Seminário em Engenharia Matemática

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Título:
ROUTING AND ASSIGNMENT OF CLIENTS OF GARDEN MAINTENANCE SERVICES

Resumo:
Neoturf, which is a Portuguese company working in the area of project, building and garden´s maintenance, posed the routing/assignment problem that follows. The aim is to define a procedure for scheduling and routing efficiently its clients of garden maintenance services. The company has two teams available throughout the year to handle all the maintenance jobs. Each team consists of two or three employees with a fully-equipped vehicle capable of carrying out every kind of maintenance service. At the beginning of each year, the number and frequency of maintenance interventions to conduct during the year, for each client, are agreed. Time windows are established so that visits to the client should occur only within these periods. There are clients that are supposed to be always served by the same team, but other clients can be served indifferently by any of the two teams. Since clients are geographically spread over a wide region, the total distance travelled while visiting clients is a factor that weighs heavily on the company costs. Neoturf is concerned with reducing these costs, while satisfying agreements with its clients.

In this talk, we present a mixed integer linear programming formulation for the problem, discuss limitations on the size of instances that can be solved to guarantee optimality, and we present a heuristic to surpass some implementation problems. Finally, we report preliminary computational results obtained with Neoturf data.

This is joint work with J. Orestes Cerdeira and Manuel Cruz.