

عنوان مقاله:

A Multi-objective Optimization Model for Dynamic Virtual Cellular Manufacturing Systems

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خلاصه مقاله:

Companies and firms, nowadays, due to mounting competition and product diversity, seek to apply virtual cellular manufacturing systems to reduce production costs and improve quality of the products. In addition, as a result of rapid advancement of technology and the reduction of product life cycle, production systems have turned towards dynamic production environments. Dynamic cellular manufacturing environments examine multi-period planning horizon, with changing demands for the periods. A dynamic virtual cellular manufacturing system is a new production approach to help manufacturers for decision making. Here, due to variability of demand rates in different periods, which turns to flow variability, a mathematical model is presented for dynamic production planning. In this model, we consider virtual cell production conditions and worker flexibility, so that a proper relationship between capital and production parameters (part-machine-worker) is determined by the minimum lost sales of products to customers, a minimal inventory cost, along with a minimal material handling cost. The problems based on the proposed model are solved using LINGO, as well as an epsilon constraint algorithm.

کلمات کلیدی:

.Dynamic virtual cellular manufacturing system, Production planning, Worker flexibility, Epsilon constraint algorithm

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