

Ravi Shankar Industrial Engineering And Management

The purpose of the 4th International Asia Conference on Industrial Engineering and Management Innovation (IEMI 2013) is to bring together researchers, engineers and practitioners interested in the application of informatics to usher in new advances in the industrial engineering and management fields.

This book highlights recent findings in industrial, manufacturing and mechanical engineering, and provides an overview of the state of the art in these fields, mainly in Russia and Eastern Europe. A broad range of topics and issues in modern engineering are discussed, including the dynamics of machines and working processes, friction, wear and lubrication in machines, surface transport and technological machines, manufacturing engineering of industrial facilities, materials engineering, metallurgy, control systems and their industrial applications, industrial mechatronics, automation and robotics. The book gathers selected papers presented at the 5th International Conference on Industrial Engineering (ICIE), held in Sochi, Russia in March 2019. The authors are experts in various fields of engineering, and all papers have been carefully reviewed. Given its scope, the book will be of interest to a wide readership, including mechanical and production engineers, lecturers in engineering disciplines, and engineering graduates.

During the last two decades, computer and information technologies have forced great changes in the ways businesses manage operations in meeting the desired quality of products and services, customer demands, competition, and other challenges. The Handbook of Computational Intelligence in Manufacturing and Production Management focuses on new developments in computational intelligence in areas such as forecasting, scheduling, production planning, inventory control, and aggregate planning, among others. This comprehensive collection of research provides cutting-edge knowledge on information technology developments for both researchers and professionals in fields such as operations and production management, Web engineering, artificial intelligence, and information resources management.

An exhaustive review of the history, current state, and future opportunities for harnessing light to accomplish useful work in materials, this book describes the chemistry, physics, and mechanics of light-controlled systems. • Describes photomechanical materials and mechanisms, along with key applications • Exceptional collection of leading authors, internationally recognized for their work in this growing area • Covers the full scope of photomechanical materials: polymers, crystals, ceramics, and nanocomposites • Deals with an interdisciplinary coupling of mechanics, materials, chemistry, and physics • Emphasizes application opportunities in creating adaptive surface features, shape memory devices, and actuators; while assessing future prospects for utility in optics and photonics and soft robotics

The rapid technological development of new products, coupled with the growing consumer desire for the latest technology, has led to a new environmental problem: products that are discarded prematurely. But behind every problem lies an opportunity. Many of these products can be reprocessed, leading to savings in natural resources, energy, landfill space, and ultimately, time and money. Strategic Planning Models for Reverse and Closed-Loop Supply Chains addresses complex issues caused by the inherent uncertainty involved in every stage of a closed-loop supply chain. The book presents quantitative models for the many multifaceted issues faced by strategic planners of reverse and closed-loop supply chains amid the challenges of uncertainty in supply rate of used products, unknown condition of used products, and imperfect correlation between supply of used products and demand for reprocessed goods. The models proposed in this book provide understanding of how a particular issue can be effectively approached in a particular decision-making situation using a suitable quantitative technique or suitable combination of two or more quantitative techniques. This information then translates into decision-making strategies and guidance for reverse and closed-loop supply chain management.

This book presents selected peer reviewed papers from the International Conference on Advanced Production and Industrial Engineering (ICAPIE 2019). It covers a wide range of topics and latest research in mechanical systems engineering, materials engineering, micro-machining, renewable energy, industrial and production engineering, and additive manufacturing. Given the range of topics discussed, this book will be useful for students and researchers primarily working in mechanical and industrial engineering, and energy technologies.

This book comprises select proceedings of the International Conference on Emerging Trends in Mechanical Engineering (ICETME 2018). The book covers various topics of mechanical engineering like computational fluid dynamics, heat transfer, machine dynamics, tribology, and composite materials. In addition, relevant studies in the allied fields of manufacturing, industrial and production engineering are also covered. The applications of latest tools and techniques in the context of mechanical engineering problems are discussed in this book. The contents of this book will be useful for students, researchers as well as industry professionals.

