

عنوان مقاله:

Multi-objectiv scheduling problem in a three-stage production system

محل انتشار:

فصلنامه بین المللی مهندسی صنایع و تحقیقات تولید، دوره 25، شماره 1 (سال: 1393)

تعداد صفحات اصل مقاله: 12

نویسندگان:

P. Fattahi - Department of Industrial Engineering, Bu-Ali Sina University, Hamedan, Iran

S.M.H. Hosseini - Department of Industrial Engineering, University of Shahrood, Shahrood, Iran

F. Jolai - Department of Industrial Engineering, University of Tehran, Tehran, Iran

A.D. Safi samghabadi - Department of Industrial Engineering, Payame Noor University, Tehran, Iran

خلاصه مقاله:

A three-stage production system is considered in this paper. There are two stages to fabricate and provide the parts and an assembly stage to assemble the parts and complete the products in this system. Suppose that a number of products of different kinds are ordered. Each product is assembled with a set of several parts. At first the parts are produced in the first stage with parallel machines and then they are controlled and provided in the second stage and finally the parts are assembled in an assembly stage to complete the products. Two objective functions are considered: (1) minimizing the completion time of all products (makespan), and (2) minimizing the sum of earliness and tardiness of all products ($\sum 1(E_i/T_i)$). Since this type of problem is NP-hard, a new multi-objective algorithm is designed for searching local Pareto-optimal frontier for the problem. To validate the performance of the proposed algorithm, various test problems are designed and the reliability of the proposed algorithm, based on some comparison metrics, is compared with two prominent multi-objective genetic algorithms, i.e. NSGA-II and SPEA-II. The computational results show that the performance of the proposed algorithms is good in both efficiency and effectiveness criteria.

کلمات کلیدی:

Scheduling, Multi-objective, Three-stage production system, Assembly, Genetic algorithm

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/281440>

