

## Parallel Machine Scheduling with Load Balancing and Sequence Dependent Setups

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**Abstract**—In this paper, we study the problem of minimizing total completion time with load balancing and sequence dependent setups in a non-identical parallel machine environment. A mathematical model has been presented for the objective of minimizing total completion time with workload balancing constraint. Since this problem is an NP-Hard problem, some simple heuristics and a genetic algorithm are developed for efficient scheduling of resources. The heuristics and genetic algorithm are tested on random data.

**Keywords**—Load balancing, Sequence dependent setups, Parallel machine scheduling, Scheduling theory, Genetic algorithms

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