International Conference on Industrial Engineering and Engineering Management is sponsored by Chinese Industrial Engineering Institution, CMES, which is the unique national-level academic society of Industrial Engineering. The conference is held annually as the major event in this area. Being the largest and the most authoritative international academic conference held in China, it supplies an academic platform for the experts and the entrepreneurs in International Industrial Engineering and Management area to exchange their research results. Many experts in various fields from China and foreign countries gather together in the conference to review, exchange, summarize and promote their achievements in Industrial Engineering and Engineering Management fields. Some experts pay special attention to the current situation of the related techniques application in China as well as their future prospect, such as Industry 4.0, Green Product Design, Quality Control and Management, Supply Chain and logistics Management to cater for the purpose of low-carbon, energy-saving and emission-reduction and so on. They also come up with their assumption and outlook about the related techniques' development. The proceedings will offer theatrical methods and technique application cases for experts from college and university, research institution and enterprises who are engaged in theoretical research of Industrial Engineering and Engineering Management and its technique's application in China. As all the papers are feathered by higher level of academic and application value, they also provide research data for foreign scholars who occupy themselves in investigating the enterprises and engineering management of Chinese style.

This book: Strategic Management of Technological Innovation, Sixth Edition is written for courses that may be called strategic management of technology and innovation, technology strategy, technology innovation, technology management, or for specialized new product development courses that focus on technology. The subject is approached as a strategic process, and as such, is organized to mirror the strategic management process used in most strategy textbooks, progressing from assessing the competitive dynamics of a situation, to strategy formulation, to strategy implementation. Highlights: 1. Complete Coverage for Both Business and Engineering Students 2. New Short Cases and New Indian Cases 3. Cases, Data, and Examples from around the World 4. More Comprehensive Coverage and Focus on Current Innovation Trends

The book is intended to serve as a text book for the Industrial Engineering and Management courses. It seeks to develop an understanding of the concepts based on careful discussion of

models, applications and related research. The chapters are well planned to cover the recent advancements in the area. Role of the industrial engineering as a change agent is being crafted by exposing to the area of continuous improvement (TQM), benchmarking and reengineering. Many recent developments, such as ERP, MRP, MRP II, Theory of constraints, advanced manufacturing system, AGV, Just-in-Time system, supply chain, etc. have received adequate attention in this book.

The book is primarily intended as a text for all branches of B.Tech, M.Tech and MBA courses. Beginning with an introduction to industrial engineering, it discusses contributions and thoughts of classical (Taylor, Fayol, and Weber's), neo-classical (Hawthorne) and modern thinkers. The book explains different functions of management, and differentiate between management and administration. Various types of business organisations with their structures and personnel management also find place in the book. Topics related to facilities location, material handling, work study, job evaluation and merit rating, wages and incentives that are of prime importance in any business are discussed. The book is aimed at providing a better understanding of industrial operations with practical approach. Financial aspects related to business operations such as financial management, management accounting, breakeven analysis, depreciation and replacement policies for equipment assume prime importance. Numerical examples have been solved at appropriate places to create interest in readers. Marketing aspects of business as marketing management, new product development and sales forecasting methods are discussed, besides management and control of operations. For maintaining industrial peace, good relationship between employers and employees is essential. Chapters on industrial relations, industrial safety and industrial legislations are introduced with the objective of providing readers with information on these important aspects. Good decision-making is what differentiates a good manager from a bad one. Thus, a chapter on decision-making is added to examine its skill. Network constructions, CPM, PERT have been covered under project management. Quantitative techniques for decision-making as linear programming, transportation problems, assignment problems, game theory, queuing theory, etc., are also discussed in this textbook. KEY FEATURES • Lucid presentation of the concepts. • Illustrative figures and tables make the reading more fruitful and enriching. • Numerical problems with solutions form an integral part of the book, making it application-oriented. • Chapter-end review questions test the students' knowledge of the fundamental concepts.

This book covers the emerging and important topics related to production and operations management in a systematic way. It covers not only the essentials of planning, designing, managing and controlling of manufacturing operations, but also a number of relevant topics such as total preventive maintenance, environmental issues in production system, advanced production system, total productivity management and work system design, which are not covered in many books. The book is a useful resource for undergraduate and postgraduate students of MBA programmes, as well as B.Tech and M.Tech programmes of production and industrial engineering. Key Features • Theories and concepts based on day-to-day practical applications in the industry • Large number of solved examples to explain the theoretical concepts • Case study at the end of each chapter to illustrate the theory • Brings out the link between linear programming and its applications

Based on the 2018 International Joint Conference on Industrial Engineering and Operations Management (IJCIEOM) conference that took place in Lisbon, Portugal, this proceedings volume is the first of two focusing on mathematical applications in digital transformation. The different contributions in this volume explore topics such as modelling, simulation, logistics, innovation, sustainability, health care, supply chain, lean manufacturing, operations management, quality and digital. Written by renowned scientists from around the world, this multidisciplinary volume serves as a reference on industrial engineering and operations management and as a source on current findings for researchers and students aiming to work on industrial-related problems. Provides a review of current and potential research in green management and control.

