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A new Nawaz–Enscore–Ham-based heuristic for permutation flow-shop problems with bicriteria of makespan and machine idle time

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Abstract

A new heuristic based on the Nawaz–Enscore–Ham algorithm is proposed in this article for solving a permutation flow-shop scheduling problem. A new priority rule is proposed by accounting for the average, mean absolute deviation, skewness and kurtosis, in order to fully describe the distribution style of processing times. A new tie-breaking rule is also introduced for achieving effective job insertion with the objective of minimizing both makespan and machine idle time. Statistical tests illustrate better solution quality of the proposed algorithm compared to existing benchmark heuristics.

Keywords:

heuristic flow shop scheduling makespan idle time

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