My name is Jack Li, and I completed the first part of my co-op assignment with SABIC Innovative Plastics, a thermoplastics manufacturing company. They are located in Selkirk, NY, a rural town just a couple miles away from Albany. I worked in their Central Engineering Team as a Process Engineering Intern. As a Process Engineer, my responsibilities dealt with improving process efficiency and process safety. I was assigned 5 projects each with its own defined deliverables to be completed by the end of the semester. Here is a brief rundown on the details of my projects.

1. Compressed Air Usage: Two years ago, an energy audit was complete to determine that the Finishing Department (extrusion lines) had the most opportunity to improve compressed air usage. My task was to come up with ideas to mitigate the compressed air usage and then implement those changes to reduce utility cost.

2. Relief Doors on Dust Collectors: There were several NFPA (National Fire Protection Agency) violations on three Dust Collectors. My job was to further investigate these violations and then bring these vessels into compliance with the NFPA.

3. RDP Tanker Nitrogen Elimination: Every week or so, a tanker would arrive on site to unload a fire retardant. During this unloading process, plant nitrogen would be pumped into the tanker to prevent it from imploding. However, most companies use plant air instead of nitrogen in this process. My goal was to investigate the feasibility of switching from nitrogen to plant air in the unloading process and perform.

4. Chemical Hose Strategy: A new Regional Chemical Hose policy has been established, based on requirements identified by OSHA and SABIC Corporate audits. A part of the new policy entails that all the chemical hoses on site need to be replaced. My responsibility was to design a sustainable, extensive plan of replacing all these hoses on periodic cycles.

5. NFPA Wireless: My task in this project was to install wireless pressure transmitters on several tanks to monitor the pressure levels.

Since this was my first technical internship, I was completely overwhelmed when I was presented with all these projects as once. At first, I was completely confused at the project descriptions because it contained so many jargons and acronyms that muddled my understanding of the project. However, each of my projects had an assigned mentor that would help guide me through the project. I also had an assignment leader who I reported to every week. She was my direct supervisor who oversaw the progress of all my projects and also evaluated my work. Before I actually started my projects, I sat down for a good week to read all the hand-off documents and set up meetings with the respective mentors to get a better idea and more clearly defined the scope of each project.

Every time I encountered trouble with my projects, I could always ask some of them for help. However, in the beginning, I was told that I was asking questions only to get answers and not to “learn.” I was really puzzled at this observation, and I asked several people how to correct this. To properly phrase a question, you have to first give background on the problem, highlight what you have done to address the problem, and then ask the question. This gives your mentor/assignment leader the notion that you have done your homework but you are stuck with a specific issue. However, it was really hard for me in the beginning to distinguish between a trivial question that you can just ask for the answer and a more comprehensive question that requires more thought. This was partially attributed to the fact that I was not familiar with the processes, how the company is organized, and how the company is run. Also, since I was the only intern, I did not have any peers to go for support and ask the trivial questions
like: What does this acronym mean or Who is responsible for this role? They had several trainings on the company organization and mechanics in the beginning. But they were all extremely long, dry, and ineffectively taught. I didn’t learn much from these presentations; I learned a lot more along the way by asking questions and making progress on my projects.

My major is chemical engineering, and I have already taken a good majority of the core chemical engineering classes such as thermodynamics, fluid mechanics, heat and mass transfer, etc. However, I actually did not apply much of any theory to application except for several math equations for cost-benefit analysis. This was a bit disappointing for me, because I wanted to put what I learned from class into good use on field. This will make my education seem more useful and worthwhile. But even though I did not apply what I learned in the classroom, it should not imply that this internship, itself, was a waste of time. Throughout my time here, I have learned that an engineer is not someone who just sits on their desks and plays with math equations and theories (a stereotype). In fact, an engineer who is only good with the theory will not succeed. A good engineer is one that is not only technically competent, but can also execute on the job to get it accomplish in a timely fashion. This requires excellent communication and project managing skills that can convince key stakeholders that your changes to the company hold value for them. By working on my five projects, I have developed my communication and managing skills. I have also learned to become a more effective leader by owning up to my projects and leading a team of engineers. This experience is invaluable and cannot be found or developed in a classroom setting. This is why technical internships are so important. I see it like this: Education equips you with the necessary tools to be successful, but internships teach you how to best utilize those tools to be successful at your job.

Life outside of work was pretty short. I work 40+ hours a week from 8AM-4:30PM with 30 minute lunches. Since I had to wake up at 6:40AM to get to work, I had to sleep at 11PM at the latest to ensure that I did not fall asleep at work. Thus, this did not leave me with much time to do anything on the weekdays. I had to come home, cook dinner, prepare breakfast and lunch for the next day, and do some chores. When everything is done, I just relaxed on my bed in front my laptop until bedtime. On the weekends, I would typically go back home because I lived really close to Albany (3 hour drive). I lived in a two bedroom apartment with one apartment-mate at Deer Run Apartment Complexes. We split rent and utilities, which comes out altogether to be just less than $500 a month. The EID Coordinator, Matt Savio, will suggest you to live in Adam Stations, which is about 3 miles away from the work site. Do not live there. Those apartments are extremely expensive, roughly $1000/month not including utilities and furniture. There are plenty of more affordable options elsewhere that is close to the plant. My apartment is only 5 miles away, which is definitely within biking distance.

Since it’s a rural town, there isn’t much to do and public transportation is almost non-existent. There are a few buses that run to the supermarkets like Price Chopper. But typically, I would bike to those groceries stores or ask my apartment-mate, who had a car, for a ride. In terms of social activities, there is nothing to do at Selkirk, but there are two malls in Albany, Crossgates Mall and Colonie Center Mall where you can shop. If you are old enough, there are also lots of bars in Albany to socialize and meet new people. SABIC did not offer any community service, but they do have a gym off-site that employees have free access to. I would go there every day after work for an hour to try and lose all the weight I gained during the summer.

Overall, this has been a pretty rewarding experience. If you wish to pursue a career in manufacturing, then SABIC is definitely the place to be. They assign you real projects that that value. If you were not there, then full time Process Engineers would get be assigned those projects. But be warned, that they are stressed safety A LOT. They have a close to zero tolerance policy on safety related issues. During orientation, their little 2 hour presentation on safety definitely did not suffice to get a new intern accustomed with all the rules and regulations. That is why the intern has to be careful with his actions. Even mentors and assignment leaders will neglect to remind you of certain subtle rules, so
interns would have to watch out for themselves. That is one thing that I have learned about this company, and every single manufacturing company that follows.