

Niramon Khokhuntod 2014: Improving Kasetsart University Bus Routes By Simulation Modeling and Analysis. Master of Engineering (Industrial Engineering), Major Field: Industrial Engineering, Department of Industrial Engineering. Thesis Advisor: Miss Ailada Treerattrakoon, Ph.D. 117 pages.

The objective of this research is to simulate status of Kasetsart University shuttle buses which run on Bangkhen Campus during rush hours. The key performance indexes are reducing an average waiting time per passenger and increasing a level of service not exceeding 10 minutes. The first improvement approach is increasing the number of buses. The second improvement approach is changing normal bus route to express line in an optimal number of buses.

The outcome of this research has found that at 7:30 a.m. - 9:30 a.m., the optimal number of buses in line 1, 2, 3 and 4 which run as normal route is 5, 3, 3 and 5 respectively. The average waiting time per passenger for each line is reduced by 25.02%, 33.57%, 38.03% and 32.86% and the level of service not exceeding 10 minutes for each line is increased by 7.74%, 26.65%, 20.03% and 20.41% respectively. At 11:30 a.m. - 1:30 p.m., the optimal number of buses in line 1, 2, 3 and 4 which run as normal route is 5, 2, 2 and 5 respectively. The average waiting time per passenger for each line is reduced by 45.91%, 0%, 0% and 39.01% and the level of service not exceeding 10 minutes for each line is increased by 12.07%, 0%, 0% and 13.15% respectively. At 3:30 p.m. - 5:30 p.m., the optimal number of buses in line 1, 2, 3 and 4 is 4, 4, 4 and 5 respectively. The bus line 1 and 2 run as normal route. However, there are 3 buses running as normal route and 1 bus running as express line in line 3 and there are 4 buses running as normal route and 1 bus running as express line in line 4. The average waiting time per passenger for each line is reduced by 25.42%, 33.78%, 41.49% and 42.90% and the level of service not exceeding 10 minutes for each line is increased by 13.45%, 30.41%, 38.46% and 31.34% respectively.

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Thesis Advisor's signature