product development in a collaborative design environment. Provides practical and realistic solutions to engineering problems Methodologies introduced will lead to future commercialisation of systems Detailed step-by-step case study examples will illustrate the methodologies and be discussed thoroughly

* Presents assessment methods for organization and management processes. * Provides special tools and techniques for managing and organizing R&D, new product, and project-oriented challenges. * Includes real-world case studies.

This volume contains papers presented during the science trace at the 4th International Conference of Business Information Systems, BIS 2000, held in Poznan, Poland, 12-13 April 2000, which discussed the development, implementation, applications and improvement of computer systems for business processes. The papers deal with practical, industry experiences and validated prototype implementations, and cover areas such as integration of information systems, electronic transactions and banking, virtual organisations, network technologies, business information systems modelling and analysis.

Contains papers on the advances in Concurrent Engineering research and applications. This book focuses on developing methodologies, techniques and tools based on Web technologies required to support the key objectives of Concurrent Engineering.

This book covers recent advances in simultaneous engineering and contemporary issues related to the development and implementation of successful systems. The scope of material includes recent research related to simultaneous engineering problem-solving architectures, organizational issues, tools and techniques of simultaneous engineering, design methods, and application of artificial intelligence and numeric tools.

As a concept, Concurrent Engineering (CE) initiates processes with the goal of improving product quality, production efficiency and overall customer satisfaction. Services are becoming increasingly important to the economy, with more than 60% of the GDP in Japan, the USA, Germany and Russia deriving from service-based activities. The definition of a product has evolved from the manufacturing and supplying of goods only, to providing goods with added value, to eventually promoting a complete service business solution, with support from introduction into service and from operations to decommissioning. This book presents the proceedings of the 20th ISPE International Conference on Concurrent Engineering, held in Melbourne, Australia, in September 2013. The conference had as its theme Product and Service Engineering in a Dynamic World, and the papers explore research results, new concepts and insights covering a number of topics, including service engineering, cloud computing and digital manufacturing, knowledge-based engineering and sustainability in concurrent engineering.

Topics covered include: design technologies and applications; FE simulation for concurrent design and manufacture; methodologies; knowledge engineering and management; CE within virtual enterprises; and CE - the future.

Industrial engineering affects all levels of society, with innovations in manufacturing and other forms of engineering oftentimes spawning cultural or educational shifts along with new technologies. Industrial Engineering: Concepts, Methodologies, Tools, and Applications serves as a vital compendium of research, detailing the latest research, theories, and case studies on industrial engineering. Bringing together contributions from authors around the world, this three-volume collection represents the most sophisticated research and developments from the field of industrial engineering and will prove a valuable resource for researchers, academics, and practitioners alike.

Presenting a systematic approach to concurrent engineering (CE), this reference accommodates the small corporation's quest to incorporate better design management practices. The author provides an easy-to-follow methodology that eliminates the need for costly consultants and promotes environmentally friendly solutions and introduces three main design models to aid in new, evolutionary, and incremental product design. She examines how the adoption of CE practices improves overall performance.

Topics include: engineering specifications for product parameters, conceptual and embodiment design, vendor selection and approval, prototyping, line and equipment installation, and more.

Methods presented involve the use of simulation and modeling tools and virtual workstations in conjunction with a design environment. This allows a diverse group of researchers, manufacturers, and suppliers to work within a comprehensive network of shared knowledge. The design environment consists of engineering workstations and servers and a suite of simulation, quantitative, computational, analytical, qualitative and experimental tools. Such a design environment will allow the effective and efficient integration of complete product design, manufacturing process design, and customer satisfaction predictions. This volume enables the reader to create an integrated concurrent engineering design and analysis infrastructure through the use of virtual workstations and servers; provide remote, instant sharing of engineering data and resources for the development of a product, system, mechanism, part, business and/or process, and develop applications fully compatible with international CAD/CAM/CAE standards for product representation and modeling.

This book is about synergy in computational intelligence (CI). It is a collection of chapters that covers a rich and diverse variety of computer-based techniques, all involving some aspect of computational intelligence, but each one taking a somewhat pragmatic view. Many complex problems in the real world require the application of some form of what we loosely call "intelligence" for their solution. Few can be solved by the naive application of a single technique, however good it is. Authors in this collection recognize the limitations of individual paradigms, and propose some practical and novel ways in which different CI techniques can be combined with each other, or with more traditional computational techniques, to produce powerful problem-solving environments which exhibit synergy, i. e., systems in which the whole is greater than the sum of the parts. Computational intelligence is a relatively new term, and there is some disagreement as to its precise definition. Some practitioners limit its scope to schemes involving evolutionary algorithms, neural networks, fuzzy logic, or hybrids of these. For others, the definition is a little more flexible,

and will include paradigms such as Bayesian belief networks, multi-agent systems, case-based reasoning and so on. Generally, the term has a similar meaning to the well-known phrase “Artificial Intelligence” (AI), although AI is perceived more as a “bottom up” approach from which intelligent behaviour can emerge, whereas AI tends to be studied from the “topdown”, and derive from pondering upon the “meaning of intelligence”. (These and other key issues will be discussed in more detail in Chapter 1. During the last two decades, a tremendous growth in the popularity and applications of computers in manufacturing has occurred. Computer aided design, computer-aided manufacturing, flexible manufacturing systems, group technology and many others are considered by many manufacturing executives as the most promising technologies and philosophies that, if successfully implemented, can reduce costs and enable the US manufacturing companies to become more competitive in the global market. In the computer-integrated manufacturing environment, the decision processes are often more involved. The decision makers are frequently required to have access to a vast amount of data to support and analyze their complex decision problems at strategic and tactical levels. Decision support systems are often referred to as computer-based information technologies that allow the decision makers to interactively communicate and solve the decision problems. Manufacturing Decision Support Systems is intended to report the latest developments and address the central issues in this area. This volume consists of 14 refereed chapters, written by leading researchers from academia and industry.

