

## **ABSTRACT**

*PT. Grandtex is a company that engaged in textile manufacturing. The company is processing the raw material of cotton yarn and blended yarn into denim that the products is a superior product of company. In fact the production on this company decreased by 10-30%. Companies should plan the ways to solve some cases in order to maintain the existence of products in the competitive textile market.*

*From the observations in PT. Grandtex especially in spinning 3 department, there are some underlying problems of production decreased in PT. Grandtex one of them is the layout of facilities in the department is inefficient. This is be strengthened by the distance between facilities is far enough and also by the backtracking in the process of moving material so the impact of it is cost of material handling will be increasing. Therefore to overcome these problems need to design the layout of the facility that will produce a more efficient layout. The parameters used as a planning benchmark of good facility layout is to minimize material handling costs. To solve this problem we can using two different methods namely CRAFT method as a method of development and also as a method of construction methods PLANET. Tools that is used in implementation of CRAFT methods is use WinQSB software in otherwise on PLANET method used tools that will be designed to support the concept PLANET method. In this research PLANET method will be modified by CRAFT method with taking the input data in CRAFT methods to produce an initial layout in PLANET methods.*

*In this research obtained the design layout is more optimal marked by the moment of movement material cost reduction about 19.85% by using CRAFT method. Meanwhile total cost of the PLANET method is 45.69%. So that we can compare between CRAFT method and modification of PLANET method that resulting the most minimum cost of material handling is a modification of PLANET method. Therefore the company's total production costs will be minimized.*

**Keywords:** *Layout, CRAFT algorithm, PLANET algorithm*