INDUSTRIAL, MANUFACTURING, & SYSTEMS ENGINEERING

CAPSTONE PROJECT /INTERNSHIP
SUMMARY

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Type of Capstone (research, teaching, practical application): Practical Application

Capstone Project Title: Review, update and validate sanitation procedures at Coca Cola Refreshments

Year and semester: Fall, 2016

James Newson, Rocio Duran, Jaime Torres

INTRODUCTION

Coca Cola Refreshments (CCR) is a company located in El Paso, Texas that specializes in the production and distribution of Coca Cola products. CCR has two main production lines; bottle and can. Its main markets are El Paso in Texas and Las Cruces, Alamogordo and Albuquerque in New Mexico. CCR has experienced many changes in ownership throughout their history. These changes in administration generated confusion in many of their operational procedures including sanitation which is our area of focus in this project.

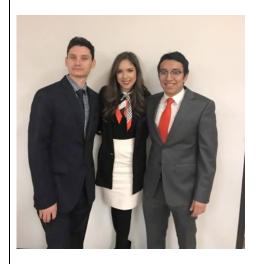# INDUSTRIAL, MANUFACTURING, & SYSTEMS ENGINEERING

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The sanitation procedures that existed were not clear, outdated and did not comply with ISO9000, ISO22000, HACCP among other standards and also there was a lack of an adequate master sanitation schedule. This resulted in employees following different protocols to sanitize the equipment, an inconsistent level of sanitation and sanitation taking an excessive amount of time.

Therefore, the team believed that it was necessary to review and improve these procedures and create an adequate standard sanitation schedule in order to eliminate confusion, maintain a standard level of sanitation, reduce sanitation time and boosts overall efficiency.

Our project focused on analyzing the sanitation procedures at Coca Cola Refreshments (CCR). The areas we looked at were the filler line, production and recycling. In these procedures, we found several tasks that we could work on and some that we could eliminate in order to reduce the overall sanitation time. To generate our solutions, we relied on time studies and other tools like cost benefit analysis and standards such as HACCP and OSHA.

PROJECT OUTCOMES

Throughout the project several emphasis areas were targeted, which are composed of methods and engineering economy, and safety engineering.

After analyzing the time studies data, the design team generated six design solutions. The first design solution was to update existing sanitation procedural references and create new documentation for the recycle process, task checklist and cart preparation check list. This solution is aimed to standardize all procedures through the sanitation process. Design solution one also eliminated tasks yielding a time saved

of 35.42 minutes. Design solution two and five are the purchase of new equipment, a foamer and a scrubber. A combination of time studies and cost benefit analysis were performed to demonstrate implementation of these solutions, yielding a time saved of 52.82 minutes and saving CCR $12,108.88 over a 10-year span.

Design solution three and four are the modification of production machinery. The tray in the conveyor will be modified to drain water faster, and the removing of the sheet under the rollers will prevent the trash from collecting in the machine. As these solutions eliminate tasks, the time saved was calculated as 65.33 minutes. Design solution six is the installation of new structure a worker would travel to a storage room to collect the metal wiring used in the recycling compactor process; installing a container next to the compactor eliminates this task. Design solution six was calculated to save 4 minutes.

Overall the senior design team's implementations are planned to reduce the total sanitation time by 153.86 minutes or 2 hours and 34 minutes, with a new completion time of 654.25 minutes or 10 hours and 54 minutes. Given the old completion of 808.112 minutes, the senior design team was able to decrease the total sanitation time by 19.04%. CRR has stated that all the time save in sanitation will be converted to production time, making CCR an ever more profitable company.

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INDUSTRIAL ENGINEERING PROGRAM ASSESSMENT

Overall, our experience of the IE program at UTEP was a positive one. Most of our professors were very knowledgeable and helpful. We learned and worked very hard during our college careers. The IE courses and the tools we used in them have prepared us for the real world.

One recommendation we would like to see is the inculcation of a computer science class in the industrial engineering degree plan. This class would focus on teaching students the use of computer programming language such as C++, to solve industrial engineering problems