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Airport gate scheduling with time windows. (English) Zbl 1138.90397
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Summary: In contrast to the existing airport gate assignment studies where flight have fixed schedules, we consider the more realistic situation where flight arrival and departure times can change. Although we minimize walking distances (or travel time) in our objective function, the model is easily adapted for other material handling costs including baggage and cargo costs. Our objectives are achieved through gate assignments, where time slots allotted to aircraft at gates deviate from scheduled slots minimally. Further, the model can be applied to cross-docking optimization in areas other than airports, such as freight terminals where material arrival times (via trucks, ships) can fluctuate. The solution approach uses insert and interval exchange moves together with a time shift algorithm. We then use these neighborhood moves in Tabu Search and Memetic Algorithms. Computational results are provided and verify that our heuristics work well in small cases and much better in large cases when compared with CPLEX solver.

MSC:

[90B35](#) Deterministic scheduling theory in operations research
[90C59](#) Approximation methods and heuristics in mathematical programming
[68T05](#) Learning and adaptive systems in artificial intelligence

Cited in **3** Documents

Keywords:

[aircraft gate scheduling](#); [tabu search](#); [memetic algorithm](#)

Software:

[CPLEX](#); [Tabu search](#)

Full Text: [DOI](#)

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