A Study of Parallel Machine Scheduling in an Electronic Industry using Heuristics Approach

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Abstract:
In electronic industries, there are inconsistency in completing the orders or jobs in the production line within the period given. In this study, the winding process of an electronics industry in being investigated to search and propose the best scheduling approach of the process in dealing the problem occurred on the production line. Scheduling process is done by using heuristic approaches where four different scheduling rules are applied. These rules are First Come First Serve (FCFS), Earliest Due Date (EDD), Longest Processing Time (LPT) and Shortest Processing Time (SPT). The analysis is done by using two methods; single product processing and double product processing using predetermined weightage. The key performance indicator is by observing the maximum makespan of the winding process, C_{max} from the respective scheduling. Based on the results, LPT is the most promising rule among the scheduling rules that are considered in this project. LPT rule able to minimize the C_{max} by selecting of the highest executive time from the order. LPT manage to utilize the machines in the production on high level and thus increasing the efficiency of the production.

Keywords: *First Come First Serve (FCFS); Earliest Due Date (EDD); Longest Processing Time (LPT); Shortest Processing Time (SPT)*

ACKNOWLEDGEMENT

The authors would like to acknowledge Universiti Malaysia Pahang for funding this research under the internal grant RDU190317.