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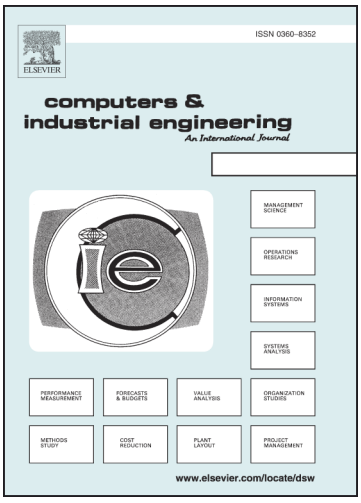

A preemptive fuzzy goal programming model for generalized supplier selection and order allocation with incremental discount

Hossein Mirzaee, B. Naderi, S.H.R Pasandideh

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A preemptive fuzzy goal programming model for generalized supplier selection and order allocation with incremental discount

Hossein Mirzaee, B. Naderi*, S.H.R Pasandideh

Department of Industrial Engineering, Faculty of Engineering, Kharazmi University, Tehran, Iran

Abstract

This paper generalizes the problem of supplier selection and order allocation with multi-period, multi-product, multi-supplier, multi-objective cases as well as quantity discount subject to budget and capacity limitations for both buyers and suppliers. The objectives are total inventory cost (i.e., delay, holding and shortage, ordering, discounted purchase costs) and value of purchasing. The problem is mathematically formulated by a mixed integer linear programming model. This model is then solved by a preemptive fuzzy goal programming approach. Using a numerical experiment, the proposed model is evaluated for performance against weighted fuzzy goal programming, max-min programming, and classical goal programming approaches. The results show that the proposed model outperforms the others.

Keywords: Supplier selection, order allocation, Incremental discount, preemptive fuzzy goal programming.