Introduction To Logistics Systems Management

This book deals with complex problems in the fields of logistics and supply chain management and discusses advanced methods, especially from the field of computational intelligence (CI), for solving them. The first two chapters provide general introductions to logistics and supply chain management on the one hand, and to computational intelligence on the other hand. The subsequent chapters cover specific fields in logistics and supply chain management, work out the most relevant problems found in those fields, and discuss approaches for solving them. Chapter 3 discusses problems in the field of production and inventory management. Chapter 4 considers planning activities on a finer level of granularity which is usually denoted as scheduling. In chapter 5 problems in transportation planning such as different types of vehicle routing problems are considered. While chapters 3 to 5 rather discuss planning problems which appear on an operative level, chapter 6 discusses the strategic problem of designing a supply chain or network. The final chapter provides an overview of academic and commercial software and information systems for the discussed applications. There appears to be a gap between general textbooks on logistics and supply chain management and more specialized literature dealing with methods for computational intelligence, operations research, etc., for solving the complex operational problems in these fields. For readers, it is often difficult to proceed from introductory texts on logistics and supply chain management to the sophisticated literature which deals with the usage of advanced methods. This book fills this gap by providing state-of-the-art descriptions of the corresponding problems and suitable methods for solving them.

This book recognizes Mexico's effects and challenges in a natural disaster and offers empirical risk-reduction methods in critical cases. The proposals considered here include real and detailed analysis, a set of models, frameworks, strategies, and findings in the three stages of the disaster (before--during--after). This book: describes the methodology to find secure locations for the Regional Humanitarian Response Depot; offers recommendations for the sites and creation of an Export Logistics Cluster; shows how to use available technology and information to locate volunteers in the right spots describes mathematical models to help to allocate procedure of resources for restoring the affected community and proposes actions to create resilience in the country's main economic sectors, including agriculture and industry. The processes applied at recent disasters such as the 19S earthquake and their results are used as case studies, identifying possibilities for further improvement. The book also describes new trends for Mexico due to climate change and makes suggestions for mitigating future disasters. The proposals are also replicable to other highly populated societies with similar socio-economic structures. Finally, this book is the basis for generating more innovative recommendations by researchers, graduate students, academics, professionals, and practitioners to obtain better planning and better collaboration between all the humanitarian chain actors. This book intends to be of interest as a fundamental tool for decision-makers, governments, non-governmental organizations, and enterprises.

This book includes both theoretical results and application cases of analytical modeling based research related to the fashion and textile business. It responds to calls for deeper theoretical foundations as an expansion of research methodology in a field that has to date mostly relied on case studies and empirical analysis. Although there are a growing number of related publications which employ an analytical approach in conducting theoretical and applied research in the fashion and textile business, this book fills an essential gap by providing a comprehensive reference source that introduces the methodology and provides state-of-the-art findings on the topic. Covering an important and well-established industry, Analytical Modeling Research in Fashion Business is a pioneering text and essential reading for researchers and practitioners in the fashion and textiles industry alike. /div

Despite its importance, logistics engineering often lags industry requirements, especially in terms of engineering-based needs. Filling the gap between education and practice, this brief but comprehensive volume covers the most basic material in the field of logistics engineering, making is suitable for those who require an overview of the topic. The book discusses logistics from historical and economic perspectives, covers the basic tools required for the study and practice of logistics, and reviews the metrics that can be used to evaluate progress. It then delves into activities that commonly fill the workdays of logisticians. The book closes with an excellent chapter on logistics as an integrating systems function.

