



**INCREASING EFFICIENCY OF SAMPLE  
SEARCHING ACTIVITY IN INJECTION MOLDING  
DEPARTMENT AT PT XYZ BY USING PDCA CYCLE**

**UNDERGRADUATE FINAL PROJECT**

**Submitted as one of the requirements to obtain Sarjana Teknik  
(S.T.)**

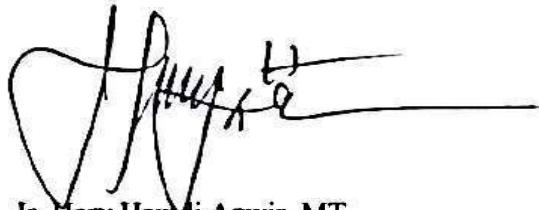
**By:  
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**FACULTY OF ENGINEERING  
INDUSTRIAL ENGINEERING STUDY PROGRAM  
CIKARANG  
JANUARY, 2023**

## **PANEL OF EXAMINER APPROVAL**

The Panel of Examiners declare that the undergraduate final project entitled **Increasing Efficiency of Toy Sample Searching Activity in Injection Molding at PT XYZ by using PDCA Cycle** that was submitted by Miertha Epiphania majoring in Industrial Engineering from the Engineering was assessed and approved to have passed the Oral Examination on January 19, 2023.

### **Panel of Examiner**

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Ir. Hery Hamdi Azwir, MT

### **Chair of Panel Examiner**

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Dr. Ir. Mohamad Toha, MT

### **Examiner I**

## **FINAL PROJECT ADVISOR RECOMMENDATION LETTER**

This thesis entitled “Increasing Efficiency of Sample Searching Activity in Injection Molding Department by using PDCA Cycle” prepared and submitted by Miertha Epiphania in partial fulfillment of the requirements for the degree of Bachelor Degree in the Faculty of Engineering has been reviewed and found to have satisfied the requirements for a final project fit to be examined. I therefore recommend this final project for Oral Defense.

**Cikarang, Indonesia, 17<sup>th</sup> of January, 2023**

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**Dr. Ineu Widaningsih, S.T., M.T.**

## STATEMENT OF ORIGINALITY

In my capacity as an active student of President University and as the author of the undergraduate thesis/final project/business plan stated below:

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Student ID number : 004201800063  
Study Program : Industrial Engineering  
Faculty : Engineering

I hereby declare that my undergraduate thesis/final project/business plan entitled "Increasing Efficiency of Toy Sample Searching Activity in Injection Molding Department at PT XYZ by using PDCA Cycle" is, to the best of my knowledge and belief, an original piece of work based on sound academic principles. If there is any plagiarism, including but not limited to Artificial Intelligence plagiarism, is detected in this undergraduate thesis/final project/business plan, I am willing to be personally responsible for the consequences of these acts of plagiarism, and accept the sanctions against these acts in accordance with the rules and policies of President University.

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Dr. Ineu Widaningsih, S.T., M.T.

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SEARCHING ACTIVITY IN INJECTION MOLDING  
DEPARTMENT AT PT XYZ BY USING PDCA CYCLE**

By

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Dr. Ineu Widaningsih, S.T., M.T.

Final Project Advisor



Andira Taslim, S.T., M.T.

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## ABSTRACT

The Injection Molding department at PT XYZ is facing issues with sample searching, which is leading to decreased productivity and increased production costs. The aim of this study, conducted using the PDCA cycle, was to identify the root causes of the issue between April and August 2022 and increase the efficiency of the sample searching activity. Objectives included reducing searching time, utilizing space more effectively, increasing sample storage capacity, and reducing potential loss costs. Action plans included adding drawers and shelves, and creating a bank database of the sample locator. As a result, searching time decreased by 91%, space utilization increased to 14%, capacity increased by 136%, and the cost of lost output was reduced by up to 91%, or Rp78,938,000.20 each month. Additionally, the cost of lost searching hours was reduced by 84%, or Rp1,798,197.00. As a result, the Injection Molding department can save up to 91% of the searching time, equivalent to Rp80,736,197.20 total cost savings each month.

*Keywords: Injection Molding, sample searching, PDCA cycle, efficiency, cost reduction, productivity improvement*

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## LIST OF TERMINOLOGIES

- Lean manufacturing : Lean manufacturing is a production process that focuses on reducing waste in all aspects of a company's production activities by considering all available resources to achieve economic value
- Injection molding : Injection molding is a thermoplastic material processing method in which the material is melted through heating, injected by a plunger into a water-cooled mold, and then cooled and hardened so it can be removed from the mold
- PDCA : PDCA stands for Plan, Do, Check, and Act. The PDCA cycle is a management method that aims to solve problems through four iterative steps
- Sample : A sample is a prototype of a product created by the vendor and approved by the customer
- Searching time : Searching time is the time required for a person to find something, including manual and walking work. This measure of time starts from the beginning of the task until its completion
- Space utilization : Space utilization involves optimal load security and creating a layout that takes advantage of the entire space, using the volume of the room as effectively as possible
- Capacity : Capacity refers to the storage capacity of an item or part within a storage device

Cost reduction : Cost reduction is a continuous effort specifically designed to drive spending down and save costs while maximizing business value. It involves automating the analysis of non-value added activities, eliminating waste, and improving business processes to reduce overhead or cost