This book presents the conference proceedings of the 25th edition of the International Joint Conference on Industrial Engineering and Operations Management. The conference is organized by 6 institutions (from different countries and continents) that gather a large number of members in the field of operational management, industrial engineering and engineering management. This edition of the conference had the title: THE NEXT GENERATION OF PRODUCTION AND SERVICE SYSTEMS in order to emphasis unpredictable and very changeable future. This conference is aimed to enhance connection between academia and industry and to gather researchers and practitioners specializing in operation management, industrial engineering, engineering management and other related disciplines from around the world.

This volume constitutes the refereed proceedings of the International Conference on Digital Enterprise and Information Systems, held in London during July 20 - 22, 2011. The 70 revised full papers presented were carefully reviewed and selected. They are organized in topical sections on cryptography and data protection, embedded systems and software, information technology management, e-business applications and software, critical computing and storage, distributed and parallel applications, digital management products, image processing, digital enterprises, XML-based languages, digital libraries, and data mining.

Hotter temperatures, less arctic ice, loss of habitat-every other day, it seems, global warming and environmental issues make headlines. Consumer-driven environmental awareness combined with stricter recycling regulations have put the pressure on companies to produce and dispose of products in an environmentally responsible manner. Redefining indus

Rapid prototyping is used to design and develop medical devices and instrumentation. This book details research in rapid prototyping of bio-materials for medical applications. It provides a wide variety of examples of medical applications using rapid prototyping, including tissue engineering, dental applications, and bone replacement. Coverage also discusses the emergence of computer aided design in the development of prosthetic devices.

This book covers supply chain and logistics, production and manufacturing systems as well as human factors. Topics such as applications to procurements from suppliers, suppliers developments and relationships with suppliers are reported. The techniques and tools applied to production processes, such as, machinery maintenance and quick changeover, are described in detail. The book also presents human factors as the main component in the industrial engineering field, reporting some successful teamwork

organizations for improvements and applied ergonomics, among others.

This handbook includes three parts, corresponding to the following three domains of OR/MS research related to sustainability: (i) Systems Design, Innovation, and Technology, (ii) Manufacturing, Logistics, and Transportation, and (iii) Sustainable Natural Resource Management. The first part of the handbook (Chapters 2-6) will focus on the creation and development of sustainable products, services, value chains, and organizations from a systems perspective. Key areas to be covered include Green Design & Innovation, Technology and Engineering Management, Sustainable Value Chain Systems, Sustainability Standards and Performance Evaluation, and Circular Economy and New Research Directions in Sustainability. The second part of the handbook (Chapters 7-11) will concentrate on the major operational and logistic issues faced by today's industries in pursuing sustainability. Key areas to be covered include Remanufacturing, Reverse Logistics, Closed-Loop Supply Chains, Sustainable Transportation, and New Research Directions in Green Supply Chain Management. The third part of the proposed handbook (Chapters 12-16) will center on major sustainability issues in managing engineering infrastructure and natural resources. Key areas to be covered include Renewable Energy, Sustainable Water Resource, Biofuel Infrastructure, Natural Gas, and New Research Direction in Sustainable Resource Management. The handbook aims to bridge the three main OR/MS research domains in sustainability: "Systems Design, Innovation, and Technology," "Manufacturing, Logistics, and Transportation," and "Sustainable Natural Resource Management." Traditionally, these domains are treated separately in the OR/MS literature. By combining the three domains, the handbook will provide a more holistic treatment of MS/OR methodologies to address critical sustainability issues faced by today's society. Unlike most existing handbooks which only focus on current OR/MS research in sustainability within a domain, this handbook will include a concluding chapter in each of the three parts to discuss and identify potential future research directions in each of the three main domains.

This book constitutes the refereed proceedings of the 11th International Conference on Computer Information Systems and Industrial Management, CISIM 2012, held in Venice, Italy, in September 2012. The 35 revised full papers presented together with 2 keynote talks were carefully reviewed and selected from 80 submissions. The papers are organized in topical sections on security, access control and intrusion detection; pattern recognition and image processing; biometric applications; algorithms and data management; networking; and system models and risk assessment.

