

ABSTRAK

CV Tirtamas Sumber Rejeki merupakan perusahaan yang bergerak pada bidang manufaktur produk plastik. Produk yang dihasilkan oleh CV Tirtamas Sumber Rejeki terbagi menjadi 2 segmen yaitu medis dan *non*-medis. Beberapa produk medis yang diproduksi oleh CV Tirtamas Sumber Rejeki yaitu pot dahak, pot *urine*, sendok pendek, dan sendok panjang. Terdapat beberapa proses yang dilalui produk-produk tersebut seperti *mixing*, injeksi, *finishing*, perakitan, dan *packing*. Pada proses injeksi terdapat permasalahan yang timbul, yaitu penumpukan barang setengah jadi sebelum dilakukan proses *finishing*.

Pada penelitian ini dilakukan penjadwalan produksi menggunakan metode penjadwalan *flowshop* dan *operation overlapping*. Metode penjadwalan yang digunakan adalah metode *Nawaz Ensore Ham* (NEH), *Earliest Due Date* (EDD), *Longest Processing Time* (LPT), *Shortest Processing Time* (SPT), dan *Critical Ratio* (CR). Metode penjadwalan digunakan untuk mencari *flowtime* minimum yang memungkinkan. Metode *overlapping* digunakan untuk mengurangi *flowtime* dan juga barang setengah jadi setelah proses injeksi.

Hasil dari pengolahan data yang telah dilakukan pengurutan prioritas pekerjaan menggunakan metode NEH dan SPT merupakan metode yang paling efektif dalam menurunkan rata-rata *flowtime*, *lateness*, *makespan*, dan *work in process inventory*. Rata-rata *flowtime*, *lateness*, *makespan*, dan *work in process inventory* masing-masing berkurang 79%, 25%, 56%, dan 95%. Rata-rata persediaan barang setengah jadi bulan januari produk sendok pendek, tutup pot urin, badan pot urin, tutup pot dahak, dan badan pot dahak menggunakan metode NEH dan SPT masing-masing berkurang menjadi 12.201; 11.536; 10.316; 0; dan 0 yang awalnya 134.889; 200.037; 82.500; 114.447; dan 134.889, sedangkan pada bulan februari berkurang menjadi 0; 2.123; 2.123; 0; dan 0 yang awalnya 178.231; 247.322; 122.953; 229.600; dan 178231.

Kata Kunci: Penjadwalan Produksi *Flowshop*, Barang Setengah Jadi, *Flowtime*, *Operation Overlapping*

**PRODUCTION SCHEDULING AND OPERATION OVERLAPPING
TO REDUCE WORK IN PROCESS INVENTORY
IN THE PRODUCTION OF MEDICAL DEVICES**

ABSTRACT

CV Tirtamas Sumber Rejeki is a company engaged in the manufacture of plastic products. The products produced by CV Tirtamas Sumber Rejeki are divided into two segments, namely medical and non-medical. Some of the medical products produced by CV Tirtamas Sumber Rejeki are sputum pots, urine pots, short spoons, and long spoons. There are several processes that these products undergo, such as mixing, injection, finishing, assembly, and packing. During the injection process, a problem arises, namely the accumulation of work in process inventory before finishing process.

In this study, production scheduling was carried out using the flowshop scheduling and operation overlapping methods. The scheduling methods used were the Nawaz Ensore Ham (NEH), Earliest Due Date (EDD), Longest Processing Time (LPT), Shortest Processing Time (SPT), and Critical Ratio (CR). The scheduling methods were used to find the minimum flowtime possible. The overlapping method was used to reduce flowtime and also semi-finished goods after the injection process.

The results of the data processing, which involved prioritizing tasks using the NEH and SPT methods, showed that these methods were the most effective in reducing the average flowtime, lateness, makespan, and work-in-process inventory. The average flowtime, lateness, makespan, and work-in-process inventory decreased by 79%, 25%, 56%, and 95%, respectively. The average work in process inventory for January for the products short spoon, urine pot lid, urine pot body, phlegm pot lid, and phlegm pot body using the NEH and SPT methods decreased to 12,201; 11,536; 10,316; 0; and 0, from the initial quantities of 134,889; 200,037; 82,500; 114,447; and 134,889. In February, the quantities decreased to 0; 2,123; 2,123; 0; and 0, from the initial quantities of 178,231; 247,322; 122,953; 229,600; and 178,231.

Kata Kunci: *Flowshop Scheduling, Work In Process Inventory, Flowtime, Operation Overlapping*