

Abstract

This study utilized the discrete-event simulation (DES) approach to optimize the daily tutor cost for the Unified Tutoring Center, located at the Daytona Beach campus of Embry-Riddle Aeronautical University. The simulation model was built using Arena version 12, and the objective of the study was to determine an optimum tutor staffing schedule to reduce operating costs, while also servicing as many students as possible and with the students experiencing a minimal wait time. Data was collected by videotaping four weeks (or 20 nights) worth of evening tutoring sessions. Two models, the General Study Room and the Physics & Chemistry Lab, were validated by comparing the observed tutor utilization with the model's output utilization. A sensitivity analysis was conducted on both models based on average waiting time, maximum waiting time and maximum tutor utilization. A more practical tutor staffing schedule was found for the General Study Room and the Physics & Chemistry Lab, yielding an overall decrease in the weekly operational cost of tutors by \$178.50.