

ABSTRACT

One of the public facilities that illustrates the queue situation is Ahmad Yani Airport Semarang. A common problem at this airport is flight delays, both in arrivals and departures, which leads to changes in boarding times and prolonged aircraft waiting times at parking stands. This disrupts subsequent aircraft that are scheduled to land and occupy the previously assigned parking stand. Queuing theory can be applied to the aircraft service system at Semarang's Ahmad Yani Airport by determining the queuing model and system performance measures. This can be used to determine the appropriate and efficient number of service systems. The research method in this study is through direct observation of regular commercial aircraft landings, take-offs, and aircraft services at Semarang's Ahmad Yani Airport. The analysis tools used to process the research data are Microsoft Excel, Easyfit, and GUI R.

The research findings indicate that the arrival pattern follows an exponential distribution, while the service pattern exhibits a general distribution. The queuing model used in this study is a combined queuing model. The Easyfit software output reveals that the distribution of aircraft service times is Beta, with eight facilities. Consequently, the queuing model is represented as $(M/Beta/8):(GD/\infty/\infty)$. The effectiveness of the service system was tested by examining the queuing system performance measures. The results show a 68.4% probability that the parking stand will be busy serving aircraft. This indicates that the service system at Semarang's Ahmad Yani Airport is fairly effective.

Keywords: Airplane, Airport, Queue, Exponential distribution, General distribution.