Heuristic Solution of Multi Item Dynamic Lot-Sizing: A Case Study

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Abstract

The dynamic economic lot sizing model, which lies at the core of numerous production planning applications, is one of the most highly studied models in all of operations research. And yet, capacitated multi-item versions of this problem remain computationally elusive. This paper addresses the multi-item single level capacitated dynamic lot-sizing problem which consists of scheduling N items over a horizon of T periods. The objective is to minimize the sum of setup and inventory holding costs over the horizon subject to a constraint on total capacity in each period. No backlogging is allowed. Only one machine is available with a fixed capacity in each period. In case of a single item production, an optimal solution algorithm exists. But for multi-item problems, optimal solution algorithms are not available. The current research work has been directed toward the development of a model for multi-item problem considering this parameter. The models have been executed with data of a real life problem.

Keywords
Dynamic lot-sizing, inventory, multi item, scheduling.