

## Multi Objective Optimization for Two-Sided Assembly Line Balancing

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**Abstract :** Two-sided assembly line balancing problem is yet to be addressed simply to compete for the global market for manufacturers. The task assigned in an ordered sequence to get optimum performance of the system is known as assembly line balancing problem mainly classified as single and two sided. It is very challenging in manufacturing industries to balance two-sided assembly line, wherein the set of sequential workstations the task operations are performed in two sides of the line. The conflicting major objective in two-sided assembly line balancing problem is either to maximize /minimize the performance parameters. The present study emphasizes on combining different evolutionary algorithm; ant colony, Tabu search and petri net method; and compares their results of an algorithm for solving two-sided assembly line balancing problem. The concept of multi objective optimization of performance parameters is now a day adopted to make a decision involving more than one objective function to be simultaneously optimized. The optimum result can be expected among the selected methods using multi-objective optimization. The performance parameters considered in the present study are a number of workstation, slickness and smoothness index. The simulation of the assembly line balancing problem provides optimal results of classical and practical problems.

**Keywords :** Ant colony, petri net, tabu search, two sided ALBP

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