Abstract

Job Shop is one of crucial issues in manufacture industry. Schedule with the least process completion time will reduce the production cost and increase the efficiency. But, job shop is combinatorial optimization problem with a large solution space and difficult to solve.

Therefore, the purpose of this final task is to implement the Bee Colony Optimization Algorithm that suitable for combinatorial problem that can give an optimum solution as the result in reasonable time. The solutions from BCO that generated randomly will be improved by Tabu Search. Beside that, tabu list on Tabu Search will help the bees to avoid bad solutions that have been generated.

The result showed BCO that modified from the early BCO model give average accuracy above 80% for all dataset used, whereas BCO that combined with TS can give average accuracy above 90%. BCO and TS give better solution with average system accuracy more or less 1,05 times over better than BCO for all dataset used.

***Keywords**: Job Shop, Bee Colony Optimization, Tabu Search, tabu list*