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THE PRACTICAL, EASY INTRODUCTION TO MODERN SUPPLY CHAIN/LOGISTICS MANAGEMENT FOR EVERY PROFESSIONAL AND STUDENT! COVERS CORE CONCEPTS, PLANNING, OPERATIONS, INTEGRATION, COLLABORATION, NETWORK DESIGN, AND MORE SHOWS HOW TO MEASURE, CONTROL, AND IMPROVE ANY SUPPLY CHAIN INCLUDES PRACTICAL ADVICE FOR JUMPSTARTING YOUR OWN SUPPLY CHAIN CAREER This easy guide introduces the modern field of supply chain and logistics management, explains why it is central to business success, shows how its pieces fit together, and presents best practices you can use wherever you work. Myerson explains key concepts, tools, and applications in clear, simple language, with intuitive examples that make sense to any student or professional. He covers the entire field: from planning through operations, integration and collaboration through measurement, control, and improvement. You'll find practical insights on hot-button issues ranging from sustainability to the lean-agile supply chain. Myerson concludes by helping you anticipate key emerging trends—so you can advance more quickly in your own career. Trillions of dollars are spent every year on supply chains and logistics. Supply chain management is one of the fastest growing areas of business, and salaries are rising alongside demand. Now, there's an easy, practical introduction to the entire field: a source of reliable knowledge and best practices for students and professionals alike. Paul A. Myerson teaches you all you'll need to start or move forward in your own supply chain career. Writing in plain English, he covers all the planning and management tasks needed to transform resources into finished products and services, and deliver them efficiently to customers. Using practical examples, Myerson reviews the integration, collaboration, and technology issues that are essential to success in today's complex supply chains. You'll learn how to measure your supply chain's performance, make it more agile and sustainable, and focus it on what matters most: adding customer value. MASTER NUTS-AND-BOLTS OPERATIONAL BEST PRACTICES Improve procurement, transportation, warehousing, ordering, reverse logistics, and more BUILD A BETTER GLOBAL SUPPLY CHAIN Manage new risks as you improve sustainability STRENGTHEN KEY LINKAGES WITH YOUR PARTNERS AND CUSTOMERS Get supply chains right by getting collaboration right PREVIEW THE FUTURE OF SUPPLY CHAINS—AND YOUR SUPPLY CHAIN CAREER Discover "where the puck is headed"—so you can get there first

Clear and effective instruction on MADM methods for students, researchers, and practitioners. A Handbook on Multi-Attribute Decision-Making Methods describes multi-attribute decision-making (MADM) methods and provides step-by-step guidelines for applying them. The authors describe the most important MADM methods and provide an assessment of their performance in solving problems across disciplines. After offering an overview of decision-making and its fundamental concepts, this book covers 20 leading MADM methods and contains an appendix on weight assignment methods. Chapters are arranged with optimal learning in mind, so you can easily engage with the content found in each chapter. Dedicated readers may go through the entire book to gain a deep understanding of MADM methods and their theoretical foundation, and others may choose to review only specific chapters. Each standalone chapter contains a brief description of prerequisite materials, methods, and mathematical concepts needed to cover its content, so you will not face any difficulty understanding single chapters. Each chapter: Describes, step-by-step, a specific MADM method, or in some cases a family of methods Contains a thorough literature review for each MADM method, supported with numerous examples of the method's implementation in various fields Provides a detailed yet concise description of each method's

theoretical foundation Maps each method's philosophical basis to its corresponding mathematical framework Demonstrates how to implement each MADM method to real-world problems in a variety of disciplines In MADM methods, stakeholders' objectives are expressible through a set of often conflicting criteria, making this family of decision-making approaches relevant to a wide range of situations. A Handbook on Multi-Attribute Decision-Making Methods compiles and explains the most important methodologies in a clear and systematic manner, perfect for students and professionals whose work involves operations research and decision making.

Introduction to Logistics Systems Management is the fully revised and enhanced version of the 2004 prize-winning textbook Introduction to Logistics Systems Planning and Control, used in universities around the world. This textbook offers an introduction to the methodological aspects of logistics systems management and is based on the rich experience of the authors in teaching, research and industrial consulting. This new edition puts more emphasis on the organizational context in which logistics systems operate and also covers several new models and techniques that have been developed over the past decade. Each topic is illustrated by a numerical example so that the reader can check his or her understanding of each concept before moving on to the next one. At the end of each chapter, case studies taken from the scientific literature are presented to illustrate the use of quantitative methods for solving complex logistics decision problems. An exhaustive set of exercises is also featured at the end of each chapter. The book targets an academic as well as a practitioner audience, and is appropriate for advanced undergraduate and graduate courses in logistics and supply chain management, and should also serve as a methodological reference for practitioners in consulting as well as in industry.

