

## **Abstract**

*One of the production scheduling problems faced by the textile company is the hybrid flowshop scheduling type, where there are several machines that have sequence dependent setup time characters. PT Nagasaki Kurnia Textile Mills, has 56% problem of idle time caused by inefficient scheduling, operator does not pay attention to production sequence and the time of set-up dyeing of fabric and medicine for every motif depicted in fishbone diagram. The idle time resulted in a high production lead time resulting in a due diligence by 71% of the 232 Work Order Letter (SPK). The purpose of this study is to obtain or design an optimal scheduling system by minimizing the makespan production. Therefore, to realize the purpose of this study, the choice of Algorithm Simulated Annealing (SA) method which is assisted by JetBrains application PyCharm 1.2 2018. SA algorithm is a scheduling algorithm that usually has many variations of scheduling sequence, in addition as a random search method to avoid the trap optimally locally for the purpose of finding the optimum value. From the data processing done, the scheduling done by the company resulted in makepan of 483.66 hours and the scheduling result using Simulated Annealing Algorithm (SA) method resulted in makepan of 400.24 hours. then the results makespan with SA scheduling is better with a time difference of 83.42 hours or 17.00% of the initial conditions. Addition of the makepan results from SA can reduce the idle time average by 26% and increase the average 14% engine utility.*

*Key Word: Hybrid flowshops, Sequence Dependent Setup Times, Makespan, Simulated Annealing Algorithm*