I did my fall 2007 co-op term at Cuno Inc. in Meriden, CT. Cuno is a world leader in fluid filtration and the company was acquired by 3M in 2005. Meriden is where Cuno headquarters lie, and it is the location of most of the engineering work although there is also some manufacturing. Cuno has another major facility in Stafford Springs, CT, and usually co-ops do one term in Stafford Springs and one term in Meriden. Stafford is more of a manufacturing atmosphere and it is more casual.

Most of my co-op work was in research and development, where I reported to Gokhan Kuruc and Mark Stouffer. I also occasionally worked for other people on minor projects. The project I worked on for Gokhan Kuruc involved developing a synthetic type of filter for pharmaceutical applications. R&D projects require significant pilot manufacturing, so the first thing I learned is how to produce testable filters. For each filter I produced, I documented several of its properties and did some preliminary testing. As my manufacturing skills improved, we began running different tests on the filters. I first learned how to operate the test equipment, and later I was reliably running tests and producing good results. My supervisor and I went over some data analysis, and by learning what to look out for, I began analyzing data on my own. One of the main problems with the project was that the pilot manufacturing method was unreliable, so I took on the task of developing a new manufacturing method that would yield more consistent filters. I am currently at the final stages of testing the new method and it is showing good potential.

I did similar work for Mark Stouffer except I mainly dealt with water filtration. I worked on a project where we experimented with several different treatments of a raw material in an attempt to figure out which treatment is best. I first learned how to manufacture the filter blocks, and then how to run several tests on them. This project involved manufacturing and testing approximately 150 filter blocks, so it took me approximately 10 weeks to completely execute the experiment. In the end, some
variables that should have been controlled in the experiment were not, and this made data analysis slightly more difficult. However, the experiment was a success and I managed to draw solid conclusions.

With both supervisors I was also involved in other minor projects. Cuno had some problems with the manufacturing of one of its main water purification products, so Mark Stouffer assigned me to examine a set of blocks and look for cracks and nonuniformity. I am currently working on setting up an apparatus to test how activated carbons absorb a particular gas. For Gokhan Kuruc, I did some additional work in helping solve cracking problems in a major pharmaceutical product. I developed a simple model to estimate a production parameter that should determine whether cracking will occur. I also helped characterize a group of cracks so that they can be correlated with the production methods that went into producing them.

The last significant project I worked on was a fusing problem for Marty Blaze. A reverse osmosis system that Cuno uses in fountain beverage filtration was having issues with an incorrect fuse blowing during a current surge. My objective was to find out why this was happening and to recommend changes that would fix the problem. I managed to solve the problem and to recommend a simple solution.

People at Cuno are generally friendly and most people are more than happy to answer questions. It is quite busy at times so it may take longer to complete lower priority projects, but logistics are usually reliable. The workspace is quite positive and laid back. Hours are flexible and there is an easy electronic system where you can change your hours in case you worked overtime or missed work. The dress code is also very laid back as pants and a polo are just fine. If there is a day where hands on tasks will be performed, coming to work in jeans is not a problem at all.

The part I probably enjoyed least about my job is the location of the company. I have grown up in big cities so a small town like Meriden is definitely not my type of atmosphere. That being said, for those that like a quiet life, I am sure they would enjoy central Connecticut. It is relatively well groomed
and the people around are quite nice. Cuno provides an apartment for all of its co-ops, and this is one of the best aspects of a co-op at Cuno. Usually there are two co-ops in an apartment, but I was the only one working at Meriden at the time so I had the apartment to myself. The apartment is quaint and has many essentials that one doesn't have to worry about such as a toaster, microwave, tv, basic furniture, phone, vacuum cleaner, laundry, cleaning supplies., dish washer, cutlery, glasses, plates, pots, pans, tupperware, and most other kitchen essentials. Heat, gas, water, and electricity are paid for which is great because it eliminates worries about bills. Parking is not a problem, and a car is absolutely necessary to work at Cuno.