This edited book provides a conceptual framework of managing flexibility in the areas of people, process, technology and business supported by researches/case applications in various types of flexibilities in business. The book is organized into following five parts: (i) Managing Flexibility; (ii) People Flexibility; (iii) Process Flexibility; (iv) Flexibility in Technology and Innovation Management; and (v) Business Flexibility. Managing flexibility at the level of people, process, technology and business encompasses the requirements of both choice and speed. The need for managing flexibility is growing to cope with the developments and challenges in the global business environment. This can be seen from reactive as well as proactive perspectives. Flexibility is a major dimension of business excellence and deals with a paradoxical view point such as stability and dynamism, continuity and change, centralization and decentralization, and so on. It needs to be managed at the levels of people, process, technology and various business functions and it is important to create flexibility at the level of people to create and manage flexibility in processes and technologies in order to support flexible business requirements.

This book provides a conceptual framework for systemic flexibility and business agility, drawing on a basis of research/case applications in various types of flexibility and agility in business. The selected papers address a variety of issues concerning the theme of systemic flexibility and business agility and are organized into following five parts: (i) Systemic and Strategic Flexibility; (ii) Information and Business Agility; (iii) Flexibility, Innovation and Business Excellence; (iv) Flexibility in Value and Supply Chains; and (v) Financial Flexibility and Mergers & Acquisitions. Flexibility and agility in business are emerging as key dimensions of business excellence that encompass the requirements of both choice and speed. The two concepts, flexibility and agility, have been used in multiple ways and often interchangeably, both in literature and in practice. The growing need for flexibility/agility in business can be seen from reactive as well as proactive perspectives. A business enterprise is expected to possess reactive flexibility/ agility (as adaptability and responsiveness) in order to cope with the changing and uncertain business environment. It may also endeavor to intentionally generate flexibility/agility as a strategic change in a variety of ways, such as leadership change, reengineering, innovation in products and processes, use of information and communication technology, and learning orientation.

This book comprises select proceedings of the International Conference on Production and Industrial Engineering (CPIE) 2018. The book focuses on the latest developments in the domain of operations management and systems engineering, and presents analytical models, case studies, and simulation approaches relevant to a wide variety of systems engineering problems. Topics such as decision sciences, human factors and ergonomics, transport and supply chain management, manufacturing design, operations research, waste management, modeling and simulation, reliability and maintenance, and sustainability in operations and manufacturing are discussed in this book. The contents of this book will be useful to academics, researchers and practitioners working in the field of systems engineering and operations management.

"This cutting-edge book covers emerging, evolutionary and nature inspired optimization techniques in the field of advanced manufacturing. The complexity of real life advanced manufacturing problems often cannot be solved by traditional engineering or computational methods. Hence, in recent years researchers and practitioners have proposed and developed new strands of advanced, intelligent techniques and methodologies. Evolutionary computing approaches are introduced in the context of a wide range of manufacturing activities, and through the examination of practical problems and their solutions, readers will gain confidence to apply these powerful computing solutions. The initial chapters introduce and discuss the well established evolutionary algorithm, to help readers to understand the basic building blocks and steps required to successfully implement their own solutions to real life advanced manufacturing problems. In the later chapters, modified and improved versions of evolutionary algorithms are discussed. The book concludes with appendices which provide general descriptions of several evolutionary algorithms"--

Agility has become very important for the industries today as the lifetimes of the products are continuously shrinking. This book provides an excellent opportunity for updating understanding of agile methods from the design, manufacturing and business process perspectives, whether one is an industrial practitioner, academic researcher engineer or business graduate student. This volume is a compilation of various important aspects of agility consisting of systemic considerations in manufacturing, agile software systems, agile business systems, agile operations research, flexible manufacturing systems, advanced manufacturing systems with improved materials and mechanical behavior of products, agile aspects of design, clean and green manufacturing systems, environment, agile defence systems. This book summarizes the effect of COVID-19 on the global supply chain. Eminent researchers, practitioners, and professors discuss the challenges faced by supply chain providers and supply chain

