

**A Heuristic Algorithm for Solving Two Objective Mixed
Binary Integer Linear Programming Problems for Scheduling
and Makespan Minimization in a Service Factory**

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Abstract

This paper describes the development of a two objective mixed binary integer linear programming model and a heuristic solution algorithm is proposed. A Service Factory environment with multi-processor workstations and a constant daily workload, for employee scheduling and makespan minimization objectives, is presented as an example. The algorithm is simple enough to be implemented by managers using available spreadsheet programs. Solution of the four station Service Factory formulation yielded results for improvement in the makespan of the shop. This heuristic algorithm can be a useful management tool in streamlining and optimizing the Service Factory production environment as exemplified in the four station case, and could also be applied to multi-processor flow shops.

Keywords: Service Factory, Scheduling, Binary Integer Linear Programming, Makespan.