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The Strategos Guide to Value Stream & Process Mapping
Stochastic Models of Manufacturing Systems
The Basics of Line Balancing and JIT Kitting

Network Models and Optimization

This book constitutes the proceedings of the 15th International Conference on Modeling Decisions for Artificial Intelligence, MDAI 2018, held in Mallorca, Spain, in October 2018. The 24 papers presented in this volume were carefully reviewed and selected from 43 submissions. The book also contains one invited talk in full paper length. The papers were organized in topical sections named: aggregation operators, fuzzy measures and integrals; decision making; clustering and classification; and data privacy and security.

New Production Technologies in Aerospace Industry

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.

Proceedings of the International Symposium for Production Research 2019

The two-volume set IFIP AICT 566 and 567 constitutes the refereed proceedings of the International IFIP WG 5.7 Conference on Advances in Production Management Systems, APMS 2019, held in Austin, TX, USA. The 161 revised full papers presented were carefully reviewed and selected from 184 submissions. They discuss globally pressing issues in smart manufacturing, operations management, supply chain management, and Industry 4.0. The papers are organized in the following topical sections: lean production; production management in food supply chains; sustainability and reconfigurability of manufacturing systems; product and asset life cycle management in smart factories of industry 4.0; variety and complexity management in the era of industry 4.0; participatory methods for supporting the career choices in industrial engineering and management education; blockchain in supply chain management; designing and delivering smart services in the digital age; operations management in engineer-to-order manufacturing; the operator 4.0 and the Internet of Things, services and people; intelligent diagnostics and maintenance solutions for smart manufacturing; smart supply networks; production management theory and methodology; data-driven production management; industry 4.0 implementations; smart factory and IIOT; cyber-physical systems; knowledge management in design and manufacturing; collaborative product development; ICT for collaborative manufacturing; collaborative technology; applications of machine learning in production management; and collaborative technology.

Designing Great Data Products

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.

The Art of Game Design

This book contains a selection of refereed and revised papers of Intelligent Informatics Track originally presented at the third International Symposium on Intelligent Informatics (ISI-2014), September 24-27, 2014, Delhi, India. The papers selected for this Track cover several intelligent informatics and related topics including signal processing, pattern recognition, image processing data mining and their applications.

Assembly Line Planning and Control

The Springer Reference Work Handbook of Manufacturing Engineering and Technology provides overviews and in-depth and authoritative analyses on the basic and cutting-edge manufacturing technologies and sciences across a broad spectrum of areas. These topics are commonly encountered in industries as well as in academia. Manufacturing engineering curricula across universities are now essential topics covered in major universities worldwide.

Lean Assembly

As the business environment continues to rapidly change, Dan Reid and Nada Sanders have developed the seventh Australia and New Zealand edition of Operations Management: An Integrated Approach, to make introductory OM courses accessible and engaging for all business majors. Beyond providing a solid foundation, this course covers emerging topics like Artificial Intelligence, Robotics, Data Analytics, and Sustainability and gives equal time to strategic and tactical decisions in both service and manufacturing organisations.

An Aggregate Approach to Assembly Line Design for the College of Engineering [sic]

As effective organizational decision making is a major factor in a company's success, a comprehensive account of current available research on the core concepts of the decision support agenda is in high demand by academicians and professionals. Through 110 authoritative contributions by over 160 of the world's leading experts the Encyclopedia of Decision Making and Decision Support Technologies presents a critical mass of research on the most up-to-date research on human and computer support of managerial decision making, including discussion on support of operational, tactical, and strategic decisions, human vs. computer system support structure, individual and group decision making, and multi-criteria decision making.

Intelligent Computing Theories and Application

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.