Ivo Stranic

Supervisors:
Gokhan Kuruc
Mark Stouffer
Job Summary
Cornell Engineering Co-op Program

Name: Denise Wong
NetID: dw229
Major: Mechanical Engineer
Company: Cuno Inc. – a 3M company
Location: Stafford Springs, CT
Term: Fall 2007

Cuno is a medium sized company that makes industrial water filters used primarily in pharmaceuticals, refrigerators and food and beverage industries. My first co-op term was in Stafford Springs, CT, one of the three manufacturing facilities that Cuno has in the United States. I reported to Phil Pearson, a manufacturing engineer, but was mentored by three additional engineers at the plant on various projects. I was taken on numerous plant tours during my first few weeks which were helpful in getting to know my way around the facility and becoming acquainted with the personal safety protection equipment needed in different areas. There were also files on safety and documenting procedures that I read as part of orientation. I received training on how to properly use a respirator which is required in areas of the plant where airborne formaldehyde is present.

My projects were assigned based on the learning outcomes that Mr. Pearson and I discussed and on Mr. Pearson’s priorities and what I could assist in. I had multiple projects going on at once; so if I at a stand still on one I would always have another project to work on. Collaboration was important in making progress in my projects, I learned to communicate with and work alongside other engineers, electricians, mechanics, operators and suppliers. I received lots of guidance from the engineers who were always approachable and patient in answering my questions.

The main project I worked on was to implement a formaldehyde detection alarm system for one of the Micro Klean manufacturing areas. The resin used to bond the fibers in select filter grades contains formaldehyde which is a carcinogen. Throughout the process, some of the formaldehyde becomes airborne which is hazardous if inhaled. When formaldehyde concentration exceeds 0.3ppm, 3M’s safety standards require operators working in this area to wear respirators; this is uncomfortable and clumsy thus lowering productivity and morale. Safety and well-being of the operators is of high importance in the plant and were an emphasis on the projects I was involved in. By implementing this detection system alongside a new makeup air unit which will reduce formaldehyde concentration levels and improve ventilation in the room, operators will not need to wear respirators as frequently, if at all. This project involved collecting and analyzing data of formaldehyde patterns throughout the room, liaising with the manufacturers of the detectors to understand the limitations of the devices and creating a plan for the installation of the system.

I quickly realized that while having a technical background is important to understand some mechanisms and fabrication processes; the analytical approach and problem solving skills I have acquired throughout my pursuit of a bachelor's degree in
Denise Wong

mechanical engineering were more practical during my co-op. Moreover, effective communication skills and teamwork are common traits of successful engineers at Cuno. The engineers I have worked with are modern day Renaissance engineers, with a broad base of knowledge expanding far beyond their degree or department they belong to; most of which they learned from experience on the job. There is a strong sense of camaraderie in the group at Cuno-Stafford, which is evident in how they support and complement each other's work. I enjoyed being part of the fast-pace, ever-changing and rarely predictable environment which is manufacturing.

Stafford Springs is a small town, I didn’t get the opportunity to explore the area, though I can say there are several delicious places to get lunch – Taco day at the Coop being the highlight, though Stafford House pizza is right up there too. I lived in Manchester, accommodation provided by the company. The commute to work is 30 minutes, making it vital to have a car. The apartment is close to several malls where there is an abundance of shopping, restaurants and a cinema as well. I joined a gym down the road and also played tennis at the local indoor clubs. On the weekends, I usually went away to meet up with other coops nearby. New York City and Boston are two exciting places which are close enough for weekend trips. On the contrary to school life, my routine on coop was a much slower pace because work is left at work and I had lots of free time during the evenings and on the weekend.

Gaining hands-on experience has helped me explore my possible career paths before I dive into the workforce for a full time job. I believe that the practical co-op experience complements what is taught in the classroom and allowed me to realize how classroom knowledge is applicable in a manufacturing environment. I learned about the structure of a company and roles of different employees and how together a manufacturing facility is managed and maintained. I value greatly the opportunity to improve my communication skills and how to approach and work with others effectively. Co-op has been an invaluable experience for me and I would recommend the co-op program to other students, particularly the position at Cuno.

Denise Wong – Student

Phil Pearson – Supervisor

1/14/08

Date

1/14/08

Date