# Abstract

*Cutting Stock Problem (CSP) is one of crucial issues in manufacturing industry. Cutting pattern for material with the least trim loss will reduce the production costs and increase the efficiency. But, the cutting stock problem is a combinatorial optimization problem with a large solution space and thus is difficult to solve.*

*Therefore, the purpose of this final project is to implement Artificial Bee Colony Algorithm which suitable for solving CSP that can present an optimal solution within reasonable time. The randomly generated solutions from ABC then will be improved by Tabu Search. Where, the tabu list in TS will help the bees to avoid bad solutions which have already been generated.*

*The result showed that the modified ABC from the early ABC model gave average accuracy above 80% for all dataset used, whereas the TS combined ABC was able to give average accuracy above 90%. ABC and TS give a better solution with the average system accuracy is about 1,05 times better than ABC for all dataset used.*

**Keywords**: *cutting stock problem, artificial bee colony, tabu search, swarm intelligence, optimization algorithms*