Simultaneous Considering of Machine Availability Constraint, Sequence Dependent Setup Time and Readiness in a No-wait Hybrid Flow Shop Scheduling Problem to Minimize Mean Tardiness

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Abstract

This paper deals with the problem of no-wait hybrid flow shop which sequence dependent setup times, ready times, and machine availability constraint. Minimizing the mean tardiness is considered as the objective to develop the optimal scheduling algorithm. To do so, an efficient hybrid imperialist competitive algorithm (HICA) is proposed to tackle this problem. Our proposed algorithm is compared to other solution approaches reported in the literature. For this purpose, we draw an analogy between the results obtained from algorithms applied to some random case study. To achieve reliable results, Taguchi approach is used to define robust parameters' values for our proposed algorithm. The superiority and effectiveness of our proposed algorithm is inferred from all the results obtained in various situations.

References

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European Journal of Operational Research, 205, 1–18.


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Index Terms

Computer Science

Algorithms
Keywords

No-wait; Scheduling; Hybrid flow shop; Meta-heuristic algorithms; Imperialist competitive algorithm.