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Kaizen Assembly
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Supply Chain Engineering BoD – Books on Demand
This book contains the proceedings of the 10th International Conference on Logistics, Informatics and Service Sciences (LISS 2020), which is co-organized by Beijing Jiaotong University, Budapest University of Technology and Economics, in July 25–28 2020. This book focuses on the “AI and data-driven technical and management innovation in logistics, informatics and services” and aims to provide new research methods, theories and applications from various areas of management and engineering. In detail the included scientific papers analyse and describe communication processes in the fields of logistics, informatics, service sciences and other related areas. The variety of papers delivers added value for both scholars and practitioners. Information and communication technologies have been providing an effective network infrastructure and development platform for logistics and service operations.
Designing, Constructing, and Managing a Lean Assembly Line Grand Central Publishing
The first comprehensive book to uniquely combine the three fields of systems engineering, operations/production systems, and multiple criteria decision making/optimization Systems engineering is the art and science of designing, engineering, and building complex systems—combining art, science, management, and engineering disciplines. Operations and Production Systems with Multiple Objectives covers all classical topics of operations and production systems as well as new topics not seen in any similiar textbooks before: small-scale design of cellular systems, large-scale design of complex systems, clustering, productivity and efficiency measurements, and energy systems. Filled with completely new perspectives, paradigms, and robust methods of solving classic and modern problems, the book includes numerous examples and sample spreadsheets for solving each problem, a solutions manual, and a book companion site

complete with worked examples and supplemental articles. Operations and Production Systems with Multiple Objectives will teach readers: How operations and production systems are designed and planned How operations and production systems are engineered and optimized How to formulate and solve manufacturing systems problems How to model and solve interdisciplinary and systems engineering problems How to solve decision problems with multiple and conflicting objectives This book is ideal for senior undergraduate, MS, and PhD graduate students in all fields of engineering, business, and management as well as practitioners and researchers in systems engineering, operations, production, and manufacturing.

Production Line Modeling John Wiley & Sons

With examples drawn from aerospace, electronics, household appliance, personal products, and automotive industries, Lean Assembly covers the engineering of assembly operations through: Characterizing the demand in terms of volume by product and product family, component consumption, seasonal variability and life cycle. Matching the physical structure of the shop floor to the demand with the goal of approaching takt-driven production as closely as possible. Working out the details of assembly tasks station by station, including station sizing, tooling, fixturing, operator instructions, part presentation, conveyance between stations, and the geometry of assembly lines as a whole. Incorporating mistake-proofing, successive inspection, and test operations for quality assurance. Lean Assembly differs from most other books on lean manufacturing in that it focuses on technical content as a driver for implementation methods. The emphasis is on exactly what should be done. This book should be the "dog-eared" and "penciled-in" resource on every assembly engineer's desk.

Kaizen Assembly Springer Science & Business Media

This book is dedicated to the latest findings on the design and optimization of production lines. The “Fourth Industrial Revolution” (alternatively known as “Industry 4.0”) supports innovative models for energy consumption and fault tolerance in automated lines, and this drives changes in the design and optimization models of production lines. The goal is to collect a series of works that can summarize the latest trends in the field of production line optimization models in order to improve the responsiveness of automated lines to failures, reduce energy consumption and peak electricity demand, and develop other methods to support robust and sustainable production lines.

17th International Conference, ICINCO 2020 Lieusaint - Paris, France, July 7–9, 2020, Revised Selected Papers Springer Science & Business Media

The five-volume set IFIP AICT 630, 631, 632, 633, and 634 constitutes the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2021, held in Nantes, France, in September 2021.* The 378 papers presented were carefully reviewed and selected from 529 submissions. They discuss artificial intelligence techniques, decision aid and new and renewed paradigms for sustainable and resilient production systems at four-wall factory and value chain levels. The papers are organized in the following topical sections: Part I: artificial intelligence based optimization techniques for

