This fall, I was a part of the Research and Development team at Primet Precision Materials. Primet is a small startup company made of less than twenty people total, so I had the opportunity to work directly with the scientists that conduct Primet’s research. With a company of this size, every action is essential to moving the business forward. The company’s size also gave me the advantage of seeing the results of my work take effect within weeks, and it allowed me freedoms I did not anticipate.

The first couple weeks, I started by learning as much about a particular topic as I could. I read books and papers for most of the day, and on the side I was taught how to operate lab equipment. I was introduced to some very useful philosophies about research and development by my supervisor, which I began to adopt as I learned. My assigned primary project was to solve a problem with a part of a particular process. This involved studying the physics and chemistry of the problem, coming up with a model for why the problem occurs, and then designing a machine to test the model I create. The final goal was of course to solve the problem, but my assignment was specifically to understand the problem and then use that knowledge to come up with a solution. About three weeks after I started, I was pulled to a more pressing project concerning an order for a customer. The challenge was to design and build a device that had never been built before and have it operational within the week. It was an incredible process to be a part of. I became an expert on the device’s operation, and was able to knowledgeably and confidently suggest changes to the design for subsequent development. After that project settled down, I was able to return to my primary project. Much of the remainder of my time was spent working on the designs for my primary project and coming up with test plans and models for operation. During these projects, I assisted with other projects by operating lab equipment to run tests and reactions on material samples. I learned a lot about different lab devices, and though I am a Mechanical Engineer, I picked up a great interest in material science.

My experiences outside of work were probably atypical for the Co-op Program, as Primet is located in Ithaca and I was able to stay in the house I normally live in during the school year. My social life was pretty much what it would have been if I had been taking classes.

In all, I had a great experience at Primet. I got to know some great people who know a heck of a lot about materials, engineering, and business, and who were always willing to share everything they knew with me. I’ve been shown a new way to think and work. I’ve become addicted to research, and I have a whole gang of mentors and an exciting company to thank for it.
Wenyong Wu
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Chemical Engineering
Primet Precision Materials, Inc.
Fall Term 2009

**Job Summary**

Primet Precision Materials, Inc. is a start-up company located in Ithaca, NY. The company recently began focusing on the advanced battery materials industry and has made amazing progress in the months during which I worked there. I started off in the R&D division of the company but eventually did much of my work in the production area of the company although my work was still considered part of an R&D project. On the first day of my job, I was given a tour of the facilities and introduced to all the employees. I also attended a press conference held for Congressman Maurice Hinchey, who was helping Primet secure some federal funds.

At the beginning of my first co-op term, I was assigned a project that would involve investigating industrial drying in order to obtain powder from a slurry solution. The dryer would eventually be incorporated into the company’s production process. I began this project by doing a lot of relevant journal article research and compiling a large amount of information into a mind-map. Once the equipment was ordered, I learned how to operate the device and started thinking of ways to test the apparatus in order to obtain a functional dryer.

Because Primet is relatively small and has probably fewer than twenty full-time employees, I came to know all the employees fairly well and could approach anyone with questions. The atmosphere was very relaxed and casual. Although I was given a specific project, I was allowed to try any ideas I had and free to work at either of Primet’s two facilities and also Cornell University. I also traveled to Elmira to visit another company who was helping me on my project. I met many people from various backgrounds and levels of experience, and I even spoke with the investors who came through the company for Due Diligence.

I was not assigned a specific mentor, but I worked closely with my boss on my project and reported all my progress to him. My boss, who is the founder of Primet, an entrepreneur, and an innovator, often gave me suggestions or ideas to further my work and move me along on my project. Aside from my main project, I also ran x-ray scans on samples for my co-workers, and I did some work on a marketing assignment for the CEO.

I was the only chemical engineer at Primet, but I later worked with a chemical engineer from a design and manufacturing company who was helping us re-engineer our equipment for an industrial dryer. In the beginning of the term, I was able to use some knowledge from my Heat and Mass Transfer course to research evaporation during drying. Later on, my project became more mechanical and I did a lot more physical work, learning how to use tools and operate machinery.

Primet is located right in Ithaca, a convenient location for a Cornell student. I moved into my apartment over the summer during the summer session and did not have to worry about relocating. To get to work, I drove a car, but previous co-ops have used the TCAT bus system or biked to work. If you needed to go somewhere and did not
drive, a co-worker was usually willing to lend you their car. I was still able to attend any social activities and participate in student organizations during my co-op term as I normally would while I was attending school during a regular semester.

