

U-line Line Balancing with Simulated Annealing

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ABSTRACT

Compared with straight-line line balancing, the problem with U-line is known to be more complicated because tasks can be grouped by moving forward, backward, or simultaneously in both directions, through the precedence network. This paper deals with the U-line line balancing problem in consideration of the moving time of operator which makes the problem more difficult to solve. The problem is formulated into the mathematical programming model. Due to its problem complexity, we develop a heuristic algorithm based on the simulated annealing search method. Through test problems, its efficiency and validity are illustrated. The results show that the proposed algorithm performs substantially better than those from previous studies.