Recent developments in multi-parametric optimization and control Multi-Parametric Optimization and Control provides comprehensive coverage of recent methodological developments for optimal model-based control through parametric optimization. It also shares real-world research applications to support deeper understanding of the material. Researchers and practitioners can use the book as reference. It is also suitable as a primary or a supplementary textbook. Each chapter looks at the theories related to a topic along with a relevant case study. Topic complexity increases gradually as readers progress through the chapters. The first part of the book presents an overview of the state-of-the-art multi-parametric optimization theory and algorithms in multi-parametric programming. The second examines the connection between multi-parametric programming and model-predictive control—from the linear quadratic regulator over hybrid systems to periodic systems and robust control. The third part of the book addresses multi-parametric optimization in process systems engineering. A step-by-step procedure is introduced for embedding the programming within the system engineering, which leads the reader into the topic of the PAROC framework and software platform. PAROC is an integrated framework and platform for the optimization and advanced model-based control of process systems. Uses case studies to illustrate real-world applications for a better understanding of the concepts presented Covers the fundamentals of optimization and model predictive control Provides information on key topics, such as the basic sensitivity theorem, linear programming, quadratic programming, mixed-integer linear programming, optimal control of continuous systems, and multi-parametric optimal control An appendix summarizes the history of multi-parametric optimization algorithms. It also covers the use of the parametric optimization toolbox (POP), which is comprehensive software for efficiently solving multi-parametric programming problems.

Introduction to Logistics Systems ManagementJohn Wiley & Sons

Introduction to logistics - Reliability, maintainability, and availability measures - The measures of logistics and system support - The system engineering process - Logistics and supportability analysis - Logistics in system design and development - Logistics in the production/construction phase - Logistics in the system utilization, sustaining support, and retirement phases - Logistics management.

A concise resource to the best practices and problem-solving ideas for understanding the airline network planning and scheduling process Airline Network Planning and Scheduling offers a comprehensive resource that is filled with the industry's best practices that can help to inform decision-modeling and the problem-solving process. Written by two industry experts, the book is designed to be an accessible guide that contains information for addressing complex challenges, problems, and approaches that arise on the job. The chapters begin by addressing the complex topics at a broad, conceptual level before moving on to more detailed modeling in later chapters. This approach follows the standard airline planning process and reflects the duties of the day-to-day job of network/schedule planners. To help gain a practical understanding of the information presented, each chapter includes exercises and data based on real-world case studies. In addition, throughout the book there are graphs and illustrations as well as, information on the most recent advances in airline network and planning research. This important resource: • Takes a practical approach when detailing airline network planning and scheduling practices as opposed to a theoretical perspective • Puts the focus on the complexity and main challenges as well as current practices and approaches to problem-solving and decision-making • Presents the information in a logical sequence that begins with broad, conceptual topics and gradually delves into more advanced topics that address modeling • Contains international standard airline planning processes, the day-to-day responsibilities of the job, and outlines the steps taken when building an airline network and schedule • Includes numerous case studies, exercises, graphs, and illustrations throughout Written for professionals and academics, Airline Network Planning and Scheduling offers a resource for understanding best practices and models as well as the challenges involved with network planning and scheduling.

An exciting new edition of the popular introduction to game theory and its applications The thoroughly expanded Second Edition presents a unique, hands-on approach to game theory. While most books on the subject are too abstract or too basic for mathematicians, Game Theory: An Introduction, Second Edition offers a blend of theory and applications, allowing readers to use theory and software to create and analyze real-world decision-making models. With a rigorous, yet accessible, treatment of mathematics, the book focuses on results that can be used to determine optimal game strategies. Game Theory: An Introduction, Second Edition demonstrates how to use modern software, such as MapleTM, Mathematica®, and Gambit, to create, analyze, and implement effective decision-making models. Coverage includes the main aspects of game theory including the fundamentals of two-person zero-sum games, cooperative games, and population games as well as a large number of examples from various fields, such as economics, transportation, warfare, asset distribution, political science, and biology. The Second Edition features: • A new chapter on extensive games, which greatly expands the implementation of available models • New sections on correlated equilibria and exact formulas for three-player cooperative games • Many updated topics including threats in bargaining games and evolutionary stable strategies • Solutions and methods used to solve all odd-numbered problems • A companion website containing the related Maple and Mathematica data sets and code A trusted and proven guide for students of mathematics and economics, Game Theory: An Introduction, Second Edition is also an excellent resource for researchers and practitioners in economics, finance, engineering, operations research, statistics, and computer science.

