

A Lagrangean-based heuristic for multi-plant, multi-item, multi-period capacitated lot-sizing problems with inter-plant transfers

ABSTRACT

This paper addresses scheduling of lot sizes in a multi-plant, multi-item, multi-period, capacitated environment with inter-plant transfers. A real-world problem in a company manufacturing steel rolled products provided motivation to this research. A Lagrangean-based approach, embedded with a lot shifting-splitting-merging routine, has been used for solving the multi-plant, capacitated lot-sizing problem. A good solution procedure developed by Sambasivan (Ph.D. Dissertation, University of Alabama, Tuscaloosa, 1994) has been used for solving the relaxed problem. About 120 randomly generated instances of the problem have been solved and it has been found that Lagrangean-based approach works quite efficiently for this problem.

Keyword: Capacitated lot sizing; Lagrangean-based heuristic; Multi-plant production planning