

Optimized Staff Scheduling at Swissport

We present a major research and business project aimed at developing efficient and flexible software for automated airport staff rostering. Industrial partner is Swissport International, one of the largest ground handling companies worldwide. The diversity of the ground handling functions at Zurich Airport, the large number of operational duties, and the around-the-clock business hours result in hundreds of different types of shifts to be planned every month, and an employee base consisting of several thousand persons with numerous different skills. Employee scheduling typically involves a number of subproblems. The rostering process considered here focuses on the days-off planning and shift assignment phase. The methodology used for solving the associated complex large-scale optimization problems comprises a broad range of optimization techniques including preprocessing, decomposition and relaxation approaches, large-scale integer programming models and various heuristic procedures. We present computational experience with real world instances and discuss operational impacts of the developed planning tool.