

## **ABSTRACT**

*Along with the times, manufacturing industry has increased so rapidly. CV. XYZ is one of the companies that move in manufacturing industry. CV. XYZ producing a wide variety of products. Problems experienced by CV. XYZ is to allocate the product, it caused by the method of scheduling is not optimal. The scheduling method cause tardiness in department lathe and turret in processing every job. Tardiness happens when the product can't meet the due date. Department lathe and turret use a parallel machine. The parallel machine consists of 7 machines lathe type I, 7 machines lathe type II, and 5 machines turret. The problem caused by the scheduling method of the companies was not appropriate. The companies used random method scheduling to produce the product based on the demand of the customer, this method cause some period lack of available capacity. Lack of capacity cause tardiness in that department. Total tardiness of department lathe and turret is 8134 hours and total jobs late are 129 jobs. Tardiness give bad effect for the company, this tardiness gave a penalty cost from the customer. The other bad effect from this tardiness is the satisfactory of customer will decrease and the production planning of the company will be interrupted too. This research was held to help the companies to solve the scheduling problem to minimize the total tardiness. Scheduling is a process of assignment every job to the facility of the company. In this research proposed a genetic algorithm to scheduling and use heuristic rule dispatching EDD to make the initial population. The initial population will be the input of the genetic algorithm in scheduling. Scheduling with genetic algorithm can reduce the tardiness to 723,97 hours and total jobs tardy are 32 job. Based on that result scheduling with genetic algorithm can reduce the tardiness of 91,1%*

**Keyword:** *Scheduling, Parallel Machine, Genetic Algorithm, EDD, Tardiness*