Magnets are widely used in industry, medical, scientific instruments, and electrical equipment. They are the basic tools for scientific research and electromagnetic devices. Numerical methods for the magnetic field analysis combined with mathematical optimization from practical applications of the magnets have been widely studied in recent years. It is necessary for professional researchers, engineers, and students to study these numerical methods for the complex magnet structure design instead of using traditional "trial-and-error" methods. Those working in this field will find this book useful as a reference to help reduce costs and obtain good magnetic field quality. Presents a clear introduction to magnet technology, followed by basic theories, numerical analysis, and practical applications Emphasizes the latest

developments in magnet design, including MRI systems Provides comprehensive numerical techniques that provide solutions to practical problems Introduces the latest computation techniques for optimizing and characterizing the magnetostatic structure design Well organized and adaptable by researchers, engineers, lecturers, and students Appendix available on the Wiley Companion Website As a comprehensive treatment of the topic, Practical Design of Magnetostatic Structure Using Numerical Simulation is ideal for researchers in the field of magnets and their applications, materials scientists, structural engineers, and graduate students in electrical engineering. The book will also better equip mechanical engineers and aerospace engineers.

Over the past decades the world economy has reached an unprecedented level of global integration. As markets are being liberalised and trade barriers continuously being removed, companies are in an ongoing process of internationalisation. For the internationalisation of business activities, Global Logistics Systems play a significant role. The motivation of this survey is to review companies' internationalisation procedures from a logistics perspective. This is one of the first comprehensive surveys on global logistics. The poll which forms the basis of the analysis was carried out simultaneously in China and Germany.

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This book provides a comprehensive overview of how to strategically manage the movement and storage of products or materials from any point in the manufacturing process to customer fulfillment. Topics covered include important tools for strategic decision making, transport, packaging, warehousing, retailing, customer services and future trends. An introduction to logistics Provides practical applications Discusses trends and new strategies in major parts of the logistic industry

Logistics Management is a comprehensive textbook designed to meet the requirements of postgraduate management students specializing in Operations or International Business. Written in a student-friendly style, it describes the theory extensively and provides numerous figures and exhibits showcasing managerial aspects of Logistics Management. The book is divided into 4 parts. Part I, Introduction to Logistics and Integration, introduces the basic concepts of Logistics, its relevance and relation with supply chain management in both, national and international scenarios. Part II, Logistics Delivery and Fulfilment, covers unitization, palletization and containerization along with various forms of transport including surface, marine, and air. This section also deals with material handling and role of ports in facilitating international logistics. Following this, Part III, Logistics Documentation and Processes, includes chapters on role of customs in regulating international trade, insurance and processes of documentation related to domestic and international trade. The concluding section, Part IV, Logistics Strategy and SCM, provides discussions on system planning, warehousing, inventory management and technology in logistics. With the inclusion of real life case studies in Indian context and written in a simple manner, this book will be useful for students and young professionals.

This book describes the fundamentals of Supply Chain Management in clear and concise terms. It explains why in the near future real competition is going to be between supply chains and what the consequences will be. Managers and decision-makers will be able to build on their business's competitive advantage with the essentials provided in this work. The focus here is upon what you really need to know in order to optimally manage your processes in procurement, manufacturing, warehousing and logistics. In addition to a wealth of illustrations and examples, valuable suggestions for further expansive reading are included. Essential insights are provided into how to analyse and evaluate the supply chain, based upon key aspects from research and practice, which helps readers to initiate their own optimisation processes.

In order to compete in an increasingly demanding market, many manufacturing companies have to redesign or restructure their manufacturing systems so that a set of coherent manufacturing strategies can be supported. So this book aims to provide a comprehensive treatment of manufacturing strategy analysis (MSA) and manufacturing systems design (MSD). The strategic concerns of manufacturing are linked to subsequent manufacturing systems design activities through the use of an effective MSA/MSD interface. Topics include: A structured approach to formulating manufacturing strategies; A set of linking processes to translate MSA concerns into relevant MSD action plans; Case studies. This book is intended to help graduates and industry-based professionals to make more informed decisions when working on system-design or redesign projects.

Overview of optimization -- Introduction to meta-heuristic and evolutionary algorithms -- Pattern search (PS) -- Genetic algorithm (GA) -- Simulated annealing (SA) -- Tabu search (TS) -- Ant colony optimization (ACO) -- Particle swarm optimization (PSO) -- Differential evolution (DE) -- Harmony search (HS) -- Shuffled frog-leaping algorithm (SFLA) -- Honey-bee mating optimization (HBMO) -- Invasive weed optimization (IWO) -- Central force optimization (CFO) -- Biogeography-based optimization (BBO) -- Firefly algorithm (FA) -- Gravity search algorithm (GSA) -- Bat algorithm (BA) -- Plant propagation algorithm (PPA) -- Water cycle algorithm (WCA) -- Symbiotic organisms search (SOS) -- Comprehensive evolutionary algorithm (CEA)

