

Abstract

PT XYZ is a manufacturing company that produce spare parts for automotive with various shapes and sizes. focus on the problem of scheduling jobs on identical parallel machines in PT XYZ. The company had four injection molding machines to support the production process, the raw material will go through the machine to become the finished product. At the current existing condition, the company used first come first serve scheduling system, which means the company process the job that comes first. The objective of the research is to design a method to reduce total tardiness to be applied in PT XYZ. From the data in May 2021, the scheduling in the company had differences between the completion time and the due dates. As a result, there are a total of 26 tardy jobs on that month with the total tardiness is 64 days. To resolve the problem, this final project had the objective of designing a method to reduce total tardiness to be applied in PT XYZ. To obtain this objective, this project proposed a method based on earliest due dates rules and considering job splitting property. The proposed method will help determine which job to be split, how it should be split, and how the jobs will be divided into the available machines. The proposed method is evaluated based on tardiness, tardy jobs and makespan. Compared to the existing condition, the scheduling sequence using the proposed method had managed to reduce the total tardiness, the makespan, and the tardy jobs. Since the proposed method managed to fulfill the objective function and performs better in all aspects compared to the existing condition, it could be implemented as the company's scheduling policy to help the company meet the customer's due dates.

Key Words: Identical parallel machine scheduling, EDD, job splitting property