

UNIVERSITI TEKNOLOGI MARA

**LEAN MANUFACTURING
IMPLEMENTATION IN AN
AUTOMOTIVE ASSEMBLY LINE**

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Thesis submitted in fulfillment
of the requirements for the degree of
Master of Science

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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.


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ABSTRACT

In this research the implementation of Lean Manufacturing (LM) system with an application of a set of lean tools in an automotive assembly area is examined. The study seeks to investigate how the lean tools could be applied and how the company could benefit from the implementation. In order to collect data, the existing case study area called MYVI assembly line was examined and the current Material and Information Flow Charts (MIFC) was mapped. The purpose of mapping the present MIFC is to highlight the hidden waste in the existing system such as waiting times, transportation time and unwanted inventories. Based on this information, suitable lean tools such as set-up time reduction, continuous flow process and standardized work were identified and mapped accordingly in the future MIFC. The line balancing and re-layout activities complement the total LM system establishment. Through performance analysis, results from the implementation were measured and analysed by comparing the lean metrics between the existing conditions against the improved system. The performance of the improved system were then presented in the form of productivity and cost saving. The findings revealed that the company managed to increase their productivity and reduce the operational cost significantly after the LM implementation. It can be concluded that a systematic approach is essential and appropriate lean tools is crucial for the LM establishment process. Based on the findings, it was recommended that the management replicate these activities in other assembly areas or manufacturing areas in order to achieve full LM system company wide.

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