

ABSTRACT

Job shop scheduling became one of the problems often faced by every company. With a good job shop scheduling, each company is able to improve the performance of the engine so that the reduced production costs and production time will be faster. However, job shop scheduling problem is a combinatorial problem which is quite complicated, because even very large solution space. One method that can solve this problem is the harmony search.

In this final project, will be used harmony search as a method to solve job shop scheduling problems. Harmony search itself was inspired by a jazz musician who continuously improving the harmony until he found what he wanted. Similarly, in harmony search, there are three solutions that do repairs, ie randomization, harmony memory consideration, pitch adjustment and rate. At the end of this final project will be given the best schedule that can be obtained by implementing the harmony search.

Based on research, harmony search has a very good performance for problems of combinatorial optimization problems. In the case of optimization of water distribution networks harmony search is able to provide the same solution with lower cost of 0.28 up to 10.26% compared to other algorithms such as genetic algorithm metaheuristik, simulated annealing, and taboo search.

Keyword: job shop, harmony search