ABSTRACT

PT Antika Raya, a business car body shop who work in job order system, is frequently troubled with order finishing lateness. This problem arises not only because of limited production capacity, but it is more caused by order completion time estimation determined by marketing department without a good planning on production scheduling by production department. What production department do is directly work orders according to date received or known as FIFO method.

This research discuss about flowshop scheduling problem using local search algorithm. The model used is the modification of the model developed by Choi and Choi (2001), especially in initialization and operation selecting phase. A computer program is developed to support implementation of algorithm made and is functioned to help marketing department especially in estimating order completion time within consideration to received order date, car handovering date, machine availability time, and production line capacity, that finally, the estimation formed production scheduling is able to be used as recommendation to production department in performing their production activities.

By using the algorithm and software, production scheduling and the mechanism of order completion time determination at PT Antika Raya can be improved significantly. With this new system, it can be resulted schedule which has better makespan average instead of FIFO method used by the company this time. For orders dated from December 2002 until January 2003, makespan average improvement result is 1.86%. Meanwhile, the software is able to give a better order completion time approximation than the estimation used before, with comparation of 1.03 : 4.24 days for lateness.

Keywords : local search algorithm, flowshop scheduling problem, car body shop