

**APPLICATION OF QUEUING THEORY FOR
OUTPATIENT DEPARTMENT IN KURUNEGALA
TEACHING HOSPITAL:
A CASE STUDY**

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Declaration

I declare that this is my own work and dissertation does not incorporate without acknowledgement any material previously submitted for Degree or Diploma in any other University or institute of higher learning and to best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters Dissertation under my supervision.

Name of the supervisor:

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ABSTRACT

The Kurunegala teaching hospital was used as a case study for this study's computer simulation testing of patient queueing model. The majority of public hospitals in Sri Lanka, like Kurunegala teaching hospital, have long wait times for services, which is what stimulated the study. In essence, such a circumstance results in poor service quality, which dissatisfies many patients. Four cases were analyzed for this study, in terms of one-hour sessions from 8 a.m. to 12 noon at the outpatient department in the Kurunegala teaching hospital. The results of each simulated queueing model were critically reviewed. According to cases 1, 2, 3, and 4, which involved different time intervals, respectively, the model evaluated the waiting period and the number of patients that depart. Results of a queueing theory study are compiled in the summary of study consisting the waiting times, the utilization analyses, and the number of patients who depart after receiving consultation. The intention is to give analysts who are considering modeling a healthcare process using queueing theory enough information to locate the specifics of pertinent models. The results of simulation studies emphasized the requirement of sufficient doctors at the OPD during peak hours in morning. As a result, the Kurunegala teaching hospital in Sri Lanka can plan respective healthcare practices based on a simulation study.

Keywords: Waiting Time, , Healthcare, Simulation

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List of Abbreviations

Abbreviation	Description
FIFO	First In First Out
FCFS	First Come First Serve
LIFO	Last In First Out
LCFS	Last Come First Serve
OPD	Outpatient Department
SIRO	Service In Random Order

List of Appendices

Appendix	Description
Appendix - A	Simulation Model Output