

## ***ABSTRACT***

### **PROPOSED JOB SHOP SCHEDULING TO MINIMIZE MAKESPAN USING GENETIC ALGORITHMS (Case Study at Endang Welding Workshop Palembang)**

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Endang Welding Workshop was one of the welding shop that receives goods from iron-making services, such as trellis, iron fence, iron or clothesline pole, and so on. The problem is often a delay of delivery of orders caused by the length of the total order completion time (makespan) with the percentage reached 60% of total orders in December of 2015. This caused of Endang Welding Workshop implement a scheduling system First Come First Serve (FCFS) in scheduling sequences 1-2-3-4-5-6-7-8-9-10-11-12-13-14-15-16-17-18. In this research was given alternative production scheduling using Genetic Algorithm to minimize the makespan. Genetic Algorithm is formed by using Visual Basic software with input data processing time of each component-machine whose output represents the sequence of component-machine and routing of products in the form of string that has been processed by the program implementation which is steps of Genetic Algorithm. Job shop scheduling using Genetic Algorithm could minimize the makespan of 22,55% of the FCFS method in scheduling sequences 10-16-17-11-18-6-14-7-4-12-15-2-1-5-13-9-8-3.

**Keywords:** Production Scheduling, Job Shop, Genetic Algorithm, Makespan, Visual Basic.