Operations Management

This book constitutes the refereed proceedings of the Third International Workshop on Ant Algorithms, ANTS 2002, held in Brussels, Belgium in September 2002. The 17 revised full papers, 11 short papers, and extended poster abstracts presented were carefully reviewed and selected from 52 submissions. The papers deal with theoretical and foundational aspects and a variety of new variants of ant algorithms as well as with a broad variety of optimization applications in networking and operations research. All in all, this book presents the state of the art in research and development in the emerging field of ant algorithms

Information Control Problems in Manufacturing 2004 (2-volume Set)

Overviews manufacturing systems from the ground up, following the same concept as in the first edition. Delves into the fundamental building blocks of manufacturing systems: manufacturing processes and equipment. Discusses all topics from the viewpoint of four fundamental manufacturing attributes: cost, rate, flexibility and quality.

Balancing and Sequencing of Assembly Lines

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.

Proceedings of the 13th International Conference on Production Research

In the past few years, we've seen many data products based on predictive modeling. These products range from weather forecasting to recommendation engines like Amazon's. Prediction technology can be interesting and mathematically elegant, but we need to take the next step: going from recommendations to products that can produce optimal strategies for meeting concrete business objectives. We already know how to build these products: they've been in use for the past decade or so, but they're not as common as they should be. This report shows how to take the next step: to go from simple predictions and recommendations to a new generation of data products with the potential to revolutionize entire industries.

Encyclopedia of Production and Manufacturing Management

Volume is indexed by Thomson Reuters CPCI-S (WoS). The studies presented here cover the topics of product design, manufacturing and analysis, management and production scheduling, supply chains, CAD/CAM/CAE, reliability, fault diagnostics and quality monitoring, measurement techniques, technologies and equipment, dynamic analysis of mechanical systems and mechanical transmissions, fluid power transmission and control, mechatronics, industrial robotics, control technologies and intelligent systems, electronic and microelectronic technology, embedded systems, signal and intelligent information processing, software and computers in research and engineering solutions.

Kaizen Assembly

Advances in Intelligent Informatics

Supply Chain Engineering

Supply Chain Engineering considers how modern production and operations management techniques can respond to the pressures of the competitive global marketplace. It presents a comprehensive analysis of concepts and models related to outsourcing, dynamic pricing, inventory management, RFID, and flexible and re-configurable manufacturing systems, as well as real-time assignment and scheduling processes. A significant part is also devoted to lean manufacturing, line balancing, facility layout and warehousing techniques. Explanations are based on examples and detailed algorithms while discarding complex and unnecessary theoretical minutiae. All examples have been carefully selected from an industrial application angle. This book is written for students and professors in industrial and systems engineering, management

science, operations management and business. It is also an informative reference for managers looking to improve the efficiency and effectiveness of their production systems.

Real Time Problems in Assembly Line Balancing

Self-Balancing is not just a tweak or change to assembly line balancing, but a completely transformed method for achieving continuous flow. Among the reasons you should try Self-Balancing is that you can expect a productivity improvement of at least 30 percent with improvements of 50-60 percent quite common. Using a well-tested method for successful

Network Models and Optimization

Assembly Line Planning and Control describes the basic fundamentals of assembly lines for single model lines, mixed model make-to-stock lines, mixed model make-to-order lines and for one-station assembly. The book shows how to select the quantity of units to schedule for a shift duration, compute the number of operators needed on a line, set the conveyor speed, coordinate the main line with sub-assembly lines, assign the work elements to the operators on the line, sequence the models down the line, sequence the jobs down the line, calculate the part and component requirements for a line and for each station, determine the replenish needs of the parts and components from the suppliers, compute the similarity between the models being produced and show applications, use learning curves to estimate time and costs of assembly, and measure the efficiency of the line. The material is timeless and the book will never become obsolete. The author presents solutions with easy-to-understand numerical examples that can be applied to real-life applications.

Advances in Production Management Systems. Production Management for the Factory of the Future

This book acquaints the reader with Value Stream Mapping as well as Process Mapping, and thereby provides a dual set of tools. This dual set is far more effective than either technique alone. With photos and examples of related Lean practices, the book focuses on implementing VSM, not just drawing diagrams and graphs.

