ABSTRACT

This thesis deals with the design of a heuristic algorithm to solve the vehicle routing problem (VRP) for an oil company in Indonesia, PT. PERTAMINA, as supplier to the petrol stations. Eighty eight petrol stations at Surabaya must be served by Pertamina and considering the characteristic of each demand rate. The objective function is to minimize the total cost of distribution. Firstly this thesis proposes a mathematical modelling of VRP and then described a heuristic for the VRP which contains a route construction. The heuristic entails an initialization phase to construct an initial route and an improvement phase to repair the route by using Tabu search. From the computation can be concluded that the improvement of the initial route using Tabu search algorithm is 2.6% from the initial cost 41.224.000.00 rupiahs. Total cost of distribution is influenced by a number of types of vehicles used relating to the rental cost and the total distance traveled. Number of routes is generated by 74 routes with details of the route for the delivery of 60 single routes and 14 multiple routes.
