

ISE students work with Independence Township to make Lean process improvements

Once again this year, Oakland University **Industrial and Systems Engineering (ISE)** graduate students gained hands-on experiential learning aimed at real world problem solving by working on projects with Independence Township as supervisor Pat Kittle made his staff available to work with student teams from Oakland's **ISE 581 Lean Principles and Application** course.

The goal of these interactive projects is to unlock hidden waste, making employees' lives easier when performing their daily job functions. Course instructor Larry Osentoski said, "The students are taught to focus on making things run better by engaging the staff members and by asking a simple question to start the dialogue, 'What drives you crazy at work?' From there, students work with the staff members using a number of tools and techniques to problem solve in a Socratic manner that fixes the problem, not the blame. Respect for people is a tenant of the class. The key to sustainable success is for our future leaders to engage people in a meaningful way by determining 'What Is In It For Me' for everyone involved. It takes both sides to implement and sustain process improvement."



(From left, ISE students Sai Jagadish Bodapati, Dustin Shurlow and Isabel Hamm with Fire Chief Mitch Petterson. Members of the team not pictured: Prasad Patil, Preeti Sandhu and Heather Wilsher Dixon)

This is the second year that the ISE Department and the township have teamed up to ease worker stress and save taxpayer money. Supervisor Kittle has been very happy with the program to date and added, "Township Treasurer Paul Brown, Fire Chief Mitch Petterson, Professor Osentoski and I sat down at the beginning of the semester and brainstormed some project ideas that would be mutually beneficial for the students and the township. In the end, the projects worked out great and we look forward to continuing this as an annual engagement. Continuous improvement is always our goal and this program supports that mission."

Two projects were selected within the Fire Department and the Department of Public Works (DPW). The Fire Department project focused on improving visibility and tracking of vehicle assets when they are at repair facilities. The project enabled Chief Petterson to develop a module for maintenance of vehicles that will now be used in Fire Department service software around the country. Chief Petterson stated, "The benefits of this program not only improve our local operations in Independence Township, but also Fire Departments around the country, making this project a big win for communities everywhere."

Participating Oakland ISE student Isabel Hammen commented, "Given I work for an automotive supplier, this project in the public sector is a unique opportunity to problem solve outside of my field of expertise. As a result, the team focused more on problem solving techniques which prevented our engineering team from jumping to solutions without a good understanding of the current system state of operations."

The second project, at the DPW, focused on the Commercial and Residential permitting process. The project began with DPW staff explaining the issues faced in their current work procedure. With no standardized procedure for the permit application process, the process of making a permit fell on the shoulders of Karen DeLorge, who is also responsible for the billing of more than 8,000 properties. Permit applications were outdated with unwanted information and a lack of required information fields. This sometimes led to a waste of time and labor when there were updates by the builder.

The DPW staff also described some situations where job templates would go missing and how the lack of permit tracking adversely affected billing cycles. "This project allowed us to standardize some elements of our process that were redundant or duplicative, making our tracking systems and billing process more robust," said DPW Director David McKee. "When the students first arrived, they worked with our staff to determine the scope of the project by discussing things that drive people nuts at our facility. From there, they identified some areas we can map out and improve through standard work instructions. DPW employees retire or leave their position and we lose their knowledge, which means without standard work we start over every time from ground zero. It was great to have outside eyes help our team identify alternative ways to accomplish our work."

The ISE students not only worked with the DPW staff to create a standardized worksheet for permit application, but they also suggested simple and feasible methods to track the permits and templates. Together, the ISE students and DPW employees applied lean tools and principles to achieve the goal of standardization and customer satisfaction.

ISE student Heather Wilsher Dixon said, “This real world scenario at the DPW helped us to gain knowledge by applying the lean tools, facilitated team work and exposed us to a situation where critical thinking and respect for people played a central role in determining the solutions.”

Robert Van Til, Ph.D., Pawley Professor of Lean and Chair of the Industrial and Systems Engineering department values the partner. He said, “We are honored that Independence Township is willing to work with our students, and we look forward to further developing our mutually beneficial relationship with them.”