

UNIVERSITI TEKNOLOGI MARA

**JUST IN TIME PRODUCTION
IMPLEMENTATION THROUGH
LEAN MANUFACTURING
PRINCIPLES**

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

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AUTHOR'S DECLARATION

I declare that the work in the 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 of 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.

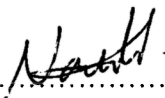
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ABSTRACT

The purpose of this research is to investigate the effectiveness of Just In Time implementation by adopting the Lean Manufacturing principle. The lean manufacturing principle here is referring to the systematic and non-wasteful manufacturing operation; using the set takt time and production scheduling based on the customer's demand. The objective of this study is to examine the existing manufacturing operation at Cylinder Head Cover manufacturing process using Material and Information Flow Chart (MIFC), and identify the waste. From here, effective kaizen activities such as i) Work Standardization ii) U-shaped layout formation, and iii) Improved Material Handling System were recommended and implemented. Consequently, continuous flow process at the Cylinder Head Cover manufacturing line is achieved. Kanban system is the heart of Just In Time operation. To initiate kanban, the aforementioned activities must be in-placed. To complement the kanban operation, the establishment of i) kanban tool, ii) effective flow rack system and iii) appropriate layout is vital. With these implementation, the manufacturing performance were then measured according to the identified lean metric; such as i) productivity, ii) inventory level, iii) lead time, iv) manpower requirement and v) space utilization. These lean metrics were analyzed and compared against the manufacturing operation before the implementation was carried out. The research outcomes revealed that the company had gained significant improvement in term of performance and profit. It can be concluded that this research is successfully carried out and the same approach can be adopted in other manufacturing line. Ultimately this organization (the case study subject) is targeting to implement company-wide lean manufacturing operation. The research finding shows that this move is economically viable and justified.

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