The Pennsylvania State University Fleet Operations

Overview
Our team worked with PSU Fleet Operations, a rental car service for the faculty at Penn State University. The goals set by our sponsor included the standardization of the rental return and cleaning service, reducing the amount of overtime hours worked by employees, and optimizing the operations anywhere else possible. Since all members of the team are senior Industrial Engineering students, the team was well equipped to take on these tasks. The project ran from January to May of 2017. All goals that our sponsor provided were achieved. Our team created a checklist that standardizes the return and cleaning of the rental cars, created a Simio simulation model which helped optimize and quantify the car return procedure, and proposed a staff adjustment which would return between $9,500 and $18,500 while the initial investment cost of the adjustment is $10,000.

Objectives
- Standardize the rental car return and cleaning process to ensure consistency between workers.
- Reduce costs incurred due to overtime and fringe benefits.
- Streamline parking scenario for returned vehicles.

Approach
- Observed and noted proper steps in car return process, created flow chart of steps to put in car cleaning area.
- Shared process steps with Penn State Marketing Department, who helped create visual flowchart.
- Analyzed 6 months of paper scheduling sheets for hours of grade 7 employee overtime work saved by upgrading grade 9 workers to grade 7 workers and changing shifts to optimal times.
- Forecasted remaining hours saved and calculated monetary savings.

Outcomes
- Recommendation that yearly savings of upgrading grade 9 workers to grade 7 and changing shifts to 11 AM to 7:30 PM would be between $9,684 and $18,435.
- Flow chart was created to provide standardized responsibilities for current workers and future workers.
- This project provided the sponsor with a simulation to further analyze the overall process, identifying facts such as low worker utilization in the cleaning process as well as realizing that the cleaning step is the bottleneck area of the overall return process.