

1. Record Nr.	UNINA9910818726303321
Titolo	Metaheuristics for production scheduling // edited by Bassem Jarboui, Patrick Siarry, Jacques Teghem ; series editor, Jean-Paul Bourrieres
Pubbl/distr/stampa	London, : ISTE Hoboken, N.J., : John Wiley and Sons Inc., 2013
ISBN	9781118731598 111873159X 9781118731567 1118731565 9781118731550 1118731557
Edizione	[1st ed.]
Descrizione fisica	1 online resource (529 p.)
Collana	Automation-control and industrial engineering series
Altri autori (Persone)	JarbouiBassem SiarryPatrick TeghemJacques BourrieresJean-Paul
Disciplina	670
Soggetti	Production scheduling - Data processing Production scheduling - Computer programs
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Contents; Introduction and Presentation; Chapter 1. An Estimation of Distribution Algorithm for SolvingFlow Shop Scheduling Problems with Sequence-dependent FamilySetup Times; 1.1. Introduction; 1.2. Mathematical formulation; 1.3. Estimation of distribution algorithms; 1.3.1. Estimation of distribution algorithms proposed in the literature; 1.4. The proposed estimation of distribution algorithm; 1.4.1. Encoding scheme and initial population; 1.4.2. Selection; 1.4.3. Probability estimation; 1.5. Iterated local search algorithm; 1.6. Experimental results; 1.7. Conclusion 1.8. BibliographyChapter 2. Genetic Algorithms for Solving Flexible Job ShopScheduling Problems; 2.1. Introduction; 2.2. Flexible job shop scheduling problems; 2.3. Genetic algorithms for some related sub-

problems; 2.4. Genetic algorithms for the flexible job shop problem; 2.4.1. Codings; 2.4.2. Mutation operators; 2.4.3. Crossover operators; 2.5. Comparison of codings; 2.6. Conclusion; 2.7. Bibliography; Chapter 3. A Hybrid GRASP-Differential Evolution Algorithm for Solving Flow Shop Scheduling Problems with No-Wait Constraints; 3.1. Introduction; 3.2. Overview of the literature 3.2.1. Single-solution metaheuristics 3.2.2. Population-based metaheuristics; 3.2.3. Hybrid approaches; 3.3. Description of the problem; 3.4. GRASP; 3.5. Differential evolution; 3.6. Iterative local search; 3.7. Overview of the NEW-GRASP-DE algorithm; 3.7.1. Constructive phase; 3.7.2. Improvement phase; 3.8. Experimental results; 3.8.1. Experimental results for the Reeves and Heller instances; 3.8.2. Experimental results for the Taillard instances; 3.9. Conclusion; 3.10. Bibliography Chapter 4. A Comparison of Local Search Metaheuristics for a Hierarchical Flow Shop Optimization Problem with Time Lags 4.1. Introduction; 4.2. Description of the problem; 4.2.1. Flowshop with time lags; 4.2.2. A bicriteria hierarchical flow shop problem; 4.3. The proposed metaheuristics; 4.3.1. A simulated annealing metaheuristics; 4.3.2. The GRASP metaheuristics; 4.4. Tests; 4.4.1. Generated instances; 4.4.2. Comparison of the results; 4.5. Conclusion; 4.6. Bibliography; Chapter 5. Neutrality in Flow Shop Scheduling Problems: Landscape Structure and Local Search; 5.1. Introduction 5.2. Neutrality in a combinatorial optimization problem 5.2.1. Landscape in a combinatorial optimization problem; 5.2.2. Neutrality and landscape; 5.3. Study of neutrality in the flow shop problem; 5.3.1. Neutral degree; 5.3.2. Structure of the neutral landscape; 5.4. Local search exploiting neutrality to solve the flow shop problem; 5.4.1. Neutrality-based iterated local search; 5.4.2. NILS on the flow shop problem; 5.5. Conclusion; 5.6. Bibliography; Chapter 6. Evolutionary Metaheuristic Based on Genetic Algorithm: Application to Hybrid Flow Shop Problem with Availability Constraints 6.1. Introduction

Sommario/riassunto

This book describes the potentialities of metaheuristics for solving production scheduling problems and the relationship between these two fields. For the past several years, there has been an increasing interest in using metaheuristic methods to solve scheduling problems. The main reasons for this are that such problems are generally hard to solve to optimality, as well as the fact that metaheuristics provide very good solutions in a reasonable time. The first part of the book presents eight applications of metaheuristics for solving various mono-objective scheduling problems. The sec