A Heuristic for Single Machine Scheduling with Unequal Due Dates and Release Times

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Abstract

In this paper, we present the n-job, non-preemptive and single machine scheduling problem of minimizing the sum of earliness and tardiness with different release times and due dates. In the real world, this problem is more realistic than the problems that release times equal to zero or due dates are common. The problem is proved to be NP-complete. Thus, a heuristic algorithm is developed to solve this problem. To illustrate its suitability, the proposed heuristic is compared with a tabu search method and exhaustive enumeration method for a large number of randomly generated test problems. Computational results demonstrate the effectiveness and efficiency of our heuristic algorithm. Also, computational results demonstrate that the proposed model and heuristic provide more realistic approach method in solving single machine scheduling problem with non-regular performance measure.