Over the past decade, with greater emphasis being placed upon shorter lead times, better quality products, reduced product costs, and greater customer satisfaction, the topic of Engineering Design has received increased interest from the industrial and academic communities. Considerable effort has been directed at developing design process methodologies and building computer tools that focus upon relatively narrow aspects of design, but many key problems in Engineering Design research and practice remain unanswered. Resulting from the First International Engineering Design Debate held in Glasgow, UK in late 1996, this volume discusses the main issues concerning the improvement of design productivity. Covering design studies, design development, concurrent engineering and design knowledge and information, it attempts to derive a common understanding of the basic factors, problems and potential solutions involved.

This book gathers the best papers presented at the second conference held by the Russian chapter of the Association for Information Systems (AIS), which took place in Yekaterinburg, Russian Federation, in December 2019. It shares the latest insights into various aspects of the digitalization of the economy and the consequences of transformation in public administration, business and public life. Integrating a broad range of analytical perspectives, including economic, social and technological, this interdisciplinary book is particularly relevant for scientists, digital technology users, companies and public institutions.

Since the advent of steam engines and higher throughput railways during the early nineteenth century, the rate of development has been rather steady and incremental. The development of advanced electronic control and command systems, increasing levels of automation, and electrified high-speed railways over the past few decades have transformed the rail transportation posing it as a competitor to aviation. Modern railways are no longer the sole forte of civil and mechanical engineering and involve a broad multidisciplinary engineering disciplines from advanced computing, telecommunications, and networking to big data analytics and even AI. This volume addresses the diverse, evolving, and advanced engineering disciplines including enabling practices and processes involved in shaping modern railways.

These proceedings represent the work of researchers presenting at the 16th European Conference on Knowledge Management (ECKM 2015). We are delighted to be hosting ECKM at the University of Udine, Italy on the 3-4 September 2015. The conference will be opened with a keynote from Dr Madelyn Blair from Pelere Inc., USA on the topic “The Role of KM in Building Resilience”. On the afternoon of the first day Dr Daniela Santarelli, from Lundbeck, Italy will deliver a second keynote speech. The second day will be opened by Dr John Dumay from Macquarie University, Sydney, Australia. ECKM is an established platform for academics concerned with current research and for those from the wider community involved in Knowledge Management to present their findings and ideas to peers from the KM and associated fields. ECKM is also a valuable opportunity for face to face interaction with colleagues from similar areas of interests. The conference has a well-established history of helping attendees advance their understanding of how people, organisations, regions and even countries generate and exploit knowledge to achieve a competitive advantage, and drive their innovations forward. The range of issues and mix of approaches followed will ensure an interesting two days. 260 abstracts were initially received for this conference. However, the academic rigor of ECKM means that, after the double blind peer review process there are 102 academic papers, 15 PhD research papers, 1 Masters research papers and 7 Work in Progress papers published in these Conference Proceedings. These papers reflect the continuing interest and diversity in the field of Knowledge Management, and they represent truly global research from many different countries, including Algeria, Austria, Bosnia and Herzegovina, Brazil, Canada, Chile, Colombia, Cuba, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Hungary, India, Indonesia, Iran, Ireland, Italy, Japan, Jordan, Kenya, Lithuania, Mexico, Nigeria, Norway, Pakistan, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sultanate of Oman, Sweden, Switzerland, Thailand, The Netherlands, UK, United Arab Emirates, USA and Venezuela.

The CE Conference series is organized annually by the International Society for Productivity Enhancement (ISPE) and constitutes an important forum for international scientific exchange on concurrent and collaborative enterprise engineering. These international conferences attract a significant number of researchers, industrialists and students, as well as government representatives, who are interested in the recent advances in concurrent engineering research and applications. Concurrent Engineering Approaches for Sustainable Product Development in a Multi-Disciplinary Environment: Proceedings of the 19th ISPE International Conference on Concurrent Engineering contains papers accepted, peer reviewed and presented at the annual conference held at the University of Applied Sciences in Trier, Germany, from 3rd-7th of September 2012. This covers a wide range of cutting-edge topics including: Systems Engineering and Innovation Design for Sustainability Knowledge Engineering and Management Managing product variety Product Life-Cycle Management and Service Engineering Value Engineering

In the area of computer-integrated manufacturing, concurrent engineering is recognized as the manufacturing philosophy for the next decade. This book is a collection of papers presented at the 7th ISPE International Conference on Concurrent Engineering (CE): Research and Applications. The papers deal with different topics providing information on information modelling, CE in virtual environment, and standards in CE.

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