UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

THE APPLICATION OF QUEUING THEORY MODEL AND FUZZY QUEUING MODEL AT CHECK-IN COUNTER IN AIRPORT

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ABSTRACT

A queuing system is used world-wide by the servers at service counters. However, the problem often occur when the customers have to wait in the queue for a long time. The purpose of this study is to maximize the service time and minimize the waiting time of passengers at the Malaysia Airlines (MAS) check-in counters by using Queuing Theory Model. Besides that, the study also done to compute and compare the performance measure of multi-server by Queuing Theory Model and Fuzzy Queuing Model. For Fuzzy Queuing Model, the DSW Algorithm was used to define the required variables in this study. From the data collected manually at check-in counter KLIA, the values of arrival rate, λ and service rate, μ is obtained which later will be used to calculate the variables in Queuing Theory Model and Fuzzy Queuing Model. The result obtain for both models is corresponding with each other. However, the Fuzzy Queuing Model prove that the model is much more efficient and effective compare to Queuing Theory Model. This is because the information obtained from the fuzzy application used is easier to understand and interpret because the information is in the form of range between minimum and maximum. Therefore, the Fuzzy Queuing Model is an alternative ways in order to measure the performance of multi-server in queuing system.

Keywords: Queuing Theory Model, Fuzzy Queuing Model, DSW Algorithm, multi-server queuing system.