

## Abstract

This paper deals with the manufacturing cell formation (MCF) problem using a multi-objective graph-theoretic approach. In cellular manufacturing related recent works, several research paths have been taken such as the multi-periodic and the routing flexibility approaches. Our paper falls into the latter by proposing a multi-objective approach. First, the problem is formulated using a graph theoretic model, afterwards two resolution methods are proposed: the first one is a genetic algorithm (GA) whereas the second uses a combination between GA and tabu search. The two methods are applied on a set of medium-sized instances and the obtained results are reported