

ABSTRACT

PT XYZ is a company operating in the industrial sector with mass production of palm oil from Fresh Fruit Bunches (FFB). In its production process, the company involves various machines and equipment with different capacities, which are used in several interconnected production stages. The company implements a flow shop scheduling system to manage the sequence of tasks on various types of machines. The scheduling method currently used is First Come First Served (FCFS), which is simple and does not optimize production time efficiency. Efficient machine scheduling becomes a crucial factor in minimizing the makespan, which is the total time required to complete all tasks. This research is conducted to analyze the current scheduling system applied by the company and to design an alternative scheduling method using a heuristic approach, namely the Nawaz-Enscore-Ham (NEH Heuristic) method, which is one of the heuristic algorithms that can minimize makespan in systems with multiple machines and complex production processes. By using the NEH method, this study focuses on sequencing tasks based on total processing time to determine the optimal machine processing order, aiming to maximize efficiency and reduce machine idle time. The results of this research are expected to provide a better scheduling solution, increase productivity, and reduce production costs for the company. The implementation of the NEH method is expected to optimize the palm oil production flow and improve the overall operational performance of PT XYZ.

Keywords: Production Scheduling, Flow Shop, Makespan, FCFS, NEH, Machine Utilization, Palm Oil.