عنوان مقاله:

A New Approach in Job Shop Scheduling: Overlapping Operation

محل انتشار:

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خلاصه مقاله:

In this paper, a new approach to overlapping operations in job shop scheduling is presented. In many job shops, a customer demand can be met in more than one way for each job, where demand determines the quantity of each finished job ordered by a customer. In each job, embedded operations can be performed due to overlapping considerations in which each operation may be overlapped with the others because of its nature. The effects of the new approach on job shop scheduling problems are evaluated. Since the problem is well known as NP-Hard class, a simulated annealing algorithm is developed to solve large scale problems. Moreover, a mixed integer linear programming (MILP) method is applied to validate the proposed algorithm. The approach is tested on a set of random data to evaluate and study the behavior of the proposed algorithm. Computational experiments confirmed superiority of the proposed approach. To evaluate the effect of overlapping considerations on the job shop scheduling problem, the results of classical job shop scheduling with the new approach (job shop scheduling problem with overlapping operations) are compared. It is concluded that the proposed approach can improve the criteria and machines utilization measures in job shop scheduling. The proposed approach can be applied easily in real factory conditions .and for large size problems. It should thus be useful to both practitioners and researchers

کلمات کلیدی:

;Scheduling, Overlapping, Job Shop, Simulated Annealing