RE-DESIGN FACILITIES LAYOUT OF INDUSTRIAL GAS TURBINE ENGINE UNIT PT. GMF AEROASIA

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ABSTRACT

Facilities layout is an important factor to support operations in production system. With a well-designed facilities layout, the production activity can perform at its best as the company expects. Besides that, a well-planned facilities design can reduce up to 50% of companies operational cost. Industrial gas turbine engine (IGTE) unit is one of the new business sector from PT. GMF AeroAsia. As a new business sector, the facilities layout is designed based on managerial perspective, overlooking the optimization aspects in the process. Therefore, this research tries to provide a layout design for IGTE unit based on qualitative and quantitative optimization.

This research studies a re-designing facilities layout in PT GMF AeroAsia, especially in maintenance area of industrial gas turbine engine unit. This study uses both qualitative and quantitative optimization methods. The qualitative optimization is performed using conventional technique, activity relationship chart (ARC), and activity relationship diagram (ARD) while the quantitative method is performed using automated layout design program (ALDEP) algorithm.

The result of this research suggests that there are four areas to move from their original location in existing layout. The four areas are general repair, NDT Area, repair incoming & outgoing, red dye penetrant inspection, and inspection incoming & outgoing. The result of calculated evaluation criteria shows that evaluation of material flow in new layout is reduced 0.62% from its original value in existing layout.

Keywords : Automated Layout Design Program, Convensional Technique, Facilities Layout, Flow Material Evaluation.