ACKNOWLEDGEMENTS

First of all, I would like to thanks to my supervisor, Mr. Hadi Bin Abdul Salaam for guiding me to complete this thesis and sharing his knowledge with me. In addition, to my friends and course-mates of Faculty of Mechanical Engineering who have been very supportive, thanks for your encouragements and helping hands through the time I spent on this project.

Special thanks to the staffs from Pusat Kesihatan Palajar (PKP) in Universiti Malaysia Pahang (UMP) as sharing their time, information and ideas with me. The generosity of them is highly appreciated throughout this project.

Finally, I would like to express my sincere indebtedness to my beloved grandfather, parents and family that always showing their love and supporting me along my study life time and whenever I am facing difficulties. Nevertheless, the love from GOD will always be remembered as I was given a chance to accomplish my project smoothly without any serious hardship.
ABSTRACT

As the world is improving rapidly, time is seems to be the most essential factor to decide the strength of competency of organization. In a short word, a company that can produce massive product or good services with high quality in a short timing is what efficiency means. With the respect of the project title, Productivity Improvement for Pusat Kesihatan Pelajar (PKP) By Simulation Software is meant to improve quality and the efficiency of the existing service process flow in PKP of Universiti Malaysia Pahang (UMP). The main project objectives are to design and improve service floor layout of this selected organization, analyzed the designed layout and select the best solution for PKP. The project is started by evaluating and identifying the problems existed in the service floor layout. Continue by data collection for the data analysis to choose the best goodness-of-fit test to proceed to the simulation modeling step. Meanwhile, there are three alternatives are suggested reducing the waiting area capacity, add-in a medical consultant and the last alternative is the combination of both alternatives. By running an experiment on the suggested alternatives to improve the output patient number, these alternatives are modeled in the WITNESS Simulation software and run for the experimental time of 4 hours. These results are analyzed by Kruskal-Wallis and one way ANOVA test for the best solution selection. The experimented results are then being compared with the Cost-effectiveness analysis to determine the most efficient layout that able to produce high output of patient number with lowest cost. From the findings, the most productivity improvement method is adding a medical officer in the service floor layout and reducing the waiting area capacity from 27 to 5 chairs. Furthermore, this approach is also minimized the lead time of giving medical consultant to patient. Hence, the objectives of this project have been achieved and the selected alternative will be proposed to the PKP for implementation.