

## **Simulation of the University Canteen Performance: A Case Study**

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Waiting in the university canteen queue is a usual practice of the students. This creates unnecessary frustrations and barriers over the timely participation of students in academic work. Therefore, this study aims to find necessary improvements for the performance of the university canteen. The study selected the recommended lunch hour for five consecutive week days and recorded times for subsequent arrivals to the canteen, arrivals to counters and departures from counters after getting the service. The sample was 200 students. The system was modeled as a multi-server queuing system using Rockwell ARENA 14.5. The input analyzer showed non uniform arrival rates explained by different patterns. The data were simulated for a replication length of 30 minutes to find the average waiting time of the students separately in two queues, number waiting in queues and number of arrivals and service receipts. The results revealed that 36 students left the canteen after being served, among 39 successive arrivals to the system. The average waiting times in queues at counter 1 and 2 were 3.31 and 4.32 minutes respectively. Further, the number of customers waiting in queues at counter 1 and 2 were 1.77 and 3.02 minutes respectively. The study revealed that doubling the resources at counters could reduce waiting times at counters 1 and 2 to 0.24 and 0.45 minutes respectively. Thus, proper utilization of resources at servers enhances the performance of the system. Further, this study provided insight to improve the performance of the canteen by opening another counter in the university canteen for the selected lunch hour by assessing financial feasibility and redesigning the canteen layout.

**Key words:** A Multi-server, Queuing system, Rockwell ARENA, Simulation, University canteen