

# Resource-constrained multi-project scheduling with tardy costs: Comparing myopic, bottleneck, and resource pricing heuristics

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## ABSTRACT

This paper addresses the problem of scheduling multiple resource-constrained projects with the objective of minimizing weighted tardiness costs. Extending our earlier heuristic scheduling work for production shops, we develop an efficient and effective means of generating low cost schedules for multiple projects requiring multiple resources. A 'cost-benefit' scheduling policy with resource pricing is developed which balances the marginal cost of delaying the start of an eligible activity with the marginal benefit of such a delay. A central part of this policy is the heuristic estimation of implicit resource prices, which form the basis for calculating marginal delay costs. The resulting policies are tested against a number of dispatch scheduling rules taken from the project scheduling literature, and against several new scheduling rules, with encouraging results for both the weighted tardiness problem and for the special case of weighted project delay.

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