

New and Forthcoming Industrial and Systems Engineering 2011/12

System Engineering and Operations Research - Vol. 1

Bestseller

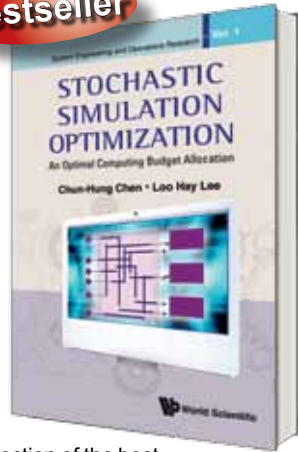
STOCHASTIC SIMULATION OPTIMIZATION: An Optimal Computing Budget Allocation

by **Chun-Hung Chen** (*George Mason University, USA & National Taiwan University, Taiwan*) & **Loo Hay Lee** (*National University of Singapore*)

Stochastic Simulation Optimization addresses the pertinent efficiency issue via smart allocation of computing resource in the simulation experiments for optimization, and aims to provide academic researchers and industrial practitioners with a comprehensive coverage of OCBA approach for stochastic simulation optimization. Starting with an intuitive explanation of computing budget allocation and a discussion of its impact on optimization performance, a series of OCBA approaches developed for various problems are then presented, from the selection of the best design to optimization with multiple objectives. Finally, this book discusses the potential extension of OCBA notion to different applications such as data envelopment analysis, experiments of design and rare-event simulation.

Readership: Academics and professionals in the fields of stochastic analysis, systems and industrial engineering, probability and statistics, and computer science.

248pp Jun 2010
978-981-4282-64-2 US\$102 £70



Highly Recommended

Series on Quality Reliability and Engineering Statistics - Vol. 15

BASICS OF RELIABILITY AND RISK ANALYSIS: Worked Out Problems and Solutions

by **Enrico Zio** (*École Centrale Paris, France & Politecnico di Milano, Italy*), **Piero Baraldi** (*Politecnico di Milano, Italy*) & **Francesco Cadini** (*Politecnico di Milano, Italy*)

Reliability and safety are fundamental attributes of any modern technological system. To achieve this, diverse types of protection barriers are placed as safeguards from the hazard posed by the operation of the system, within a multiple-barrier design concept. These barriers are intended to protect the system from failures of any of its elements, hardware, software, human and organizational. Correspondingly, the quantification of the probability of failure of the system and its protective barriers, through reliability and risk analyses, becomes a primary task in both the system design and operation phases. This exercise book serves as a complementary tool supporting the methodology concepts introduced in the books "An introduction to the basics of reliability and risk analysis" and "Computational methods for reliability and risk analysis" by Enrico Zio, in that it gives an opportunity to familiarize with the applications of classical and advanced techniques of reliability and risk analysis.

Readership: Graduate students and researchers in the field of reliability and risk analysis.

220pp Mar 2011
978-981-4355-03-2 US\$68 £44
978-981-4355-04-9(ebook) US\$88

ADVANCES IN MARITIME LOGISTICS AND SUPPLY CHAIN SYSTEMS

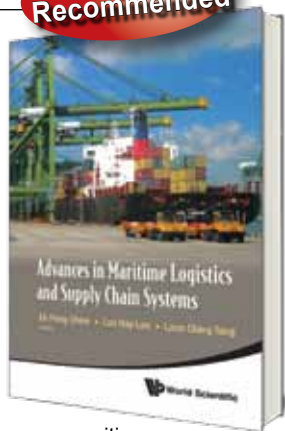
edited by **Ek Peng Chew**, **Loo Hay Lee** & **Loon Ching Tang** (*National University of Singapore*)

This timely book discusses the recent developments in maritime logistics, an important specialized area for the global economy. It includes issues such as the recent economic crisis, port competition and development, and provides insights and trends relating to these issues. Consisting of renowned researchers worldwide, the primary objective of the book identifies some of the new problems and challenges faced and innovative solutions to address these problems.