Assembly Line Design

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Modeling Decisions for Artificial Intelligence

The Disassembly Line: Balancing and Modeling

Accessible to the Lean novice and shop floor employee, *The Basics of Line Balancing and JIT Kitting* explores line balancing and the pre-assembly of components into a finished product in a just-in-time fashion (JIT Kitting). It explains how to use time studies, develop yamazumi charts, discover and eliminate waste, balance your line, and create new

Assembly Line Design and Optimization

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.

Assembly Line Design

This contributed volume contains the research results presented at the 4th Machining Innovations Conference, Hannover, September 2013. The topic of the conference are new production technologies in aerospace industry and the focus is on

energy efficient machine tools as well as sustainable process planning. The target audience primarily comprises researchers and experts in the field but the book may also be beneficial for graduate students.

Handbook of Manufacturing Engineering and Technology

Manufacturing Systems: Theory and Practice

With the rapid growth of technology in society, communication networks have become a heavily researched topic. Implementing these advanced systems is a challenge, however, due to the abundance of optimization problems within these networks. The use of meta-heuristic algorithms and nature-inspired computing has become a prevalent technique among researchers for solving these complex problems within communication networks. Despite its popularity, this specific computing technique lacks the appropriate amount of research that is needed for professionals to grasp a definite understanding. Nature-Inspired Computing Applications in Advanced Communication Networks is a collection of innovative research on the methods and applications of natural computation techniques and algorithms within communication systems such as wireless sensor networks, vehicular adhoc networks, and internet of things. While highlighting topics including mobile sensor deployment, routing optimization, and sleep scheduling, this book is ideally designed for researchers, network professionals, computer scientists, mathematicians, developers, scholars, educators, and students seeking to enhance their understanding of nature-inspired computing and its solutions within various advanced communication networks.

Encyclopedia of Decision Making and Decision Support Technologies

This two-volume set of LNCS 11643 and LNCS 11644 constitutes - in conjunction with the volume LNAI 11645 - the refereed proceedings of the 15th International Conference on Intelligent Computing, ICIC 2019, held in Nanchang, China, in August 2019. The 217 full papers of the three proceedings volumes were carefully reviewed and selected from 609 submissions. The ICIC theme unifies the picture of contemporary intelligent computing techniques as an integral concept that highlights the trends in advanced computational intelligence and bridges theoretical research with applications. The theme for this conference is "Advanced Intelligent Computing Methodologies and Applications." Papers related to this theme are especially solicited, including theories, methodologies, and applications in science and technology.

Ant Algorithms

Alex Rogo is a harried plant manager working ever more desperately to try and improve performance. His factory is rapidly heading for disaster. So is his marriage. He has ninety days to save his plant - or it will be closed by corporate HQ, with hundreds of job losses. It takes a chance meeting with a colleague from student days - Jonah - to help him break out of conventional ways of thinking to see what needs to be done. Described by Fortune as a 'guru to industry' and by Businessweek as a 'genius', Eliyahu M. Goldratt was an internationally recognized leader in the development of new business management concepts and systems. This 20th anniversary edition includes a series of detailed case study interviews by David Whitford, Editor at Large, Fortune Small Business, which explore how organizations around the world have been transformed by Eli Goldratt's ideas. The story of Alex's fight to save his plant contains a serious message for all managers in industry and explains the ideas which underline the Theory of Constraints (TOC) developed by Eli Goldratt. Written in a fast-paced thriller style, The Goal is the gripping novel which is transforming management thinking throughout the Western world. It is a book to recommend to your friends in industry - even to your bosses - but not to your competitors!

