International Journal of Production Research ›
Volume 51, 2013 - Issue 5

Original Articles

Novel bi-level hierarchical production planning in hybrid MTS/MTO production contexts

Hamed Rafiei, Masoud Rabbani & Maryam Alimardani

Pages 1331-1346 | Received 13 Sep 2011, Accepted 23 Jan 2012, Published online: 20 Apr 2012

Cite this article https://doi.org/10.1080/00207543.2012.661089

Full Article Figures & data References Citations Metrics
Reprints & Permissions Read this article Share

Abstract

A hybrid make-to-stock (MTS)/make-to-order (MTO) production strategy is one of the most appealing production strategies that has recently been investigated by academics and practitioners. In this paper, a hierarchical production planning (HPP) structure is developed in hybrid MTS/MTO production contexts for the first time. The proposed structure includes mid-term and short-term production planning levels by proposing a systematic and integrated approach towards tactical and operational issues. To cope with the problem, diverse novel modules are developed at each level and then they are interrelated from a hierarchical point of view. Moreover, a hybrid meta-heuristic algorithm is developed to tackle the computational complexity of a scheduling task. Finally, numerical experiments validate the proposed solution methodology.

Keywords:

hybrid MTS/MTO | hierarchical production planning | tactical planning | operational planning | genetic algorithm | simulated annealing | particle swarm optimisation

Acknowledgements

The authors would like to acknowledge the financial support of the University of Tehran for this research under grant number 8109002/1/03. Also, they are grateful to the reviewers for their valuable, constructive comments.

Related Research Data

An effective hybrid optimization approach for multi-objective flexible job-shop scheduling problems
Source: Computers & Industrial Engineering
Efficient Scheduling Rules in a Combined Make-to-Stock and Make-to-Order Manufacturing System
Source: Annals of Operations Research
Capacity coordination in hybrid make-to-stock/make-to-order production environments
Source: International Journal of Production Research
Integrated job release and shop-floor scheduling to minimize WIP and meet due-dates
Source: International Journal of Production Research
Job scheduling with dual criteria and sequence-dependent setups: mathematical versus genetic programming
Source: Omega
Master production scheduling: a concurrent planning approach
Source: Production Planning & Control