1. Record Nr. UNINA9910139911503321

Titolo	Production scheduling [[electronic resource] /] / edited by Pierre Lopez, Francois Roubellat
Pubbl/distr/stampa	London, : ISTE Hoboken, NJ, : John Wiley & Sons, 2008
ISBN	1-282-16495-3 9786612164958 0-470-61105-7 0-470-39363-7 1-60119-929-5
Descrizione fisica	1 online resource (391 p.)
Collana	ISTE ; ; v.20
Altri autori (Persone)	LopezPierre RoubellatFrancois
Disciplina	658.5/3 658.53
Soggetti	Production scheduling Inventory control Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"First published in France in 2001 by Hermes Science entitled 'Ordonnancement de la production'" --T.p. verso.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Production Scheduling; Table of Contents; Preface; Chapter 1. Statement of Production Scheduling; Chapter 2. Basic Concepts and Methods in Production Scheduling; 2.1. Introduction; 2.2. Basic scheduling concepts; 2.2.1. Tasks; 2.2.2. Resources; 2.2.3. Modeling; 2.2.4. Resolution methods; 2.2.5. Representation of solutions; 2.3. Project scheduling; 2.3.1. Modeling; 2.3.2 Resolution; 2.4 Shop scheduling; 2.4.1 Introduction; 2.4.2 Basic model; 2.4.3 One-machine problem; 2.4.4 Parallel machine problems; 2.4.5 Flow shop; 2.4.6 Job shop; 2.5 Conclusion; 2.6 Bibliography Chapter 3. Metaheuristics and Scheduling3.1. Introduction; 3.2. What is a combinatorial optimization problem?; 3.3. Solution methods for combinatorial optimization problems; 3.4. The different metaheuristic types; 3.4.1. The constructive approach; 3.4.2. Local search approach;

3.4.3. The evolutionary approach; 3.4.4. The hybrid approach; 3.5. An application example: job shop scheduling with tooling constraints; 3.5.1. Traditional job shop modeling; 3.5.2. Comparing both types of problems; 3.5.3. Tool switching; 3.5.4. TOMATO algorithm; 3.6. Conclusion; 3.7. Bibliography
Chapter 4. Genetic Algorithms and Scheduling4.1. Introduction; 4.1.1. Origin of genetic algorithms; 4.1.2. General principles of genetic algorithms; 4.1.3. Schema theorem; 4.1.4. Chapter presentation; 4.2. One-machine problems; 4.2.1. Example 1: total time and setup times; 4.2.2. Example 2: sum of weighted tardiness; 4.2.3. Example 3: sum of weighted tardiness and setup times; 4.3. Job shop problems; 4.4. Hybrid flow shop; 4.4.1. Specific case: one-stage total duration problem; 4.4.2. General case: k stages total duration problem; 4.5. Hybrid genetic algorithms
4.5.1. Hybridization with other metaheuristics4.5.2. Hybridization with combinatorial optimization methods; 4.6. Conclusion; 4.7. Bibliography; Chapter 5. Constraint Propagation and Scheduling; 5.1. Introduction; 5.1.1. Problem and chapter organization; 5.1.2. Constraint propagation; 5.1.3. Scheduling problem statement; 5.1.4. Notations; 5.2. Time constraint propagation; 5.2.1. Introduction; 5.2.2. Definition; 5.2.3. Simple temporal problems; 5.2.4. General temporal problems; 5.3. Resource constraint propagation; 5.3.1. Characterization of conflicts
5.3.2. Deductions based on critical sets and MDSs5.3.3. Deductions based on the energetic balance; 5.4. Integration of propagation techniques in search methods; 5.4.1. General improvement techniques of chronological backtracking; 5.4.2. Heuristics for variable and value ordering; 5.4.3. Strategies for applying propagation rules; 5.4.4. Use of a backtracking algorithm; 5.5. Extensions; 5.5.1. Preemptive problems; 5.5.2. Consideration of allocation constraints; 5.6. Conclusion; 5.7. Bibliography; Chapter 6. Simulation Approach; 6.1. Introduction; 6.2. Heuristic resolution (greedy) procedures
6.2.1. Limits of the basic method

Sommario/riassunto

The performance of an company depends both on its technological expertise and its managerial and organizational effectiveness. Production management is an important part of the process for manufacturing firms. The organization of production relies in general on the implementation of a certain number of basic functions, among which the scheduling function plays an essential role. This title presents recently developed methods for resolving scheduling issues. The basic concepts and the methods of production scheduling are introduced and advanced techniques are discussed, providing readers with