demand-driven manufacturing; hybrid approaches for production planning and scheduling; intelligent systems for manufacturing planning and control in the industry 4.0; learning and robust decision support systems for agile manufacturing environments; low-code and model-driven engineering for production system; meta-heuristics and optimization techniques for energy-oriented manufacturing systems; metaheuristics for production systems; modern analytics and new AI-based smart techniques for replenishment and production planning under uncertainty; system identification for manufacturing control applications; and the future of lean thinking and practice Part II: digital transformation of SME manufacturers: the crucial role of standard; digital transformations towards supply chain resiliency; engineering of smart-product-service-systems of the future; lean and Six Sigma in services healthcare; new trends and challenges in reconfigurable, flexible or agile production system; production management in food supply chains; and sustainability in production planning and lot-sizing Part III: autonomous robots in delivery logistics; digital transformation approaches in production management; finance-driven supply chain; gastronomic service system design; modern scheduling and applications in industry 4.0; recent advances in sustainable manufacturing; regular session: green production and circularity concepts; regular session: improvement models and methods for green and innovative systems; regular session: supply chain and routing management; regular session: robotics and human aspects; regular session: classification and data management methods; smart supply chain and production in society 5.0 era; and supply chain risk management under coronavirus Part IV: AI for resilience in global supply chain networks in the context of pandemic disruptions; blockchain in the operations and supply chain management; data-based services as key enablers for smart products, manufacturing and assembly; data-driven methods for supply chain optimization; digital twins based on systems engineering and semantic modeling; digital twins in companies first developments and future challenges; human-centered artificial intelligence in smart manufacturing for the operator 4.0; operations management in engineer-to-order manufacturing; product and asset life cycle management for smart and sustainable manufacturing systems; robotics technologies for control, smart manufacturing and logistics; serious games analytics: improving games and learning support; smart and sustainable production and supply chains; smart methods and techniques for sustainable supply chain management; the new digital lean manufacturing paradigm; and the role of emerging technologies in disaster relief operations: lessons from COVID-19 Part V: data-driven platforms and applications in production and logistics: digital twins and AI for sustainability; regular session: new approaches for routing problem solving; regular session: improvement of design and operation of manufacturing systems; regular session: crossdock and transportation issues; regular session: maintenance improvement and lifecycle management; regular session: additive manufacturing and mass customization; regular session: frameworks and conceptual modelling for systems and services efficiency; regular session: optimization of production and

transportation systems; regular session: optimization of supply chain agility and reconfigurability; regular session: advanced modelling approaches; regular session: simulation and optimization of systems performances; regular session: AI-based approaches for quality and performance improvement of production systems; and regular session: risk and performance management of supply chains *The conference was held online.
Proceedings of the 10th International Conference on Logistics, Informatics and Service Sciences Springer Science & Business Media
Take the next step in Integrated Product and Process Development This pioneering book is the first to apply state-of-the-art computational intelligence techniques to all phases of manufacturing system design and operations. It equips engineers with a superior array of new tools for optimizing their work in Integrated Product and Process Development. Drawing on his extensive experience in the field of advanced manufacturing, Andrew Kusiak has masterfully embedded coverage of data mining, expert systems, neural networks, autonomous reasoning techniques, and other computational methods in chapters that cover all key facets of integrated manufacturing system design and operations, including: * Process planning * Setup reduction * Production planning and scheduling * Kanban systems * Manufacturing equipment selection * Group technology * Facilities and manufacturing cell layout * Warehouse layout * Manufacturing system product and component design * Supplier evaluation Each chapter includes questions and problems that address key issues on model integration and the use of computational intelligence approaches to solve difficulties across many areas of an enterprise. Examples and case studies from real-world industrial projects illustrate the powerfulapplication potential of the computational techniques. Comprehensive in scope and flexible in approach, Computational Intelligence in Design and Manufacturing is right in step with the enterprise of the future: extended, virtual, model-driven, knowledge-based, and integrated in time and space. It is essential reading for forward-thinking students and professional engineers and managers working in design systems, manufacturing, and related areas.
LISS 2020 CRC Press
Production and manufacturing management since the 1980s has absorbed in rapid succession several new production management concepts: manufacturing strategy, focused factory, just-in-time manufacturing, concurrent engineering, total quality management, supply chain management, flexible manufacturing systems, lean production, mass customization, and more. With the increasing globalization of manufacturing, the field will continue to expand. This encyclopedia's audience includes anyone concerned with manufacturing techniques, methods, and manufacturing decisions.
A Simplified Approach Based on Theory of Constraints John Wiley & Sons
Operations and Supply Management, as the title indicates, provides increased emphasis on supply chain management in the 12e. The 12e continues its market leading up-to-date coverage of service operations as well. The text includes solved examples and problems, enough cases for MBA courses to use without supplementing, and the industry leading technology support suite.
Lean Assembly Springer Science &