The best aspect of working with Primet was the level of flexibility I had with my job. I was free to try anything as long as it would help me learn more about my project. Because the company was still fairly small, I gained insight to both the technical side and the business side of the company. However, getting work done was sometimes challenging in such a small company due to lack of resources. We often ran tests through other companies and hired fabricators and temporary operators from outside to help out. We also worked closely with Cornell University and used many of the university’s resources to obtain data and information. Overall, Primet can provide a very valuable co-op experience for a college student, and the student will be introduced to many different aspects (both technical and business) of the engineering industry.
Wenying Wu  
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Chemical Engineering  
Primet Precision Materials, Inc.  
Summer Term 2010 (Term II)  

Job Summary  

Last fall, when I began my first co-op term at Primet Precision Materials, Inc., I worked with a piece of equipment that would become a key component of Primet’s manufacturing process for producing advanced lithium ion battery materials. When I returned to Primet in the summer, a prototype unit was already in place and processing material. My project for this term included developing a peripheral piece of the unit that would help move the system into the next phase. The unit I worked on was an innovative piece of technology that was thought up by my boss, the founder of the company. Because this unit is not used in industry, there is currently no literature on this device and no evidence that it will definitely work; it was my job to test the unit and collect information to decide if the concepts were even viable. Furthermore, because these concepts are not used in industry, the details of these technologies are strictly proprietary information. Unfortunately, because the company is small and every employee is fully occupied most of the time by various tasks, I did not have an assigned mentor or supervisor and received very little training or guidance. However, if I really needed help, I could ask anyone in the company and people were usually willing to share their thoughts.

The tasks I were assigned were not typical chemical engineering work, but once in a while my boss would ask me to calculate some numbers that required me to flip through my old textbooks. My project required me to think very differently about physiochemical concepts, which was oftentimes challenging. The organization of the company and the company’s practices differ greatly from those typically found in industry. However, the co-op experience at Primet taught me a lot about how companies need to function and what different aspects can make a company successful. I rarely had someone tell me exactly what to do, so I often needed to take the initiative. This meant that I had to think analytically and decide what experimental results I wanted and what instrumentation I needed; I would then call different companies and sales offices or search online for part numbers and quotes for different devices. Once in a while, I would need to build an apparatus myself instead of asking a professional fabricator to do it for me; this required me to learn how to use tools and various other pieces of equipment on the production floor.

One of the greatest advantages of working for Primet was that the company is located right in Ithaca, across the street from Ithaca College. I lived in the same apartment I was renting throughout the academic year and met up with the same friends I typically see while school is in session. Various events and festivals are also held in the Ithaca and Finger Lakes region throughout the summer, so there are plenty of opportunities to go out and have fun. I also went to a few of the local parks, including Ithaca Falls, Taughannock Falls, and Stewart Park, with friends on the weekends. Having a car definitely made these trips more convenient and also made getting to work every morning easier, although previous co-ops have traveled to work by bus, bike, or even by
foot.

The most challenging aspects of my co-op experience involved the work itself. My project and tasks were very demanding at times, and I received little or no direction. Because there was such an urgent push for production of material before a specific shipment date, this often involved working overtime as well. However, the challenge really forced me to learn a broad set of skills, and the experience introduced me to all different aspects that make up a company.
Job Summary
Alan Argondizza (netID: ava7)
Mechanical Engineering
Primet Precision Materials
Summer Term 2010

Working at Primet has been great. However, it’s a bit difficult to talk about what I worked on because much of it is proprietary. I worked mostly in the research and development department, but because Primet is a small company (approximately 20 people), I had to think about how my work was going to scale. I also actually participated in the scaling of the things I worked on in the research department. Thus, the title “research and development” is fairly loose; I was sometimes working shifts in production, running machines I helped create. The research Primet does is all brand-new and moves very fast. They research materials in the lithium-ion battery industry, though the implementation of this research often required development of new and non-standard machines, systems, and processes. I can’t really get more specific without divulging too much information, but the bottom line is freedom. At Primet I had a lot of freedom to be involved in very new technologies and to work at the frontier of the lithium battery industry. My work assignments were never: “oh well here’s what the real employees do, and here’s what the co-op students do.” I had projects and I was pulled into things that were critical for making deadlines and making money.

As far as personal development goes, it’s been a goal of mine to start companies for a while now, even before working at Primet, so seeing how a start-up functions was extremely valuable. On various occasions, I would meet with the CTO, the Vice President of Operations, and even the CEO. I got a good sense of the logistics and challenges that come with trying to take a technical product to market. It was as much a part of the job as the lab experiments were. As the company interacted with investors, I got to see how one might prepare for site visits and technology demonstrations. It’s something I want to do in the future, and it’s been very interesting to see it first-hand. I don’t think I would have been able to get this experience working for another company.

Outside of co-op, life was good. I lived in Ithaca (where Primet is located) and I stayed at the apartment I’ll be living in for the school year. I could bike to work every day. It was great to not have to look for housing remotely or last-minute, as I might have had to do if I worked elsewhere. It also means that I already had friends in the area. In all, the location was fantastic. If I were to do anything differently, I might have bought an air conditioner window unit.

If you get an offer from Primet, just say yes. It will challenge your mind, and you will be better for it. If you have any questions, just email me.