ABSTRACT

TULT (Telkom University Landmark Tower) is one of the buildings located at Telkom University Bandung. One of the faculties located in the TULT building is the Faculty of Industrial Engineering (FRI). In FRI there is a warehouse room to store goods needed for academic and administrative purposes of the campus located on the 8th floor of TULT. One of the warehouses located in FRI is an electronic goods warehouse. Electronic goods stored in the warehouse are heterogeneous goods because the goods in the warehouse have different types of goods, quantities, dimensions, and weights of each type of goods. In the warehouse there are 6 racks used to store goods with a size of 80cm x 50cm x 200cm, having 4 levels for each rack in the warehouse. The goods stored in the warehouse have 20 types of goods with different quantities, dimensions, and weights of each type of goods. There are 99 units of goods that can be stored on warehouse racks with the size of the goods not exceeding the size of the racks in the warehouse.

The problem that exists in the FRI warehouse at Telkom University is that the racks in the warehouse cannot accommodate all the goods stored in the warehouse, this is because the quantity of racks in the warehouse is not proportional to the quantity of goods stored in the warehouse and there are several items whose dimensions exceed the dimensions of the racks. This shows that there is overcapacity on storage racks in the warehouse, goods that cannot be stored on warehouse racks are stored stacked on the warehouse floor which causes access to the road to pick up and store goods to be narrow, warehouse staff have difficulty when picking up and storing goods because electronic goods are stored stacked on the floor randomly. The warehouse of FRI Telkom University wants to increase the capacity of the storage rack by adding and determining the proposed rack for the storage of heterogeneous goods to minimize the overcapacity of the existing storage rack in the warehouse. In this research, the author uses the heuristic rack cell configuration problem model to add and determine the proposed racks in heterogeneous goods storage to minimize the overcapacity of storage racks. In the method used in this research, there is a mathematical model used to determine the type of rack beam and calculations to determine the dimensions of the rack cell. There are five categories of rack beam types with different rack beam specifications, after data processing, the selected proposed beam rack type is s5 with specifications of beam rack length 390cm, rack beam thickness 10.5cm, and rack beam load capacity 1000kg. After performing calculations using a mathematical model, the proposed rack cell dimensions are 398cm in length, 80cm in depth, and 90.5cm in height. The resulting 4 rack cells with each rack cell has a different variation of the arrangement of goods in the rack. Taking into account the dimensions of the warehouse, the proposed rack cells are made into 2 levels when all the proposed rack cells are stored in the warehouse. The 4 proposed rack cells obtained can accommodate all electronic goods that previously could not be stored on the racks in the warehouse and the goods are stored stacked on the warehouse floor, so that the access road to store and retrieve goods in the warehouse is easier and warehouse staff have no difficulty in storing and retrieving goods in the warehouse.

Keywords: Capacity, Overcapacity, Model Heuristik Rack Cell Configuration Problem.