strategies related to various global, retail, fast moving consumer goods, humanitarian, pharmaceutical, and agricultural supply chains. This book also suggests the resilient approach adopted by supply chain organizations for quick recovery and re-establishing their networks. This book helps the readers explore the pandemic's impact on the supply chain and rebuilding the same using suitable approaches. Global awareness of environmental issues has resulted in the emergence of economically and environmentally friendly bio-based materials free from the traditional side effects of synthetics. This book delivers an overview of the advancements made in the development of natural biorenewable resources-based materials, including processing methods and potential applications in green composites. Biorenewable polymers are a special class of natural material found in nature, such as natural fibers, wheat straw, rice husk, and saw dust. In addition to offering renewable feedstocks, natural biorenewable materials are compostable, recyclable, edible, and more energy efficient to process than plastic. Green Composites from Natural Resources covers various kinds of cellulosic biofibers, such as: hemp fibers jute saccharum cilliare fibers pine needles grewia optiva fibers sisal fibers eulaliopsis binata flax fibers coconut fibers eulaliopsis binata baggase fibers rice husk saw dust wood flour straw With scopes for the utilization of natural resources-based materials as potential replacements for traditional petroleum feedstocks on the rise, more scientists and researchers are exploring new composite materials based on biorenewable resources. This book provides information on more eco-friendly and sustainable alternatives to synthetic polymers and discusses the present state and growing utility of green materials from natural resources.

New, Now, Next. Consumers' ever growing appetite to acquire new products and their short courtship with them has kept manufacturers busy not only expending resources at an alarming rate, but also depleting these resources and giving rise to waste and pollution at a correspondingly increasing and disturbing rate. Traditional manufacturing methods that use mainly virgin materials to produce new products and dispose of the used products at the end of their lives are quickly becoming unsustainable. In addition, regulations that require manufacturers to take back products and dispose of them responsibly have forced manufacturers to establish dedicated facilities for product recovery—systems that minimize waste and maximize remanufacturing and recycling. Remanufacturing Modeling and Analysis explores the design, planning and processing issues encountered in remanufacturing systems and provides examples of quantitative modeling methodologies to deal with them. The book covers the history, industry size and potential, comparison with other end-of-life options, benefits, conditions, challenges, and steps in a typical process. It provides a brief overview of each of the industrial engineering and operations research techniques used in the book and explains the models developed to increase the remanufacturability of product designs. The book also discusses how increasingly stringent environmental regulations and decreasing natural resources influence manufacturers toward more environmentally conscious manufacturing and product recovery initiatives. With easy-to-use mathematical or simulation modeling that demonstrates solutions for each remanufacturing issue, the book helps practitioners understand how a particular issue can be effectively modeled and how to choose the appropriate solution methodology. An in-depth look at quantitative analysis for remanufacturing systems, the book provides a foundation upon which to build a body of knowledge in this fast and growing area.

This book comprises select proceedings of the International Conference on Future Learning Aspects of Mechanical Engineering (FLAME 2018). The book discusses different topics of industrial and production engineering such as sustainable manufacturing systems, computer-aided engineering, rapid prototyping, manufacturing management and automation, metrology, manufacturing process optimization, casting, welding, machining, and machine tools. The contents of this book will be useful for researchers as well as professionals.

Businesses must create initiatives and adopt eco-friendly practices in order to adhere to the sustainability goals of a globalized world. Recycling, product service systems, and green manufacturing are just a few methods businesses use within a sustainable supply chain. However, these tools and techniques must also ensure business growth in order to remain relevant in an environmentally-conscious world. The Handbook of Research on Interdisciplinary Approaches to Decision Making for Sustainable Supply Chains provides interdisciplinary approaches to sustainable supply chain management through the optimization of system performance and development of new policies, design networks, and effective reverse logistics practices. Featuring research on topics such as industrial symbiosis, green collaboration, and clean transportation, this book is ideally designed for policymakers, business executives, warehouse managers, operations managers, suppliers, industry professionals, sustainability developers, decision makers, students, academicians, practitioners, and researchers seeking current research on reducing the environmental impacts of businesses via sustainable supply chain planning. Decision making tools are essential for the successful outcome of any organization. Recent advances in predictive analytics have aided in identifying particular points of leverage where critical decisions can be made. Emerging Methods in Predictive Analytics: Risk Management and Decision Making provides an interdisciplinary approach to predictive analytics; bringing together the fields of business, statistics, and information technology for effective decision making. Managers, business professionals, and decision makers in diverse fields will find the applications and cases presented in this text essential in providing new avenues for risk assessment, management, and predicting the future outcomes of their decisions.

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