Production-Line Technique

The definitive guide to the disassembly line The Disassembly Line: Balancing and Modeling provides in-depth information on this complex process essential to remanufacturing, recycling, and environmentally conscious manufacturing. This pioneering work offers efficient techniques required to solve problems involving the number of workstations required and the disassembly sequencing of end-of-life products on the disassembly line. In this book, the disassembly line balancing problem (DLBP) is described, defined mathematically, and illustrated by case studies. Combinatorial optimization methodologies are presented as solutions to the DLBP. Coverage includes: Graphical representations of products to be disassembled Computational complexity of combinatorial problems Description of the disassembly line and the mathematical model Computational complexity of the DLBP Combinatorial optimization searches Experimental instances Analytical methodologies Exhaustive search Genetic algorithm Ant colony optimization Greedy algorithm Greedy/adjacent element hill climbing hybrid Greedy/2-opt hybrid H-K heuristic Quantitative and qualitative comparative analysis This authoritative volume also covers product planning, line and facility design, sequencing and scheduling, inventory, just in time, revenue, and unbalanced lines.

Nature-Inspired Computing Applications in Advanced Communication Networks

This work has been selected by scholars as being culturally important and is part of the knowledge base of civilization as we know it. This work is in the public domain in the United States of America, and possibly other nations. Within the United States, you may freely copy and distribute this work, as no entity (individual or corporate) has a copyright on the body of the work. Scholars believe, and we concur, that this work is important enough to be preserved, reproduced, and made

generally available to the public. To ensure a quality reading experience, this work has been proofread and republished using a format that seamlessly blends the original graphical elements with text in an easy-to-read typeface. We appreciate your support of the preservation process, and thank you for being an important part of keeping this knowledge alive and relevant.

The Basics of Self-Balancing Processes

This book deals with real time problems in assembly line balancing using MOST analysis and challenger matrix.

Advanced Designs and Researches for Manufacturing

Balancing and Sequencing of Assembly Lines

This book constitutes the refereed proceedings of the 6th International Workshop on Hybrid Metaheuristics, HM 2009, held in Udine, Italy, in October 2009. The 12 revised full papers presented together with one invited talk were carefully reviewed and selected from 22 submissions. The papers discuss current issues of combinations of metaheuristics and other solving techniques of universal concern such as novel combinations of components from different metaheuristics, hybridization of metaheuristics and AI/OR techniques, low-level hybridization, high-level hybridization, portfolio techniques, expert systems, cooperative search, automated parameter tuning, empirical and statistical comparison, theoretical aspects of hybridization, parallelization, and software libraries.

Hybrid Metaheuristics

Develops stochastic models to evaluate the performance, design, control, and operation of manufacturing systems, and discusses workload allocation and assembly systems

Supply Chain Engineering

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.

The Goal

Anyone can master the fundamentals of game design - no technological expertise is necessary. The Art of Game Design: A Book of Lenses shows that the same basic principles of psychology that work for board games, card games and athletic games also are the keys to making top-quality videogames. Good game design happens when you view your game from many different perspectives, or lenses. While touring through the unusual territory that is game design, this book gives the reader one hundred of these lenses - one hundred sets of insightful questions to ask yourself that will help make your game better. These lenses are gathered from fields as diverse as psychology, architecture, music, visual design, film, software engineering, theme park design, mathematics, writing, puzzle design, and anthropology. Anyone who reads this book will be inspired to become a better game designer - and will understand how to do it.

The Strategos Guide to Value Stream & Process Mapping

Supply Chain Engineering considers how modern production and operations management techniques can respond to the pressures of the competitive global marketplace. It presents a comprehensive analysis of concepts and models related to outsourcing, dynamic pricing, inventory management, RFID, and flexible and re-configurable manufacturing systems, as well as real-time assignment and scheduling processes. A significant part is also devoted to lean manufacturing, line balancing, facility layout and warehousing techniques. Explanations are based on examples and detailed algorithms while discarding complex and unnecessary theoretical minutiae. All examples have been carefully selected from an industrial application angle. This book is written for students and professors in industrial and systems engineering, management science, operations management and business. It is also an informative reference for managers looking to improve the efficiency and effectiveness of their production systems.

Stochastic Models of Manufacturing Systems

The Basics of Line Balancing and JIT Kitting

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.

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