

ABSTRACT

PT XYZ is a company engaged in manufacturing that focuses on the production and repair of various types of hydraulic heavy equipment. PT XYZ implements a make to order system, namely hydraulic products made according to different type specifications with sizes according to customer orders and often only produced in small quantities. One of the obstacles faced by the company is that in the production process of hydraulic components to be assembled, especially at the machining stage, there are large variations to meet the demand for one product. When the number of orders is quite high and comes simultaneously, the company does not have the right scheduling method for hydraulic production, especially in the component machining process. The process flow on hydraulic components is a general flow shop with parallel machines. The machining process has a larger time allocation than the other processes. The actual completion time of the machining process is higher than the target completion time. The long completion time of hydraulic component production in the machining process can be caused by the absence of scheduling methods used in the company. Reducing the time required to complete all jobs in the machining process can reduce the production completion time. One of the scheduling methods that can be used is the Campbell Dudek Smith Algorithm which provides a near optimal solution. The CDS algorithm aims to obtain the smallest makespan value from the best job sequence. Therefore, in this final project, we will carry out scheduling using the CDS Algorithm to reduce makespan in the production of hydraulic components at PT XYZ. The results of actual scheduling show that the makespan value reaches 107 hours. However, after the application of scheduling using the Campbell Dudek Smith algorithm, the makespan value was successfully reduced to 92 hours or 11.5 days to complete the entire job. There is a reduction in the makespan value in the proposed scheduling using the Campbell Dudek Smith algorithm with a reduction value of 14% or 15 hours. The reduction results show that the Campbell Dudek Smith Algorithm is able to provide solutions regarding the order of job processing that results in the smallest makespan at PT XYZ.

Keywords - flowshop, makespan, CDS algorithm, parallel machine