

HEURISTICS LAGRANGIANS TECHNIQUES FOR ROUTING VEHICLES IN A STARCASE NETWORK

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RESUME

We present a vehicle routing problem with starcase network with a fleet of vehicles of different capacities and customers with known demands and soft time windows. In a network starcase, if the vehicle makes a trip to a customer returns to the center (or deposit) without visiting other clients. Soft time windows are considered allowing the vehicle to start service at the client before or after its time window, but the trip of vehicle generates additional costs (penalizations).

We present a mathematical model of mixed-integer linear programming for this problem and an experimental study with this model.

Lagrangian relaxations for the problem were considered and we present the models relaxed with a study experimental. In this experimentation the corresponding Lagrangian dual problem was solved by the subgradient technique and also benders method, with the goal to find the better possible bounds to original model or better than the calculated by a commercial solver or as benchmarks for heuristics methods and finally we present methods Lagrangian heuristics for find good feasible solutions of the original model.

KEYWORDS. Lagrangian Relaxation, Heuristics, starcase network

Main area : L & T - Logistics and Transport.