Summer placement report 2014

Name: James Heavers

Company: Johnson Matthey (Process Technologies division)

Johnson Matthey is a multinational chemicals and precious metals company specialising in sustainable technologies. The company is split into five global divisions focussed on high value added, high technology products and services: Emission Control Technologies, Process Technologies, Precious Metal Products, Fine Chemicals and New Businesses.

Johnson Matthey has origins dating back to 1817 where Percival Norton Johnson established a business as gold assayer in London. In 1851 George Matthey joined the business and the company became Johnson & Matthey, the company expanded into the next century becoming Johnson Matthey Plc in 1981. Important recent events in the company include when Johnson Matthey required ICI’s catalyst business Synetix in 2002 and the acquiring of Davy Process Technology in 2006. I was based in the Process Technologies division based in Billingham in County Durham, the Process Technologies division is a global supplier of catalysts, licenses technologies and delivers other services to the petrochemical, syngas, oil refining and gas processing industries.

My role was on the Process Technology Engineering team where I undertook a number of different and varied tasks, each representative of the different types of work that engineers carry out in industry. My main task was a piece of design work, consisting of moving forward a business concept for feedstock purification system design for the hydrogen industry. This involved research, acquiring data, catalyst bed design, economic analysis, process safety considerations, operational considerations, P&ID design and drew upon skills I had learnt previously at Birmingham such as material balances, heat transfer and thermodynamics. The output from the work I did was a summary document entailing the design philosophy, a PowerPoint presentation outlining the key points, a P&ID and meeting write-ups from teleconferences and meetings.

Other tasks included modelling carbon formation in steam reformers for a test rig on site using Aspen HYSYS simulation software with equilibria curves to give results for different feeds and conditions. I conducted a data organisation and analysis task, adding entries to a spreadsheet to catalogue customer information and help optimise syngas plant performance. I also did a short piece of work looking into a report on unexpected catalyst behaviour and carrying out further modelling on Aspen HYSYS to continue the investigation and help reach a valid conclusion.

Aside from work tasks, I gained further experience by attending monthly engineering meetings where current work and safety considerations were discussed. Most interesting of all was Johnson Matthey’s latest corporate initiative, the 3C strategy, aimed at building a
3rd century of success for the company by using the three themes of collaboration, customer focus and creating value.

Over the course of the summer I feel I have developed professionally as a future process engineer and have also increased my knowledge and understanding of engineering design and the types of tasks conducted by engineers in industry. I would highly recommend Johnson Matthey due to the friendly atmosphere, the wealth of knowledge and experience available as well as the amount of traditional chemical engineering on offer.

References