

Community Engagement Fellows Project Report

Community Engagement Fellow: Sura Al-Qudah, Engineering & Design

Project title: Process Improvement Through Service Learning

Project Description:

In today's world, businesses/companies -regardless of their sizes- have valued the need for adopting Lean Six Sigma methodology to improve their organizations. Lean Six Sigma is a combined process-improvement methodology that aims to increase efficiency, accelerate processes, reduce variation, and eliminate waste. Customer expectations are changing rapidly, thanks to the enormous amount of information available online. This puts businesses/companies' profits and standing on the line, and makes it essential to stay up-to-date with the best quality of their service(s)/product(s). Now more than ever, achieving process excellence is crucial.

Here at Western, I am committed to teaching my Engineering students all the valuable quality tools they need, in order to become industry-ready graduates who achieve process excellence in their professions. I teach quality so my students can:

- Develop a clear definition of the process/system problem, requirements, and goals.
- Gather information using various tools to quantify process/system problems.
- Analyze collected data to identify the root causes of process/system problems.
- Make informed decisions about potential solutions.
- Evaluate and monitor the improvement to deliver quality, every time.

To achieve these outcomes, I developed a service-learning component during my MFGE341- Quality Assurance class during winter quarter 2016 as part of my community engagement fellowship for 2015-2016. I worked with the Center for Service Learning on campus to design service learning projects with local partners. For the winter quarter, I was able to collaborate with four local partners who are:

- BAAY – Bellingham Arts Academy for Youth, www.baay.org
- Wise Buys Thrift Store, www.wisebuys.org
- Western Associated Student Bookstore, www.bookstore.wvu.edu
- MaxHigbee Center, www.maxhigbee.org

Teams of 4 students worked closely with the community partners during this quarter. Students were required to do at least one site visit to learn more about the problem and collect data to identify the root causes. Towards the end of the quarter, students developed suggestions for improvements for each identified root cause. Then they showed how these suggestions should improve the problem. The actual implementation of these suggestions was not required unless our partners find it beneficial to do so with the students. The projects were concluded in a presentation

session where the projects partners were invited to attend. A copy of the project findings was also sent to the community partners.

During the project, I developed several documents that I used to communicate the project requirements with my students and to evaluate their service learning experience. I administrated two surveys at the beginning and at the end of these projects. The first survey aimed to give the students a choice of selecting the community partner they are passionate to work with. I felt that this really gave the students a very good start and made them even more enthusiastic about the work they will be doing. Along with this first survey, I provided each student with a full description of the community partners and a brief introduction to the problem they are facing.

During the first few weeks of the project, the different teams visited their community partners and started collecting data about the problems in order to identify them. Students were asked to keep a log of all the communication between the team and the community partners for future reference. I think this was an important point to help students to show a responsible teamwork and to help with keeping a record that they can refer to if needed. The students were required to submit a problem definition based on their data collection and understanding of the process. I gave them feedback on how to better quantify the goals and targets for the solution. When I look back now into this step, I think that it was very important to keep students on the right project scope, the only thing I wish I also did during the quarter is more intermediate deliverables like this one to keep the students within their scope and timeline, especially toward the end of the quarter where students are already busy with other projects and class work.

I requested the students to develop an A3 poster to present their work to their community partners, classmates, faculty from the department, and myself. Students found it more engaging and exciting to be able to show their work on a poster, in addition, to present it from PowerPoint slides. Toward the end of the quarter, I administrated another reflection survey to collect students' feedback about their overall experience during the projects. The overwhelming majority of students indicated that these projects (even though not directly in the manufacturing/production settings) helped them significantly understand the material they studied in class and see it applicable in real life service processes. Moreover, they were very thankful that they got to know how much non-for-profit work is done in our community. The feedback from the community partners was so positive that encouraged me to continue this collaboration between my Quality Assurance classes and our community partners for Fall 2016. With the help from the Office for Service Learning, I already started to conversation with community partners to facilitate similar projects this coming academic year. Overall, I am very excited that I was able to do this collaboration and incorporate it in my classroom and I am looking forward to a more successful and sustainable partnership with our community. Attached are some of the document I used during the project for a reference.