Presents various challenges faced by security policy makers and risk analysts, and mathematical approaches that inform homeland security policy development and decision support Compiled by a group of highly qualified editors, this book provides a clear connection between risk science and homeland security policy making and includes top-notch contributions that uniquely highlight the role of risk analysis for informing homeland security policy decisions. Featuring discussions on various challenges faced in homeland security risk analysis, the book seamlessly divides the subject of risk analysis for homeland security into manageable chapters, which are organized by the concept of risk-informed decisions, methodology for applying risk analysis, and relevant examples and case studies. Applied Risk Analysis for Guiding Homeland Security Policy and Decisions offers an enlightening overview of risk analysis methods for homeland security. For instance, it presents readers with an exploration of radiological and nuclear risk assessment, along with analysis of uncertainties in radiological and nuclear pathways. It covers the advances in risk analysis for border security, as well as for cyber security. Other topics covered include: strengthening points of entry; systems modeling for rapid containment and casualty mitigation; and disaster preparedness and critical infrastructure resilience. Highlights how risk analysis helps in the decision-making process for homeland security policy Presents specific examples that detail how various risk analysis methods provide decision support for homeland security policy makers and risk analysts Describes numerous case studies from academic, government, and industrial perspectives that apply risk analysis methods for addressing challenges within the U.S. Department of Homeland Security (DHS) Offers detailed information regarding each of the five DHS missions: prevent terrorism and enhance security; secure and manage our borders; enforce and administer our immigration laws; safeguard and secure cyberspace; and strengthen national preparedness and resilience Discusses the various approaches and challenges faced in homeland risk analysis and identifies improvements and

methodological advances that influenced DHS to adopt an increasingly risk-informed basis for decision-making Written by top educators and professionals who clearly illustrate the link between risk science and homeland security policy making Applied Risk Analysis for Guiding Homeland Security Policy and Decisions is an excellent textbook and/or supplement for upper-undergraduate and graduate-level courses related to homeland security risk analysis. It will also be an extremely beneficial resource and reference for homeland security policy analysts, risk analysts, and policymakers from private and public sectors, as well as researchers, academics, and practitioners who utilize security risk analysis methods.

A multidisciplinary approach to problem-solving in community-based organizations using decision models and operations research applications A comprehensive treatment of public-sector operations research and management science, Decision Science for Housing and Community Development: Localized and Evidence-Based Responses to Distressed Housing and Blighted Communities addresses critical problems in urban housing and community development through a diverse set of decision models and applications. The book represents a bridge between theory and practice and is a source of collaboration between decision and data scientists and planners, advocates, and community practitioners. The book is motivated by the needs of community-based organizations to respond to neighborhood economic and social distress, represented by foreclosed, abandoned, and blighted housing, through community organizing, service provision, and local development. The book emphasizes analytic approaches that increase the ability of local practitioners to act quickly, thoughtfully, and effectively. By doing so, practitioners can design and implement responses that reflect stakeholder values associated with healthy and sustainable communities; that benefit from increased organizational capacity for evidence-based responses; and that result in solutions that represent improvements over the status quo according to multiple social outcome measures. Featuring quantitative and qualitative analytic methods as well as prescriptive and exploratory decision modeling, the book also includes: Discussions of the principles of decision theory and descriptive analysis to describe ways to identify and quantify values and objectives for community development Mathematical programming applications for real-world problem solving in foreclosed housing acquisition and redevelopment Applications of case studies and community-engaged research principles to analytics and decision modeling Decision Science for Housing and Community Development: Localized and Evidence-Based Responses to Distressed Housing and Blighted Communities is an ideal textbook for upper-undergraduate and graduate-level courses in decision models and applications; humanitarian logistics; nonprofit operations management; urban operations research; public economics; performance management; urban studies; public policy; urban and regional planning; and systems design and optimization. The book is also an excellent reference for academics, researchers, and practitioners in operations research, management science, operations management, systems engineering, policy analysis, city planning, and data analytics.