Readership: Professionals, researchers, academics, and graduate students in supply chain and logistics, with particular focus on maritime issues, who are interested in inter-disciplinary research related to globalization, international trade and safety.

250pp Jun 2011
978-981-4329-85-9 US\$82 £51
978-981-4329-86-6(ebook) US\$107

Highly Recommended

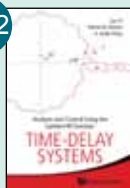


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www.worldscibooks.com

HIGHLIGHTS

TIME-DELAY SYSTEMS: Analysis and Control Using the Lambert W Function

by **Sun Yi** (*University of Michigan, Ann Arbor, USA*), **Patrick W Nelson** (*University of Michigan, Ann Arbor, USA*) & **A Galip Ulsoy** (*University of Michigan, Ann Arbor, USA*)



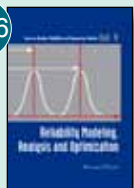
RAPID PROTOTYPING: Principles and Applications - Third Edition (with Companion CD-ROM)

by **C K Chua**, **K F Leong** & **C S Lim** (*Nanyang Technological University, Singapore*)



RELIABILITY MODELING, ANALYSIS AND OPTIMIZATION

by **Hoang Pham** (*Rutgers University, USA*)

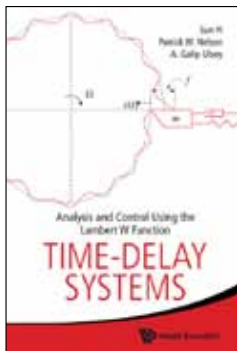


TIME-DELAY SYSTEMS: Analysis and Control Using the Lambert W Function

by Sun Yi (University of Michigan, Ann Arbor, USA), Patrick W Nelson (University of Michigan, Ann Arbor, USA) & A Galip Ulsoy (University of Michigan, Ann Arbor, USA)

This book comprehensively presents a recently developed novel methodology for analysis and control of time-delay systems. Time-delays frequently occurs in engineering and science. Such time-delays can cause problems (e.g. instability) and limit the achievable performance of control systems. The concise and self-contained volume uses the Lambert W function to obtain solutions to time-delay systems represented by delay differential equations.

Readership: Researchers and graduate students in systems engineering, mechanical engineering, analysis & differential equations and mathematical biology.



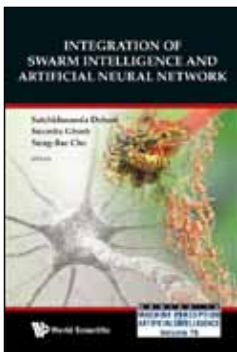
156pp Jun 2011
 978-981-4307-39-0 US\$58 £36
 978-981-4307-40-6(ebook) US\$75

Series in Machine Perception and Artificial Intelligence

INTEGRATION OF SWARM INTELLIGENCE AND ARTIFICIAL NEURAL NETWORK

edited by Satchidananda Dehuri (Fakir Mohan University, India), Susmita Ghosh (Jadavpur University, India) & Sung-Bae Cho (Yonsei University, South Korea)

This book provides a new forum for the dissemination of knowledge in both theoretical and applied research on swarm intelligence (SI) and artificial neural network (ANN). It accelerates interaction between the two bodies of knowledge and fosters a unified development in the next generation of computational model for machine learning. To the best of our knowledge, the integration of SI and ANN is the first attempt to integrate various aspects of both the independent research area into a single volume.



Readership: Researchers, academics and graduate students in neural networks, machine vision, artificial intelligence, electrical & electronic engineering and industrial engineering.

