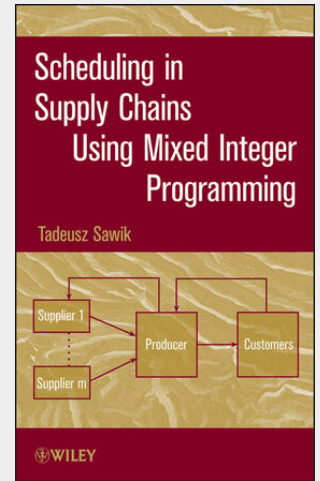


Scheduling in Supply Chains

A unified, systematic approach to applying mixed integer programming solutions to integrated scheduling in customer-driven supply chains. Supply chain management is a rapidly developing field, and the recent improvements in modeling, preprocessing, solution algorithms, and mixed integer programming (MIP) software have made it possible to solve large-scale MIP models of scheduling problems, especially integrated scheduling in supply chains. Featuring a unified and systematic presentation, *Scheduling in Supply Chains Using Mixed Integer Programming* provides state-of-the-art MIP modeling and solutions approaches, equipping readers with the knowledge and tools to model and solve real-world supply chain scheduling problems in make-to-order manufacturing. Drawing upon the author's own research, the book explores MIP approaches and examples—which are modeled on actual supply chain scheduling problems in high-tech industries—in three comprehensive sections: * Short-Term Scheduling in Supply Chains presents various MIP models and provides heuristic algorithms for scheduling flexible flow shops and surface mount technology lines, balancing and scheduling of Flexible Assembly Lines, and loading and scheduling of Flexible Assembly Systems * Medium-Term Scheduling in Supply Chains outlines MIP models and MIP-based heuristic algorithms for supplier selection and order allocation, customer order acceptance and due date setting, material supply scheduling, and medium-term scheduling and rescheduling of customer orders in a make-to-order discrete manufacturing environment * Coordinated Scheduling in Supply Chains explores coordinated scheduling of manufacturing and supply of parts as well as the assembly of products in supply chains with a single producer and single or multiple suppliers; MIP models for a single- or multiple-objective decision making are also provided. Two main decision-making approaches are discussed and compared throughout. The integrated (simultaneous) approach, in which all required decisions are made simultaneously using complex, monolithic MIP models; and the hierarchical (sequential) approach, in which the required decisions are made successively using hierarchies of simpler and smaller-sized MIP models. Throughout the book, the author provides insight on the presented modeling tools using AMPL(r) modeling language and CPLEX solver. *Scheduling in Supply Chains Using Mixed Integer Programming* is a comprehensive resource for practitioners and researchers working in supply chain planning, scheduling, and management. The book is also appropriate for graduate- and PhD-level courses on supply chains for students majoring in management science, industrial engineering, operations research, applied mathematics, and computer science.

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163,50 €

152,80 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780470935736

Medium: Buch

ISBN: 978-0-470-93573-6

Verlag: Wiley

Erscheinungstermin: 30.08.2011

Sprache(n): Englisch

Auflage: 1. Auflage 2011

Produktform: Gebunden

Gewicht: 900 g

Seiten: 492

Format (B x H): 161 x 240 mm

