

ABSTRACT

PT. Pindad (Persero) is one of the companies involved is one of the state-owned enterprises that produce variations of heavy equipment for military and non-military. As a company that is make to order PT Pindad (Persero) has a problem in production scheduling. Based on historical data, PT Pindad (Persero) has been delayed by 25.8% in the production of Provision Crane. So the purpose of this study is to create a schedule by using the Genetic Algorithm to minimize Makespan. The data used are from the Department of Machinery and Services PT Pindad (Persero). The data includes constituent components of the product, the approximate time of each process (Due Date), the processing time (Processing Time) and the time delay (Lateness).

Inputs for the genetic algorithm are the job operation, the engine used, operating time, and some parameters, namely population size, probability of mutation, and the maximum generation. The process of scheduling with genetic algorithm begins with a population of random job sequence in accordance with a predetermined number of the population. Then conducted an individual evaluation that is looking for the fitness rank of each chromosome in a population. Chromosomal mutation is then performed until the final conditions are met. The final condition in question is if the iteration has done as much as the size of the generation as determined.

Based on the calculation and analysis of the makespan, fitness rank, and the utility of each machine, then get a new schedule that can minimize the makespan for 27.58 hours, or by 34.33% from eksisting conditions.

Key Word : Scheduling, Job Shop Scheduling, Genetic Algorithm