400pp Jan 2011
 978-981-4280-14-3 US\$111 £76

Series on Quality Reliability and Engineering Statistics

DESIGN FOR SIX SIGMA FOR ENGINEERS

by Matthew Hu (Wayne State University, USA), Kai Yang (Wayne State University, USA), Michael Sheh (Engineous Software Inc., USA) & Malik Kayupov (Engineous Software Inc., USA)

In this comprehensive volume, the four-phase IDOV — Identify-Design-Optimize-Verify — Design for Six Sigma (DFSS) methodology is discussed in detail. The various practices from inventive design methodologies, deterministic and stochastic numerical methods, and the use of CAE simulation techniques, are mapped to the DFSS procedure. Many case studies are used to illustrate how tools are used in DFSS processes. Written by DFSS practitioners and technologists, this book is intended for any engineer to use as a reference in executing DFSS projects.

Readership: Graduate students, engineers and industrialists interested in the Design for Six Sigma methodology.

500pp Apr 2011
 978-981-256-063-6 US\$115 £76
 978-981-283-335-8(ebook) US\$150

COMPUTER AIDED ENGINEERING DESIGN WITH SOLIDWORKS

by Godfrey Onwubolu (Humber College of Technology & Advanced Learning, Canada)

This text book is unique because it is one of the very few to thoroughly cover the applications of SolidWorks in manufacturing processes, mechanical systems and engineering analysis as presented in Part I. It is written using a hands-on approach in which students can follow the steps described in each chapter to model and assemble parts, produce drawings and be involved in the applications on their own with little assistance from their instructors during each teaching session or in the computer laboratory. There are several pictorial descriptions of the steps involved in every stage of part modeling, assembly modeling, drawing details, and applications presented in this text book.

Readership: Advanced undergraduates and graduate students, academia and researchers in mechanical engineering and other areas in this field.

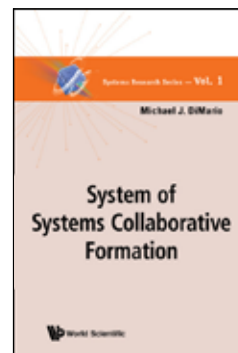
600pp May 2011
 978-1-84816-665-3 US\$78 £48
 978-1-84816-702-5(ebook) US\$101

Systems Research Series - Vol. 1

SYSTEM OF SYSTEMS COLLABORATIVE FORMATION

by Michael J DiMario (Stevens Institute of Technology, USA)

This book provides two unique contributions to the body of knowledge of System of Systems (SoS) theory, management, and engineering. Firstly, it assesses the dynamics of a SoS through the use of five core characteristics, namely autonomy, belonging, connectivity, diversity and emergence. Secondly, it describes a mechanism of collaboration whereby the characteristics of autonomy and belonging are satisfying for the SoS constituents and the resultant emergent behavior provides value for the observer.



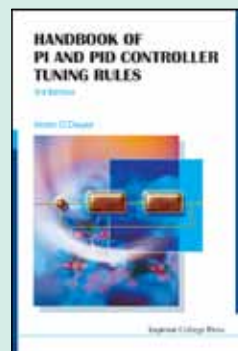
Readership: Researchers, professionals and graduate students in systems engineering and decision sciences.

216pp Aug 2010
 978-981-4313-88-9 US\$88 £61
 978-981-4313-89-6(ebook) US\$114

HANDBOOK OF PI AND PID CONTROLLER TUNING RULES (3rd Edition)

by Aidan O'Dwyer (Dublin Institute of Technology, Ireland)

This book comprehensively compiles, using a unified notation, tuning rules for these controllers proposed from 1935 to 2008. The tuning rules are carefully categorized and application information about each rule is given. This wholly revised third edition extends the presentation of PI and PID controller tuning rules, for single variable processes with time delays, to include additional rules compiled since the second edition was published in 2006.



Readership: Control engineering researchers in academia and industry with an interest in PID control and control engineering practitioners using PID controllers. The book also serves as a reference for postgraduate and undergraduate students.

