

Abstract

This paper deals with a fuzzy genetic algorithm applied to a manufacturing cell formation problem. We discuss the importance of taking into account the dynamic aspect of the problem that has been poorly studied in the related literature. Using a multi-periodic planning horizon modeling, two strategies are considered: passive and active. The first strategy consists of maintaining the same composition of machines during the overall planning horizon, while the second allows performing a different composition for each period. When the decision maker wants to choose the most adequate strategy for its environment, there is a need to control the proposed evolutionary solving approach, due to the complexity of the model. For that purpose, we propose an off-line fuzzy logic enhancement. The results, using this enhancement, are better than those obtained using the GA alone