Business Media
Network models are critical tools in business, management, science and industry. “Network Models and Optimization” presents an insightful, comprehensive, and up-to-date treatment of multiple objective genetic algorithms to network optimization problems in many disciplines, such as engineering, computer science, operations research, transportation, telecommunication, and manufacturing. The book extensively covers algorithms and applications, including shortest path problems, minimum cost flow problems, maximum flow problems, minimum spanning tree problems, traveling salesman and postman problems, location-allocation problems, project scheduling problems, multistage-based scheduling problems, logistics network problems, communication network problem, and network models in assembly line balancing problems, and airline fleet assignment problems. The book can be used both as a student textbook and as a professional reference for practitioners who use network optimization methods to model and solve problems.

Assembly Line Design Springer Science & Business Media
The International Conference on Industrial Engineering and Engineering Management is sponsored by the Chinese Industrial Engineering Institution, CMES, which is the only national-level academic society for Industrial Engineering. The conference is held annually as the major event in this arena. Being the largest and the most authoritative international academic conference held in China, it provides an academic platform for experts and entrepreneurs in the areas of international industrial engineering and management to exchange their research findings. Many experts in various fields from China and around the world gather together at the conference to review, exchange, summarize and promote their achievements in the fields of industrial engineering and engineering management. For example, some experts pay special attention to the current state of the application of related techniques in China as well as their future prospects, such as green product design, quality control and management, supply chain and logistics management to address the need for, amongst other things low-carbon, energy-saving and emission-reduction. They also offer opinions on the outlook for the development of related techniques. The proceedings offers impressive methods and concrete applications for experts from colleges and universities, research institutions and enterprises who are engaged in theoretical research into industrial engineering and engineering management and its applications. As all the papers are of great value from both an academic and a practical point of view, they also provide research data for international scholars who are investigating Chinese style enterprises and engineering management.

Network Models and Optimization
Springer Nature
Industrial Assembly is a rapidly changing field with significant importance in production. This book is the first of its kind to combine technology, design, methods, and planning and control models of assembly operations and systems. With the increasing importance of assembly in industry and of simultaneous engineering approaches, this timely publication provides: comprehensive coverage of technological, engineering, and

management aspects of this field; multi-disciplinary approaches to rationalization of assembly operations and systems; explanation of qualitative models, information technologies, and design techniques, which have been practised effectively in industrial assembly; as well as theoretical foundations and emerging trends that shape the future of assembly.

Assembly Line Planning and Control MDPI

The book deals with two main decision problems which arise when flow-line production systems are installed and operated. The assembly line balancing problem consists of partitioning the work, necessary to assemble the product(s), among different stations of an assembly line. If several models of a product are jointly processed on a line, this medium-term problem is connected with the short-term problem of determining an operating sequence of the models. In Part I balancing and sequencing problems are discussed, classified, and arranged within a hierarchical planning system. In the present second edition special emphasis is given to u-shaped assembly lines which are important components of modern just-in-time production systems. Part II is concerned with exact and heuristic procedures for solving those decision problems. For each problem type considered, a survey of existing procedures is given and new efficient solution methods are developed. Comprehensive numerical investigations showing the effectiveness of the new methods and their superiority over existing approaches are reported.

Computational Intelligence in Design and Manufacturing Springer Nature

Efficient assembly line design is a problem of considerable industrial importance. Assembly Line Design will be bought by technical personnel working in design, planning and production departments in industry as well as managers in industry who want to learn more about concurrent engineering. This book will also be purchased by researchers and postgraduate students in mechanical, manufacturing or micro-engineering.

Introduction to Genetic Algorithms Business Expert Press

An assembly line is a manufacturing process in which parts are added to a product in a sequential manner using optimally planned logistics to create a finished product in the fastest possible way. It is a flow-oriented production system where the productive units performing the operations, referred to as stations, are aligned in a serial manner. The present edited book is a collection of 12 chapters written by experts and well-known professionals of the field. The volume is organized in three parts according to the last research works in assembly line subject. The first part of the book is devoted to the assembly line balancing problem. It includes chapters dealing with different problems of ALBP. In the second part of the book some optimization problems in assembly line structure are considered. In many situations there are several contradictory goals that have to be satisfied simultaneously. The third part of the book deals with testing problems in assembly line. This section gives an overview on new trends, techniques and methodologies for testing the quality of a product at the end of the assembling line.

