

Job scheduling on Identical Parallel Machines to Minimize Total Tardiness

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Abstract

The scheduling problem for identical parallel machines, with the objective of minimizing total tardiness, holds significant importance in production scheduling. However, addressing large-scale instances of this scheduling problem, involving numerous jobs and machines, has proven challenging. The application of metaheuristic approaches, such as Simulated Annealing, has been observed efficient in solving complex combinatorial optimization problems. This paper presents a Simulated Annealing algorithm to address the identical machine scheduling problem aimed at minimizing total tardiness. A practical application of scheduling jobs on identical machines in die casting industry is presented through a numerical example.

Keywords

Job scheduling, Identical parallel Machine, Trade, die casting industry.

Biography

Dr. Pravin P. Tambe is an Associate Professor in the Operations Management & Decision Sciences area at IIM Tiruchirappalli. He holds a PhD from Indian Institute of Technology (IIT) Delhi and M. Tech in Industrial Engineering. Earlier, he worked in Piaggio Vehicles Pvt. Ltd., and Skoda Auto India Pvt. Ltd. He has over 16 years of academic experience of teaching in management and engineering institutions. His areas of interest include Production and Operations Management, Reliability & Maintenance, Project Management, Manufacturing Systems, etc. He has published research papers in reputed international journals by Elsevier, Emerald, Springer, etc., in the areas of Operations Planning, Reliability, Maintenance Planning, Quality Control, Production Scheduling and Optimization. He received the prestigious Fellowship award of Indian Institution of Industrial Engineering for his excellent contribution in the field of Industrial Engineering.