

## A Mixed Integer Linear Programming Model for Flexible Job Shop Scheduling Problem

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**Abstract :** In this paper, a mixed integer linear programming (MILP) model is presented to solve the flexible job shop scheduling problem (FJSP). This problem is one of the hardest combinatorial problems. The objective considered is the minimization of the makespan. The computational results of the proposed MILP model were compared with those of the best known mathematical model in the literature in terms of the computational time. The results show that our model has better performance with respect to all the considered performance measures including relative percentage deviation (RPD) value, number of constraints, and total number of variables. By this improved mathematical model, larger FJS problems can be optimally solved in reasonable time, and therefore, the model would be a better tool for the performance evaluation of the approximation algorithms developed for the problem.

**Keywords :** scheduling, flexible job shop, makespan, mixed integer linear programming

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