

UNIVERSITI TEKNOLOGI MARA

TECHNICAL REPORT

**COMPARISON OF QUEUING PERFORMANCES MEASURES OF
MULTI-SERVER COUNTER SERVICES USING DSW ALGORITHM
METHOD AND L-R METHOD**

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL

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ABSTRACT

Queues happen when the assets are restricted. Hence, queuing theory helps in the plan of adjusted frameworks that could serve clients rapidly and productively yet not expensive to ever be feasible. Moreover, the queueing issue is critical in the design of a queueing system because it involves one or more decisions such as the number of servers at a service facility and the effectiveness of the servers. When the cost coefficient and the arrival or service pattern are known precisely, the queueing choice issue may be addressed. Hence, the objectives are to measure the queuing performances of multi-server counter services using the DSW Algorithm method and L-R method and to compare which methods are suitable for the queuing performances of multi-server counters. The performance measures L , L_q , W and W_q were computed for both methods. The performance measurements for the DSW Algorithm approach provides range values based on the outcome. While for the L-R method, the performance measures were given as the exact values but are still in the range that is shown in the DSW Algorithm method. The DSW Algorithm method gives more effective and comprehensive information since it provides the results of queuing performance measures of multi-server counters for α – cut from 0 until 1. The best result is $\alpha = 1$ and it was chosen since it demonstrates the minimum and maximum waiting time at the service counter. Thus, it makes the DSW Algorithm method being the most suitable method to measure the queuing performance of multi-server counters.