Companies face a variety of risks resulting from cost reduction strategies, rationalization measures, global sourcing, and outsourcing activities. Due to the large number of actors involved, extremely close ties emerge, which significantly increase supply chains' vulnerability to disruptions – this has been shown again and again in the past few years. Against this background, the aspect of supply continuity is of increasing importance for all activities that relate to procurement, logistics, and supply chain management. Its objective is to ensure the continuous operation of supply chains, i.e., the uninterrupted flow of material, information, and coordination from the initial supplier to the end customer. Therefore, it is necessary to adopt adequate measures that take into consideration not only potential losses but also potential gains (so-called speculative risks). With this book, the concept of Supply Chain Safety Management is introduced. The concept itself is embedded in a comprehensive and dynamic management process. Depending on a supply chain's individual objectives, a set of courses of action is offered for any risk factors – whether they are identifiable and quantifiable or not. The practicability of Supply Chain Safety Management is highlighted by various case studies. The book "Supply Chain Safety Management: Achieving Security and Robustness in Logistics" targets both the areas of science and of practice. First, the state of the art in research is reflected and valuable impulses for new and respectively for further research fields are provided by taking into consideration the points of view of scientists and practitioners in the business environment. Next, theoretically well?substantiated, modern approaches and tools applicable to the business world are offered, an impetus for new ideas and fields of positioning is given and best practice examples are presented allowing a fruitful exchange of experiences between practitioners.

This book gathers the refereed proceedings of the Artificial Intelligence and Industrial Applications (A2IA2020), the first installment of an annual international conference organized by the ENSAM-Meknes at Moulay Ismail University, Morocco. The 30 papers presented here were carefully reviewed and selected from 141 submissions by an international scientific committee. They address various aspects of artificial intelligence such as smart manufacturing, smart maintenance, smart supply chain management, supervised learning, unsupervised learning, reinforcement learning, graph-based and semi-supervised learning, neural networks, deep learning, planning and optimization, and other AI applications. The book is intended for AI experts, offering them a valuable overview of the status quo and a global outlook for the future, with many new and innovative ideas and recent important developments in AI applications, both of a foundational and practical nature. It will also appeal to non-experts who are curious about this timely and important subject.

An updated edition of the text that explores the core topics in scheduling theory The second edition of Principles of Sequencing and Scheduling has been revised and updated to provide comprehensive coverage of sequencing and scheduling topics as well as emerging developments in the field. The text offers balanced coverage of deterministic models and stochastic models and includes new developments in safe scheduling and project scheduling, including coverage of project analytics. These new topics help bridge the gap between classical scheduling and actual practice. The authors—noted experts in the field—present a coherent and detailed introduction to the basic models, problems, and methods of scheduling theory. This book offers an introduction and overview of sequencing and scheduling and covers such topics as single-machine and multi-machine models, deterministic and stochastic problem formulations, optimization and heuristic solution approaches, and generic and specialized software methods. This new edition adds coverage on topics of recent interest in shop scheduling and project scheduling. This important resource: Offers comprehensive coverage of deterministic models as well as recent approaches and developments for stochastic models Emphasizes the application of generic optimization software to basic sequencing problems and the use of spreadsheet-based optimization methods Includes updated coverage on safe scheduling, lognormal modeling, and job selection Provides basic coverage of robust scheduling as contrasted with safe scheduling Adds a new chapter on project analytics, which supports the PERT21 framework for project scheduling in a stochastic environment. Extends the coverage of PERT 21 to include hierarchical scheduling Provides end-of-chapter references and access to advanced Research Notes, to

aid readers in the further exploration of advanced topics Written for upper-undergraduate and graduate level courses covering such topics as scheduling theory and applications, project scheduling, and operations scheduling, the second edition of Principles of Sequencing and Scheduling is a resource that covers scheduling techniques and contains the most current research and emerging topics.

Revised edition of the authors' Global logistics and supply chain management, 2012.

This book provides an overview of important trends and developments in logistics and supply chain research, making them available to practitioners, while also serving as a point of reference for academicians. Operations and logistics are cornerstones of modern supply chains that in turn are essential for global business and economics. The composition, character and importance of supply chains and networks are rapidly changing, due to technological innovations such as Information and Communication Technologies, Sensors and Robotics, Internet of Things, and Additive Manufacturing, to name a few (often referred to as Industry 4.0). Societal developments such as environmental consciousness, urbanization or the optimal use of scarce resources are also impacting how supply chain networks are configured and operated. As a result, future supply chains will not just be assessed in terms of cost-effectiveness and speed, but also the need to satisfy agility, resilience and sustainability requirements. To face these challenges, an understanding of the basic as well as more advanced concepts and recent innovations is essential in building competitive and sustainable supply chains and, as part of that, logistics and operations. These span multiple disciplines and geographies, making them interdisciplinary and international. Therefore, this book contains contributions and views from a variety of experts from multiple countries, and combines management, engineering as well as basic information technology and social concepts. In particular, it aims to: provide a comprehensive guide for all relevant and major logistics, operations, and supply chain management topics in teaching and business practice address three levels of expertise, i.e., concepts and principles at a basic (undergraduate, BS) level, more advanced topics at a graduate level (MS), and finally recent (state-of-the-art) developments at a research level. In particular the latter serve to present a window on current and future (potential) logistics innovations in the different thematic fields for both researchers and top business practitioners integrate a textbook approach with matching case studies for effective teaching and learning discuss multiple international perspectives in order to represent adequately the true global nature of operations, logistics and supply chains.

