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Nota di contenuto	Logistic Optimization of Chemical Production Processes; Contents; Preface; List of Contributors; Part I Introduction; 1 Supply Chain and Supply Chain Management; 1.1 Introduction; 1.2 Terms and Definitions; 1.3 Network Dynamics and Management of the Supply Chain; 1.4 Design Criteria/Integration Concepts; 1.5 SCOR: Modeling the Supply Chain; 1.6 Summary; References; Part II Simulation; 2 Logistics Simulation in the Chemical Industry; 2.1 Introduction; 2.2 Areas of Application for Logistics Simulation in the Process Industry; 2.3 The Simulation Process in Manufacturing and Logistics 2.4 Case Studies 2.5 Benefits and Expenses of Simulation Projects; 2.6 How a Simulator Works; 2.7 Developments in the Field of Logistics Simulation; References; 3 Logistic Simulation of Pipeless Plants; 3.1 Pipeless Batch Plants; 3.2 PPSiM-Pipeless Plant Simulation; 3.3 Industrial Case Study; 3.4 Conclusions; References; Part III Industrial Solutions; 4 Planning Large Supply Chain Scenarios with "Quant-based

Combinatorial Optimization"; 4.1 Introduction; 4.2 The Limits of Traditional LP; 4.3 Quant-based Combinatorial Optimization; 4.4 Typical Planning Scenarios in the Process Industry
4.5 Constraints 4.6 Additional Modeling Elements of the Quant-based Combinatorial Optimization; 4.7 The Solution Approach; 4.8 Special Requirements and Advanced Modeling Features for the Chemical Industry; 4.9 Summary; References; 5 Scheduling and Optimization of a Copper Production Process; 5.1 Introduction; 5.2 Copper Production Process; 5.3 Scheduling Problem; 5.4 Solution Approach; 5.5 Results; 5.6 Conclusions; References; 6 Stochastic Tools in Supply Chain Management; 6.1 Introduction; 6.2 Random Demand; 6.3 Random Service (and Shortage); 6.4 Optimization of Service
6.5 Solution Technique 6.6 Implementation in BayAPS PP; References; Part IV Optimization Methods; 7 Engineered Mixed-Integer Programming in Chemical Batch Scheduling; 7.1 Introduction; 7.2 The Case Study; 7.3 An Engineered Approach to Optimal Scheduling; 7.4 Nonlinear Short-Term Scheduling Model; 7.5 Linearized Short-Term Model; 7.6 Comparative Numerical Studies; 7.7 Conclusions; References; 8 MILP Optimization Models for Short-term Scheduling of Batch Processes; 8.1 Introduction; 8.2 Classification of Batch Scheduling Problems; 8.3 Classification of Optimization Models for Batch Scheduling
8.4 Review of Scheduling Models 8.5 Computational Comparison Discrete vs Continuous Approaches; 8.6 Concluding Remarks and Future Directions; 8.7 Acknowledgements; References; 9 Uncertainty Conscious Scheduling by Two-Stage Stochastic Optimization; 9.1 Introduction; 9.2 Scheduling under Uncertainty using a Moving Horizon Approach with Two-Stage Stochastic Optimization; 9.3 Two-Stage Stochastic Integer Programming; 9.4 A Stage Decomposition Based Evolutionary Algorithm; 9.5 Numerical Studies; 9.6 Conclusions; References; 10 Scheduling Based on Reachability Analysis of Timed Automata
10.1 Introduction

Sommario/riassunto

In this first book dedicated to the logistics of chemical plants and production processes, authors from academia and industry -- such as Bayer, Degussa, Merck -- provide an overview of the field, incorporating the knowledge and experience gathered over the last 10 years. In so doing, they describe the latest ideas on efficient design, illustrating when to produce which part of the equipment and with which resources, so as to optimize chemical plants for high capacity and flexibility. This book gives an overview of the state-of-the-art of the whole logistic chain of chemical production