624pp Jun 2009
 978-1-84816-242-6 US\$201 £138
 978-1-84816-243-3(ebook) US\$261





edited by **Avram Bar-Cohen** (University of Maryland, USA)

ENCYCLOPEDIA OF THERMAL PACKAGING

Set 1: Thermal Packaging Techniques (A 4-Volume Set)

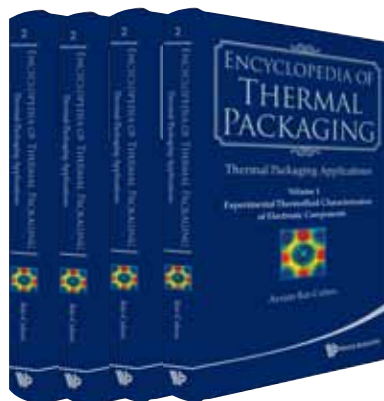
Set 2: Thermal Packaging Applications (A 4-Volume Set)

Introductory Offer
till Dec 2011
~~US\$1380~~ £897



Set 1 - 1400pp
Sep 2011
978-981-431-378-0
~~US\$1580~~ — £1027—
978-981-431-379-7 (ebook)
US\$2054

Introductory Offer
till Jun 2012
~~US\$1380~~ £897



Set 2 - 1400pp
Mar 2012
978-981-432-760-2
~~US\$1580~~ — £1027—
978-981-432-766-4 (ebook)
US\$2054

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

Each volume in this set is comprised of 250–350 pages and is written by world experts in the specific aspect of thermal management of electronics.

Readership: Undergraduate and graduate students studying mechanical, electrical and electronic engineering; packaging engineers, electronic product development engineers, and product managers, as well as to researchers in thermal management of electronic and photonic components and systems.

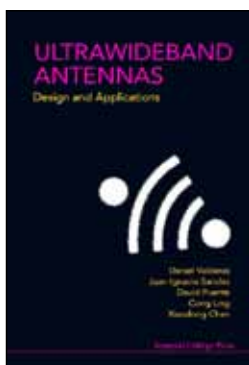
The books included in “Set 1: Thermal Packaging Techniques” focus on the technology “building blocks” used to assemble a complete thermal management system and provide detailed descriptions of the underlying phenomena, modeling equations, and correlations, as well as guidance for achieving the optimal designs of individual “building blocks” and their insertion in the overall thermal solution. Specific volumes deal with coldplates, microchannel coolers, heat sinks, thermal interface materials (TIMs), thermoelectric microcoolers, and immersion cooling modules.

The books included in “Set 2: Thermal Packaging Applications” focus on the unique considerations which guide the design and operation of electronic systems in various distinct applications and address the thermal management requirements, operating environments, and best available thermal solutions for these applications. Volumes offered in Set 2 of the Thermal Packaging Encyclopedia will deal with solid state lighting, data centers, power electronics, photovoltaic arrays, and experimental measurement techniques.

ULTRAWIDEBAND ANTENNAS: Design and Applications

by **Daniel Valderas** (University of Navarra, Spain), **Juan Ignacio Sanchoi** (University of Navarra, Spain), **David Puente** (Universidad Politécnica de Madrid, Spain), **Xiaodong Chen** (University of London, UK) & **Ling Cong** (Imperial College London, UK)

This breathtaking resource builds upon the basics of UWB technology to provide a complete compilation of figures of merit along with a vital state-of-the-art of the different antenna alternatives that are to be employed according to the specific application. Without excessive recourse to mathematics, this volume emphasizes on the UWB antenna design and equips readers with practical prediction techniques based on simple formulas and models. The big picture of UWB antenna technology would not be complete without addressing its applications, and this will serve to provide consultants with key clues for slot market searching.



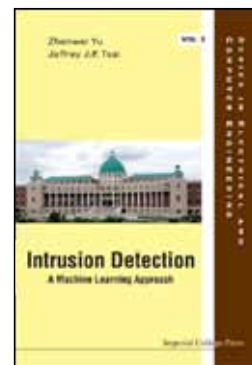
Readership: R&D organizations, researchers, practitioners, consultants, RF professionals and communication engineers.

