

**EVALUATION AND IMPROVEMENT OF BACKPACK
PRODUCTION LINE PERFORMANCE AT CV. ANDESPUMA
ANUGRAH PRATAMA**

FINAL PROJECT

UNIVERSITAS ANDALAS

RIDHA VRIANY PUTRI

2010933006



**INDUSTRIAL ENGINEERING DEPARTMENT
FACULTY OF ENGINEERING
UNIVERSITAS ANDALAS**

PADANG

2024

**EVALUATION AND IMPROVEMENT OF BACKPACK
PRODUCTION LINE PERFORMANCE AT CV. ANDESPUMA
ANUGRAH PRATAMA**

FINAL PROJECT

*Submitted to fulfill the requirement in achieving the bachelor's degree in
Industrial Engineering Department, Faculty of Engineering, Universitas Andalas*

RIDHA VRIANY PUTRI

2010933006

Supervisor:

Dr. Eng. Lusi Susanti, S.T.,M.Eng



INDUSTRIAL ENGINEERING DEPARTMENT

FACULTY OF ENGINEERING

UNIVERSITAS ANDALAS

PADANG

2024

ABSTRAK

Industri manufaktur di Indonesia, khususnya sektor produksi tas yang termasuk dalam kategori tekstil, menghadapi tantangan signifikan di tengah perubahan kondisi pasar global. Berdasarkan data dari Badan Pusat Statistik (BPS), volume ekspor tekstil nasional pada semester I tahun 2023 menurun 13% dibandingkan tahun sebelumnya, mencerminkan dampak dari fluktuasi permintaan global dan ketidakstabilan ekonomi. Dalam kondisi ini, peningkatan performansi lini produksi menjadi krusial untuk mempertahankan daya saing. Salah satu usaha yang menghadapi tantangan ini adalah CV Andespuma Anugrah Pratama, yang memproduksi berbagai tas berbahan polyester. Penelitian ini bertujuan untuk mengevaluasi dan meningkatkan kinerja lini produksi di CV Andespuma Anugrah Pratama melalui penerapan prinsip ekonomi gerakan, 5S, dan line balancing. Perbaikan sistem kerja dilakukan dengan mengurangi elemen kerja yang tidak produktif dan meningkatkan keteraturan melalui 5S. Sebelum perbaikan, total waktu siklus adalah 4205,9167 detik dengan efisiensi 61,64%. Setelah perbaikan, waktu siklus berkurang menjadi 3053 detik. Analisis line balancing dilakukan menggunakan metode Largest Candidate Rule (LCR), Kilbridge and Weston Method (KWM), dan Ranked Positional Weight (RPW). Hasilnya menunjukkan bahwa metode LCR menghasilkan efisiensi hingga 88,71%, metode RPW mencapai 90,30%, dan metode KWM memberikan hasil terbaik dengan dua alternatif, yaitu efisiensi 93,09% dan 94,40%. Penerapan prinsip ekonomi gerakan, 5S, dan line balancing berhasil meningkatkan efisiensi produksi di CV Andespuma Anugrah Pratama, dengan alternatif terbaik berasal dari metode KWM yang mencapai efisiensi tertinggi 94,40%.

Kata Kunci: *Ekonomi Gerakan, Efisiensi, Line Balancing, Lini Produksi, dan 5S*

ABSTRACT

The manufacturing industry in Indonesia, particularly the bag production sector within the textile industry, is encountering significant challenges amidst fluctuating global market conditions. According to data from Badan Pusat Statistik (BPS), the national textile export volume for the first half of 2023 experienced a 13% decline compared to the same period in 2022, reflecting the adverse effects of global demand fluctuations and economic instability. Under these circumstances, optimizing production line performance is critical to sustaining competitiveness in an increasingly challenging market environment. One company grappling with these issues is CV Andespuma Anugrah Pratama, a producer of various polyester-based bags. This research aims to evaluate and enhance the performance of the production line at CV Andespuma Anugrah Pratama by employing the principles of motion economy, 5S methodology, and line balancing techniques. The work system improvement process focused on minimizing non-value-added work elements and improving workplace organization through the 5S methodology. Prior to the interventions, the total cycle time was recorded at 4205,9167 seconds, with an efficiency rate of 61.64%. Following the implementation of improvements, the cycle time was reduced to 3053 seconds. The line balancing analysis utilized the Largest Candidate Rule (LCR), Kilbridge and Weston Method (KWM), and Ranked Positional Weight (RPW) techniques. The results demonstrated that the LCR method improved efficiency to 88.71%, the RPW method achieved 90.30%, while the KWM method yielded the most favorable outcomes, with two alternatives achieving efficiencies of 93.09% and 94.40%. The application of motion economy principles, 5S methodology, and line balancing significantly improved production efficiency at CV Andespuma Anugrah Pratama, with the highest efficiency of 94.40% attained through the KWM method.

Keywords: Motion Economy, Efficiency, Line Balancing, Line Performance, and

5S