17. LEARNING TO BE PROFESSIONAL
Department of Chemical Engineering
Intern at chemical engineering contracting firm

INTRODUCTION

In my second year at Surrey, I started applying to industry for a one year placement. The application process at first was very stressful and demanding because most companies make industrial placement students go through the same application route of filling in a company form, having an interview and assessment centre, as they do for graduates. This adds to the challenge of finding a placement, because as a level 2 student, you are put through a very competitive process. I remember filling in countless application forms, and at points wanting to give up as the whole process was seemingly difficult.

However, I received an offer for a place from one company, which was followed by an offer from a second, and a summer placement offer from a third! I was now in a position to choose! After carefully looking at factors like location and nature of the job I decided to accept the first offer. As all three companies were leading chemical engineering firms, I was tempted to do multiple placements. I, therefore, decided to have a slightly longer industrial placement, and worked at one for 2 months before starting work at another. As my placement firm is a contracting company, I had the opportunity to work for many different companies. Through the various interactions I had with people in industry, I grew both as a professional and as a person.

LEARNING OUTCOMES

Technical development

My placement provided me an opportunity to develop the technical skills that are necessary in an engineering environment. I did a lot of process design work which included carrying out steady state simulations, drawing up piping and instrumentation diagrams and writing up process calculations. Running the simulations for different units of the plant, not only introduced me to the different operations within the plant, but also helped me appreciate that in order to successfully simulate a unit, you need to have not only knowledge about the process, but you also need to know the thermodynamic properties of the system involved and be aware of the interaction of the system with the rest of the plant units.

Team work and organisation

Working there gave me the opportunity to develop my team-working skills and to achieve results in a fast-paced high-pressure environment that is driven by client demands. For example, at one point, there were only three employees in the group, and being the youngest engineer on the team meant that I had to divide my time between doing my daily project related work and helping out the senior engineers with tasks like preparing parts of presentations and event promotion flyers. This thoroughly tested my organisational skills as I had to prioritise my duties according to the deadlines. I was working closely with three other process engineers to develop the final feasibility study report and it was necessary to frequently consult with the clients to make sure that all of their comments had been incorporated in the close-out document.

Communication skills
The management in place lays emphasis on introducing school and university students to engineering. They regularly take on students for summer and one year placements. These students work along-side permanent staff to get an idea of how the company operates and of the various career paths that an engineering degree can support. I worked with two school students for a day each. I explained the process of marking-up process flow diagrams and explained the importance of maintaining consistency across the project deliverables. This thoroughly tested my communication skills as I had to make sure that I gave clear instructions and information to the students, and also to ensure that the work had been completed correctly.

During my different rotations in the company, I had the opportunity to work with a variety of individuals and teams. This required forming and maintaining positive relationships with a wide range of people. As part of this multi-discipline team, I obtained valuable experience working not only with different disciplines of engineers, but also with people with different levels of experience, ranging from fresh graduates to project managers. Working alongside senior engineers at tight deadlines helped me improve my organisational skills and working with different teams has made me appreciate the complications that can arise because of the interfaces on a large scale project.

I also had the opportunity to interact with individuals from a broad range of professions: mechanical, metallurgy, environment, costing, etc which helped me appreciate that process engineers are not the only people that are responsible for successful and safe completion of a process plant! I had to work closely with the clients on both projects, and I made sure that I was representing my company in a responsible manner at all times.

Oral presentation At the end of my placement, I made a presentation in front of staff and placement students about the work I had been involved with. This not only gave me the opportunity to practice my presentation skills, but also to make other students aware of the many opportunities that are offered to placement students in my firm, and to show them how many different roles they can have in industry with a chemical engineering degree.

Report writing I often had to communicate the findings of my work in report form to the other disciplines. The technical report writing course helped me get an appreciation of the company requirements for report writing and presentation. I set out all of my calculations so that they could be easily understood and checked by others. According to the company standards, I would always include the basis of calculation, and any assumptions and approximations made.

Maintaining company standards The management systems in place helps ensure that all work produced by the company meets client and regulatory requirements and aims for continuous improvement. Careful adherence to the resultant engineering guidelines and work practices helped ensure that my work was of a high standard, particularly with respect to co-ordination and consistency of drawings. Also, I received training through the environmental awareness programme for the project which made me aware of the different standards and legislation which the site must adhere to.

Other I had a chance to learn about the graduate scheme at the company and learn about the different career paths available to employees, and to get feedback from my supervisors through the IPF system. At the end of my placement, I was encouraged to fill in the competence and commitment section of the IChemE chartership form with the experience I gained over the 13 months, so that I can use the details in future.

CONCLUSION

The variety and detail of tasks assigned to me during my placement reflected the day to-day work of graduate engineers. This ranged from core process engineering activities like process design, health safety and environment reviews to project/systems engineering which gave me an insight into schedule planning and document management on large-scale projects.

My rotation within the different groups and projects also allowed to me gain an understanding of the way a contracting company does business. During my placement, I had the opportunity of working on feasibility studies, front end engineering design and engineering procurement and commissioning projects, and also performing traditional process engineering tasks and taking part in process coordination activities, and hence getting an overview of not only the different stages that projects go through from start to completion, but also developing the different skill sets that a process engineer needs in order to complete the various tasks.

My 13 month placement has made me aware of the wider implications of my work as an engineer and has provided me with invaluable experience of team work and allowed me to recognise what a worthwhile and rewarding career a chemical engineering degree can support.