

Design of Agricultural Machinery Factory Facility Layout

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Abstract : Tools and agricultural machinery (Alsintan) is a tool used in agribusiness activities. Alsintan used to change the traditional farming systems generally use manual equipment into modern agriculture with mechanization. CV Nugraha Chakti Consultant make an action plan for industrial development Alsintan West Sumatra in 2012 to develop medium industries of Alsintan become a major industry of Alsintan, one of efforts made is increase the production capacity of the industry Alsintan. Production capacity for superior products as hydrotiller and threshers set each for 2.000 units per year. CV Citra Dragon as one of the medium industry alsintan in West Sumatra has a plan to relocate the existing plant to meet growing consumer demand each year. Increased production capacity and plant relocation plan has led to a change in the layout; therefore need to design the layout of the plant facility CV Citra Dragon. First step the to design of plant layout is design the layout of the production floor. The design of the production floor layout is done by applying group technology layout. The initial step is to do a machine grouping and part family using the Average Linkage Clustering (ALC) and Rank Order Clustering (ROC). Furthermore done independent work station design and layout design using the Modified Spanning Tree (MST). Alternative selection layout is done to select the best production floor layout between ALC and ROC cell grouping. Furthermore, to design the layout of warehouses, offices and other production support facilities. Activity Relationship Chart methods used to organize the placement of factory facilities has been designed. After structuring plan facilities, calculated cost manufacturing facility plant establishment. Type of layout is used on the production floor layout technology group. The production floor is composed of four cell machinery, assembly area and painting area. The total distance of the displacement of material in a single production amounted to 1120.16 m which means need 18,7minutes of transportation time for one time production. Alsintan Factory has designed a circular flow pattern with 11 facilities. The facilities were designed consisting of 10 rooms and 1 parking space. The measure of factory building is 84 m x 52 m.

Keywords : Average Linkage Clustering (ALC), Rank Order Clustering (ROC), Modified Spanning Tree (MST), Activity Relationship Chart (ARC)

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