In today's modernized world, new research and empirical findings are being conducted and found within various professional industries. The field of engineering is no different. Industrial and material engineering is continually advancing, making it challenging for practitioners to keep pace with the most recent trends and methods. Engineering professionals need a handbook that provides up-to-date research on the newest methodologies in this imperative industry. The Handbook of Research on Developments and Trends in Industrial and Materials Engineering is a collection of innovative research on the theoretical and practical aspects of integrated systems within engineering. This book provides a forum for professionals to understand the advancing methods of engineering. While highlighting topics including operations management, decision analysis, and communication technology, this book is ideally designed for researchers, managers, engineers, industrialists, manufacturers, academicians, policymakers, scientists, and students seeking current research on recent findings and modern approaches within industrial and materials engineering.

A comprehensive review of behavioral operations management that puts the focus on new and trending research in the field The Handbook of Behavioral Operations offers a comprehensive resource that fills the gap in the behavioral operations management literature. This vital text highlights best practices in behavioral operations research and identifies the most current research directions and their applications. A volume in the Wiley Series in Operations Research and Management Science, this book contains contributions from an international panel of scholars from a wide variety of backgrounds who are conducting behavioral research. The handbook provides succinct tutorials on common methods used to conduct behavioral research, serves as a resource for current topics in behavioral operations research, and as a guide to the use of new research methods. The authors review the fundamental theories and offer frameworks from a psychological, systems dynamics, and behavioral economic standpoint. They provide a crucial grounding for behavioral operations as well as an entry point for new areas of behavioral research. The handbook also presents a variety of behavioral operations applications that focus on specific areas of study and includes a survey of current and future research needs. This important resource: Contains a summary of the methodological foundations and in-depth treatment of research best practices in behavioral research. Provides a comprehensive review of the research conducted over the past two decades in behavioral operations, including such classic topics as inventory management, supply chain contracting, forecasting, and competitive sourcing. Covers a wide-range of current topics and applications including supply chain risk, responsible and sustainable supply chain, health care operations, culture and trust. Connects existing bodies of behavioral operations literature with related fields, including psychology and economics. Provides a vision for future behavioral research in operations. Written for academicians within the operations management community as well as for behavioral researchers, The Handbook of Behavioral Operations offers a comprehensive resource for the study of how individuals make decisions in an operational context with contributions from experts in the field.

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Latin America is a fast-growing market, but its poor infrastructure, explosive urbanization, expensive and inefficient logistics, and multiple social problems continue to pose major problems to logistics professionals and academics. Here leading scholars across Brazil, Colombia, Cuba, Ecuador, Peru, Panama, and the USA address these issues.

Looking at Logistics is a fresh and exciting first look at logistics and supply chain management that can easily be used as a textbook in the college, community college, and high school setting. It is written in an engaging, fun, and accessible style and every chapter includes revealing case studies. The chapters of Looking at Logistics include: Introducing the Supply Chain; Logistics & Its Role in Supply Chain Management; The Physical Side of Materials Management; Inbound Logistics: Purchasing; Outbound Logistics: Physical Distribution Management; Outbound Logistics: Transportation; Information Technology Systems; Finance in Logistics and Supply Management; Logistics and the Supply Chain in the Global Environment; Customer Service in the World of Logistics; The Human Side of Customer Service; and Logistics in the 21st Century. A Looking at Logistics Teaching Pack is also available from the publisher that includes PowerPoint and Keynote slides, activities and games, homework assignments, test questions for each chapter, and suggestions for adapting the materials for online instruction. With the Looking at Logistics Teaching Pack, an entire semester of content is at your fingertips!

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