

Multi-objective aggregate production planning model with fuzzy parameters and its solving methods

ABSTRACT

Aggregate production planning (APP) is considered as mid-term decision planning. The purpose of multi-period APP is to set up overall production levels for each product category to meet fluctuating or uncertain demand in the near future and to set up decisions and policies on the subject of hiring, lay-offs, overtime, backorder, subcontracting, facilities and inventory. In this study, we develop a new multi-objective linear programming model for general APP for multi-period and multi-product problems. We assume that, there is uncertainty in critical input data (i.e., market demands and unit costs). This model is suitable for 24-hour production systems. To show practicality of our model, we will implement this model in a case study. Finally, we propose an interactive solution procedure for achieving the best compromise solution.

Keyword: Fuzzy aggregate production planning; Fuzzy AHP; Genetic algorithm; TOPSIS