



**IMPROVING LAYOUT AND WORKLOAD OF  
MANUFACTURING SYSTEM IN SMALL AND  
MEDIUM ENTERPRISE (SME) USING DELMIA  
QUEST**

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### **DECLARATION BY THE CANDIDATE**

“I declare that this thesis is the result of my own work except the ideas and summaries which I have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in any candidature of any degree.”

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“I declared that we read this thesis and in our point of view this thesis is qualified in term of scope and quantity for the purpose of awarding the Bachelor of Mechanical Engineering (Manufacturing) (Hons.) University Teknologi Mara (UiTM)”

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## **ABSTRACT**

A facility layout can be defined as an arrangement of the equipment area in the industry or organization of the factory. The main objective of this project is to improve the existing layout in SMEs using DELMIA QUEST simulation. In this project, new layouts are proposed to reduce the waiting time in a production line and increased the productivity. This study focused on packaging production line in Syarikat Hang Tuah Sdn Bhd, a Coffee Manufacturing company located at Tasek Gelugor Pulau Pinang. The problems identified in these production lines are the small working space, some process overlaps and bottleneck due to high demands of the product. These resulted in high lead time. The existing layout was studied and simulated to improve certain parameters such as labour, machines, shape and space of the layout. The workstations for Sifting, Sachet Packaging, Small Packaging, Big Packaging, Boxing and Finishing Good processes are repositioned in the proposed layout before undergoing simulation process using DELMIA QUEST software. From the simulation results, the significant improvement is determined and the best layout chosen in term of machines utilization and total output. Based on this, a new layout is proposed to increase the productivity capacity and to meet customer demand. Simulation data of the proposed layout shows its productivity has increased to approximately 41.5%.