210pp
978-1-84816-491-8
978-1-84816-492-5(ebook)
Oct 2010
US\$90 £62
US\$117

INTRUSION DETECTION: A Machine Learning Approach

Series in Electrical and Computer Engineering - Vol. 3
by **Jeffrey J P Tsai** (University of Illinois, Chicago, USA & Asia University, Taiwan)

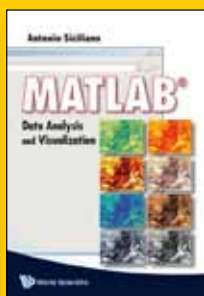
This important book introduces the concept of intrusion detection, discusses various approaches for intrusion detection systems (IDS), and presents the architecture and implementation of IDS. It emphasizes on the prediction and learning algorithms for intrusion detection and highlights techniques for intrusion detection of wired computer networks and wireless sensor networks. The performance comparison of various IDS via simulation will also be included.



Readership: Academicians, researchers and graduate students in software engineering/programming; computer engineering, knowledge and system engineering.

300pp
978-1-84816-447-5
978-1-84816-448-2(ebook)
Dec 2010
US\$111 £76
US\$144

Bestselling Titles



ROBUST DESIGN FOR QUALITY ENGINEERING AND SIX SIGMA

by **Sung H Park** (Seoul National University, Korea) & **Jiju Antony** (University of Strathclyde, UK)

"This is a good book and the authors must be congratulated to have chosen the right subject ... The book is very well-written and will be found as good reference material to the subject. The reviewer would like to recommend this book to the engineers and statisticians who wish to get familiarized with the subject." **International Journal of Performability Engineering**

Readership: Graduates in engineering or statistics related discipline; managers, engineers, quality improvement specialists and other professionals with an interest in Taguchi's robust design methods.

560pp **Sep 2008**
978-981-277-867-3 **US\$124** **£86**
978-981-277-869-7(ebook) **US\$161**

Advanced Series on Ocean Engineering - Vol. 17

MATLAB: Data Analysis and Visualization

by **Antonio Siciliano** (University of Bari, Italy)

The book begins by looking at the main tools, in particular the Desktop, the Command and History Window, the Editor and the Help Browser. The selected number of functions, graphics objects, related properties and operators, considered fundamental in MATLAB, is a unique and remarkable feature of this book. These basic elements are minutely treated both formally and through examples.

Readership: Undergraduate and graduate students, engineers and researchers in all science and technology fields.

296pp **Oct 2008**
978-981-283-554-3 **US\$65** **£36**
978-981-283-751-6(pbk) **US\$45** **£25**
978-981-283-555-0(ebook) **US\$85**

Series on Manufacturing Systems and Technology - Vol. 4

DESIGN REUSE IN PRODUCT DEVELOPMENT MODELING, ANALYSIS AND OPTIMIZATION

by **S K Ong**, **Andrew Y C Nee** (National University of Singapore) & **Q L Xu** (Nanyang Technological University, Singapore)

This volume covers both theoretical topics and implementation strategies, with detailed case studies to help readers gain an insight in areas such as product information modeling, information analysis, engineering optimization, production cost estimation, and product performance evaluation.

Readership: Advanced undergraduates and graduate students, academia and researchers in collaborative engineering in product design and manufacturing, product design methodologies and applications.

312pp **Nov 2008**
978-981-283-262-7 **US\$112** **£77**
978-981-283-263-4(ebook) **US\$146**

Series on Industrial and Systems Engineering - Vol. 3

CREATIVITY FOR ENGINEERS

by **B S Dhillon** (University of Ottawa, Canada)

"The reviewer would like to recommend this book to all the engineers and engineering organizations who would like to take advantage of improving their business through the development of products, system and services that have an edge over others through creative designs." **International Journal of Performability Engineering**

Readership: Senior undergraduates, graduates, researchers and engineers in industrial engineering.

