

Strategic inventory positioning for MTO production with stochastic processing times

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Abstract

For a successful make-to-order (MTO) production, it is very important for manufacturers to be able to promise the due date. Shorter manufacturing lead time is required to accept the urgent orders. Although maintaining finished good inventory is not allowed in MTO production, having some inventory at a set of critical processes will help reduce the manufacturing lead time. Strategic inventory positioning (SIP) problem is to determine the set of processes to maintain work-in-process (WIP) inventory such that the final product is produced within a given lead time at the minimum total WIP inventory carrying cost. We proposed a genetic algorithm approach for the SIP problem with deterministic processing times at the processes. In this study, we will extend the study to the case where processing times at the processes are stochastic.

Keywords

Strategic Inventory Positioning, WIP Inventory, Stochastic Processing Times, Manufacturing Lead Time

Biography

Suk-Chul (Tony) Rim is a Professor in the Department of Industrial Engineering, Ajou University, Suwon, South Korea. He earned B.S. in Industrial Engineering from Seoul National University, Seoul; Masters in Industrial Engineering from Korea Advanced Institute of Science & Technology, Seoul; and PhD in Industrial Engineering from University of Michigan, Ann Arbor. He has researched in the area of logistics and supply chain management; and currently is serving as the Chairman, Korean Society of Supply Chain Management. His research interests include logistics, material handling system design and analysis, supply chain management, inventory management, and Theory of Constraints.

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