Third International Workshop, ANTS 2002, Brussels, Belgium, September 12-14, 2002. Proceedings CRC Press

It is easy to learn the philosophy and the concepts of kaizen. It is quite another challenge to translate the philosophy into action. While most books expound on the underlying principles and theory, Kaizen Assembly: Designing, Constructing, and Managing a Lean Assembly Line takes you step-by-step through an actual kaizen event. This approach demonstrates in detail the mindset, the processes, and the practical insight needed to transform your current assembly line into a world-class lean operation. Chris Ortiz brings the experience of over 150 successful kaizen events to the pages of this unique guide. Using clear, succinct, and unambiguous language rather than more general and esoteric terms found in other books, he explains how to implement waste reduction, 5S, time and motion studies, line balancing, quality-at-the-source, visual management, and workstation and assembly line design. Taking a unique approach, the book follows an example of the assembly process for an electric bike including illustrations of nearly every step along the way. Ortiz even includes the most valuable teaching tool of all: past mistakes, how they were overcome, and how to identify and avoid them. Providing expert guidance that will last long after the consultants have left, Kaizen Assembly supplies the tools you need to make kaizen and lean assembly a permanent fixture at the heart of the shop floor.

The Balancing of Mixed-Model Hybrid Assembly Lines with Genetic Algorithms Springer Science & Business Media

This book constitutes the refereed proceedings of the 21st IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2020, held in Valencia, Spain, in November 2020. The conference was held virtually. The 53 full papers were carefully reviewed and selected from 135 submissions. They provide a comprehensive overview of major challenges and recent advances in various domains related to the digital transformation and collaborative networks and their applications with a strong focus on the following areas related to the main theme of the conference: collaborative business ecosystems; collaborative business models; collaboration platform; data and knowledge services; blockchain and knowledge graphs; maintenance, compliance and liability; digital transformation; skills for organizations of the future; collaboration in open innovation; collaboration in supply chain; simulation and analysis in collaborative systems; product and service systems; collaboration impacts; boosting sustainability through collaboration in Agri-food 4.0; digital innovation hubs for digitalizing European industry; and collaborative networks for health and wellness data management.

The Nuts and Bolts of Making Assembly Operations Flow Springer Nature

Metaheuristics support managers in decision-making with robust tools that provide high-quality solutions to important applications in business, engineering, economics, and science in reasonable time frames, but finding exact solutions in these applications still poses a real challenge. However, because of advances in the fields of mathematical optimization and metaheuristics, major efforts have been made on their interface regarding efficient hybridization. This edited book will provide a survey of the state of the art in this field by providing some invited reviews by well-known specialists as well as refereed papers from the second

Matheuristics workshop to be held in Bertinoro, Italy, June 2008. Papers will explore mathematical programming techniques in metaheuristics frameworks, and especially focus on the latest developments in Mixed Integer Programming in solving real-world problems.

21st IFIP WG 5.5 Working Conference on Virtual Enterprises, PRO-VE 2020, Valencia, Spain, November 23–25, 2020, Proceedings CRC Press

Much academic energy has been invested in the study of optimizing assembly or production lines. The Assembly Line Balancing Problem design problem is an artifact of that work. Theory of Constraints purports that an assembly line that is purposely and strategically unbalanced provides superior performance in terms of predictability and throughput over the traditional balanced line. This study articulates a custom production line model based on Theory of Constraints and compares its performance to the traditional operations management paradigm, a balanced line. Results show that a purposely unbalanced line provides superior flow of material and greater throughput than the traditional balanced line configuration. Additionally the simplified model and approach may be more appealing with respect to the design, development, and computational costs than those required of the conventional line balancing methodologies.

Nature-Inspired Computing Applications in Advanced Communication Networks Routledge

This book attempts to treat line design and its related subjects in a cohesive manner, with an emphasis on design applications. It discusses general guidelines for setting up assumptions and determining line performance parameters, based on empirical data from literature reports.

Assembly Line Springer Nature

The book familiarizes the reader with the flexible assembly systems planning and scheduling issues and various operations research modelling and solution approaches. Some of the many topic highlights presented are the overall structure and components of a flexible assembly system, bi-objective integer programming models and algorithms for machine loading, assembly routing, and assembly plan selection, and fast combinatorial heuristics for scheduling flexible assembly lines with limited intermediate buffers.

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