204pp **Feb 2006**
978-981-256-529-7 **US\$69** **£47**
978-981-270-727-7(ebook) **US\$90**

A FIRST SYSTEMS BOOK: Technology and Management (2nd Edition)

by **Margaret Myers** (Richmond, The American International University in London, UK) & **Agnes Kaposi** (Kaposi Associates, UK)

The book introduces simple yet sound concepts and a language understandable to all concerned. Its methods of process modelling, systems analysis and design complement traditional methods of engineering and management. It demonstrates those methods on problems arising from everyday life, industry, business, quality management and public administration.

Readership: Undergraduates and lecturers in computing, business studies and all branches of engineering (including integrated engineering and systems engineering); scientists; managers in industry, business and public administration; designers and auditors of quality management systems.

224pp **Mar 2004**
978-1-86094-431-4 **US\$82** **£57**
978-1-86094-432-1(pbk) **US\$37** **£26**
978-1-86094-547-2(ebook) **US\$107**

Series on Industrial and Systems Engineering - Vol. 1

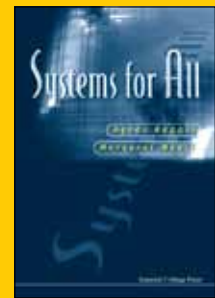
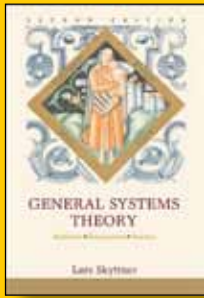
ENGINEERING SAFETY: Fundamentals, Techniques, and Applications

by **B S Dhillon** (University of Ottawa, Canada)

Safety has become very important because each year a vast number of people die due to workplace and other accidents. For example, in the United States for the year 1996 as per the National Safety Council, there were 93,400 deaths and 20,700,000 disabling injuries due to workplace accidents, with a total loss of \$121 billion. Today there are a large number of books available on safety, but to the best of the author's knowledge none covers both general and systems safety (i.e., at a significant depth) and application or specialized areas such as software safety, robot safety, health care safety, and maintenance safety. This book has been written to satisfy that vital need.

Readership: Senior level undergraduates and graduate students in safety/ industrial engineering; safety professionals and researchers; company safety officers; engineering designers.

240pp **Mar 2003**
978-981-238-221-4 **US\$60** **£41**
978-981-238-328-0(pbk) **US\$36** **£25**



REAL-TIME SYSTEMS: Implementation of Industrial Computerized Process Automation

by **W A Halang** (Univ. Groningen) & **K M Sacha** (Warsaw Univ. Technology)

This book represents the first comprehensive text in English on real-time and embedded computing systems. It is addressed to engineering students of universities and polytechnics as well as to practitioners and provides the knowledge required for the implementation of industrial computerized process control and manufacturing automation systems. Special emphasis is placed on a sound conceptual basis and on methodologies and tools for the development of high quality control software, since software dependability has been identified as the major problem area of computerized process automation.

Readership: Computer scientists, engineers and students.

380pp Dec 1992
 978-981-02-1063-2 US\$115 £79
 978-981-02-1064-9(pbk) US\$47 £33
 978-981-281-246-9(ebook) US\$150

GENERAL SYSTEMS THEORY: Problems, Perspectives, Practice (Second Edition)

by **Lars Skyttner** (University of Gavle, Sweden)

This revised and updated second edition of *General Systems Theory — Ideas and Applications* includes new systems theories and a new chapter on self-organization and evolution. The book summarizes most of the fields of systems theory and its application systems science in one volume. It provides a quick and readable reference guide for future learning containing both general theories and practical applications without the use of complicated mathematics.

Readership: Computer specialists, architects, businessmen, decision makers of all kinds, teachers and holistic thinkers.

