A STUDY ON THE QUEUING SYSTEM OF THE OUTPATIENT DEPARTMENT IN DE LA SALLE UNIVERSITY MEDICAL CENTER

An Undergraduate Thesis Presented to
the Mathematics Department
College of Science and Computer Studies
De La Salle University–Dasmariñas

In Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in
Applied Mathematics

Sirikit B. Espiritru
Deniece S. Singwatt

October 2012

Table of Contents

ABSTRACT

Queuing Theory is a mathematical approach applied to the analysis of waiting lines. Analyzing queuing system in a business can effectively improve the service environment, working efficiency, and the customer service perception. Also, it will give convenience to the customers who wait for a service. The concept of queuing theory was used in this study for evaluating and constructing a queuing model. This study intends to analyze the queuing system of the Outpatient Department in De La Salle University Medical Center. If the researchers find out that the queuing system is not optimal, a new one will be proposed. For the assumption of the existing queuing model of the DLSUMC-OPD to analyze and evaluate the condition of the system, the researchers divided the system into two, the initial queue and the final queue and the model used are M/M/1/30 and M/M/4/30. Based on the data gathered, the initial and the final queues were already optimal since the assumptions $\lambda < s\mu$ and the average service utilization factor must be less than 1 are satisfied. However, in final queue there are days that the service capacity of the system is less than the arrival of the customers. For this reason, the researchers set an additional server and based from the computations the system for the final queue needed 5 more servers for an improved system.