Abstract

This article considers a makespan minimization batch sizing and scheduling problem in a flexible flow shop scheduling problem with unrelated parallel machines and sequence dependent setup time. Because of NP-completeness of this problem, it is necessary to use the heuristics method. Therefore, this article presents a new mixed simulated-genetic algorithm (MSGA) to tackle this problem. In the comparison, this research reports optimality gaps which are calculated with respect to MSGA method and optimal solution for small instances and the average objective function for large instances. Computational studies indicate that the MSGA is computationally efficient and effective even for small and large instances.

**Keywords**
- Batch sizing
- flexible flow shop
- metaheuristic method
- scheduling.

**Index Terms**
- Computer Science
- Algorithms