536pp Jan 2006
 978-981-256-389-7 US\$199 £137
 978-981-256-467-2(pbk) US\$100 £69
 978-981-277-475-0(ebook) US\$259

Series on Quality Reliability and Engineering Statistics - Vol. 12

ENCYCLOPEDIA AND HANDBOOK OF PROCESS CAPABILITY INDICES: A Comprehensive Exposition of Quality Control Measures

by **W L Pearn** (National Chiao Tung University, Taiwan) & **Samuel Kotz** (George Washington University, USA)

"The authors provide a very useful Bibliography arranged alphabetically by the first author's name which contains a voluminous listing of 474 publications ... this book is unique and will be very useful for industries and research organizations concerned with the process control."
 International Journal of Performability Engineering

Readership: Undergraduate and graduate students, researchers and engineers in engineering, statistics, environmental sciences, and quality control and management.

392pp May 2006
 978-981-256-759-8 US\$139 £96

Series on Quality Reliability and Engineering Statistics - Vol. 9

RELIABILITY MODELING, ANALYSIS AND OPTIMIZATION

by **Hoang Pham** (Rutgers University, USA)

The book comprises twenty-three chapters organized into four parts: Reliability Modeling, Software Quality Engineering, Software Reliability, and Maintenance and Inspection Policies. These sections cover a wide range of important topics, including system reliability modeling, optimization, software reliability and quality, maintenance theory and inspection, reliability failure analysis, sampling plans and schemes, software development processes and improvement, stochastic process modeling, statistical distributions and analysis and HALT testing.

Readership: Serves as a reference for researchers and practitioners in reliability and maintenance engineering, software and information engineering, and safety and systems engineering; may also be used as an advanced textbook for graduate and post-graduate students engaged in reliability research.

508pp Jun 2006
 978-981-256-388-0 US\$199 £137
 978-981-270-714-7(ebook) US\$259

Series on Manufacturing Systems and Technology - Vol. 2

INTEGRATED AND COLLABORATIVE PRODUCT DEVELOPMENT ENVIRONMENT: Technologies and Implementations

by **W D Li** (University of Bath, UK), **S K Ong** (National University of Singapore) & **A Y C Nee** (National University of Singapore)

This book covers the state-of-the-art research and development status of these strategies and technologies. Implementation strategies and case studies are provided with an emphasis on technical details to help readers understand the underlying algorithms and infrastructures.

Readership: Mechanical and manufacturing engineering graduate students, researchers in the field of concurrent engineering, collaborative engineering and intelligent engineering. Engineers in charge of utilization, development of concurrent and collaborative software tools.

348pp Mar 2006
 978-981-256-680-5 US\$135 £93
 978-981-277-415-6(ebook) US\$176

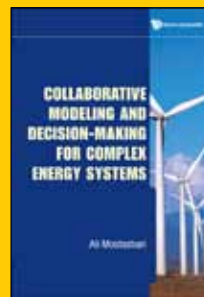
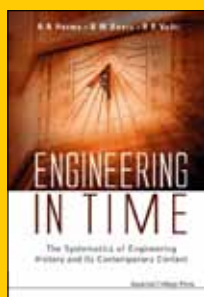
SYSTEMS FOR ALL

by **Agnes Kaposi** (Kaposi Associates, London) & **Margaret Myers** (The American International University, London)

"I recommend this book to teachers and researchers as it provides a basis of an intellectual framework for systems engineering ... I believe that this work will be a major contribution to the development of a systematic framework for systems engineering as the discipline becomes more mature." **John McDermid**, University of York

Readership: Undergraduate and postgraduate students in systems engineering, information technology and management; professionals working in these fields; general readers with an interest in systems.

388pp Jun 2001
 978-1-86094-273-0 US\$73 £51
 978-1-86094-275-4(pbk) US\$41 £28



Recommended Titles

Series in Intelligent Control and Intelligent Automation - Vol. 6

MODELING, SIMULATION, AND CONTROL OF FLEXIBLE MANUFACTURING SYSTEMS: A Petri Net Approach

by **MengChu Zhou** (*New Jersey Institute of Technology, USA*) & **Kurapati Venkatesh** (*New Jersey Institute of Technology, USA*)

There are three ways this book will directly benefit readers. First, the book will allow engineers and managers who are responsible for the design and implementation of modern manufacturing systems to evaluate Petri nets for applications in their work. Second, it will provide sufficient breadth and depth to allow development of Petri-net-based industrial applications. Third, it will allow the basic Petri net material to be taught to industrial practitioners, students, and academic researchers much more efficiently.

Readership: Engineers and researchers in systems & knowledge engineering, electrical & electronic engineering, mechanical engineering, manufacturing systems, robotics, operations research and CAD/CAM.

428pp	Jan 1999	
978-981-02-3029-6	US\$99	£68
978-981-283-976-3(ebook)	US\$129	

Series on Quality Reliability and Engineering Statistics - Vol. 8

RESPONSE MODELING METHODOLOGY: Empirical Modeling for Engineering and Science

by **Haim Shore** (*Ben-Gurion University of the Negev, Israel*)

This book introduces a new approach, denoted RMM, for an empirical modeling of a response variation, relating to both systematic variation and random variation. In the book, the developer of RMM discusses the required properties of empirical modeling and evaluates how current approaches conform to these requirements.

Readership: Graduate students, researchers and other professionals employing empirical modeling in areas like Quality and Reliability, Operations Research, Operations Management and Applied Statistics.

460pp	Apr 2005	
978-981-256-102-2	US\$142	£98
978-981-256-928-8(ebook)	US\$185	

ENGINEERING IN TIME: The Systematics of Engineering History and Its Contemporary Context

by **A A Harms** (*McMaster University, Canada*), **B W Baetz** (*Tulane University, USA*) & **R R Volti** (*Pitzer College, USA*)

The authors of this innovative text develop a systematic framework for engineering in time, making extensive use of adaptive heterogeneous progressions. When combined with considerations of feedback, feedforward, recursion, and branching, an evolving and comprehensive characterization of engineering becomes evident. The authors introduce concepts and methods — including a critical definition of engineering -and selectively adapt symbolic-mathematical relations.

Readership: Senior engineering undergraduates and technology professionals.

348pp	Jun 2004	
978-1-86094-433-8	US\$87	£60
978-1-86094-598-4(ebook)	US\$113	

COLLABORATIVE MODELING AND DECISION-MAKING FOR COMPLEX ENERGY SYSTEMS

by **Ali Mostashari** (*Stevens Institute of Technology, USA*)

This volume provides the fundamentals of involving stakeholders in collaborative modeling of energy systems, including the technical subsystem as well as its economic, social, environmental and political subsystems. It presents a Stakeholder-Assisted Modeling and Policy Design (SAM-PD) framework that can be applied by energy system developers, managers and decisionmakers to involve a wide range of stakeholders in group model-building on a larger scale.

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250pp	Feb 2011	
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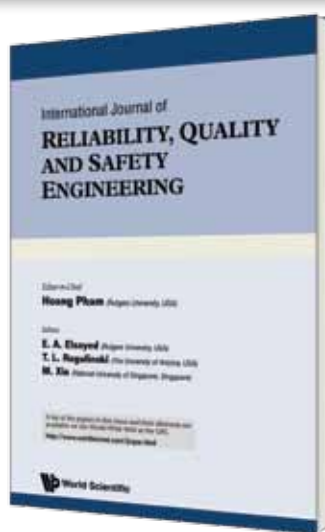
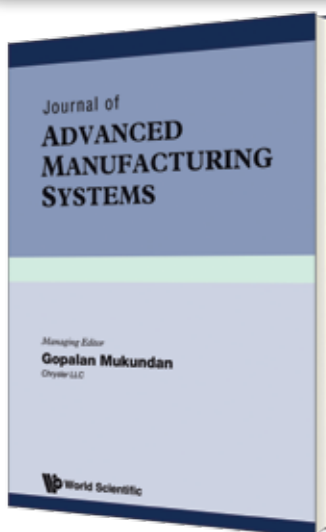
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