Imperial College
London

Case Study: Alumni

Jumana, MEng Civil and Environmental Engineering

Graduation Year: 2009

Job Title: Graduate Engineer
Employer: Mott MacDonald

What has been your career path up until now?

I joined Mott MacDonald the summer after graduating from Imperial College. I attended a few interviews and Mott MacDonald impressed me the most, so I went with them. I joined as a Graduate Engineer.

> "... another day you may find yourself on a crane 20m in the air inspecting a bridge!"
>
> - Jumana

What does your job involve?

The career path is fairly standard for most Graduate Engineers. The main aim is to become a Chartered Engineer with an accredited institution. For most Civil Engineers this is the Institute of Civil Engineers or the Institute of Structural Engineers. The Chartership process varies depending on each institution's requirements, but once chartered you are internationally recognised as a competent engineer and the ceiling is lifted on the kinds of projects you can work on and the roles you are responsible for.

Generally the Chartership process involves achieving levels of competence in several key areas including technical, management, communication, contractual awareness, etc. The Chartership process is something you do in addition to your job. A lot of the competencies can be achieved through on-the-job experience, but some will require you to participate in activities outside of your job and do some independent learning. It is your responsibility to push yourself to achieve these competencies. Your company can provide you with the opportunities required to gain experience in certain areas, but if you do not ask for these opportunities and you do not push yourself to get the most out of them it will take you longer to get chartered. Once chartered you can choose whether your career remains predominantly technical or if you go into project management. There is no typical working day. You can be working on a single large project which occupies you for several months, or you can be working on several smaller jobs at the same time. One day you might be working on a design for a new bridge, another day assessing an existing bridge, and another day you may find yourself on a crane 20m in the air inspecting a bridge!

Did you choose your course with this particular occupation in mind?

After a year working I began a part-time PhD at Imperial College researching Bridge Aerodynamics. Mott MacDonald agreed to partly sponsor the cost of the PhD and made it possible for me to return to research. This is a good example of how Mott MacDonald invest in their employees and if you are willing to put in the hard work and push yourself they will support you.

Do you use skills that you obtained during your Imperial course?

The key skills required (for this role), apart from the obvious technical skills necessary to do detailed design or assessment work, are people/personal skills. The work is inherently deadline based so personal organisational skills are important. The ability to recognise what you know and what you don't know and not be afraid to ask for guidance is key. Just as important as skills and knowledge is personality. Most projects involve teams working together and your contribution to a project is much more positive if you are enthusiastic, have a good outlook and are a pleasant person to work with.

What part of your course did you particularly enjoy?

Despite complaining about how impossible Non Linear Structural Dynamics was or how many coursework deadlines fell on the same week, I really did love my course. I particularly loved the design aspects of the course during which I could combine all the theory I had learnt to produce something tangible. An experience that stands out is my group design project in 3rd year. As we had a couple of months and a sizeable team we could really look at a whole project from several different viewpoints - design, construction, architecture, sustainability, traffic management, etc. In hindsight this experience was the closest I had to the real thing. As well as being a really excellent and challenging technical course, I think the course most importantly gives you confidence in your own abilities. I have found that there is no point saying something at work if you do not say it with confidence. Also because of the large workload involved in completing the course I learnt to manage my time effectively (although several late nights were involved!) I would say the main downfall of the Imperial College course is that there is very little practical experience. Throughout the course I did not see concrete being made (only being poured in the Constructionarium). I worked three summers at a Contractor which I feel really supplemented the missing practical and construction parts of the course. I strongly recommend anyone to work at least one summer with a contractor as it opens your eyes hugely to what is a sensible design and what is not in terms of actually building it.

What part of your course did you particularly enjoy?

The industry is a lot more competitive now than it was a few years ago due to the recession. You really have to stand out to potential employers and stand out amongst other graduates of Civil Engineering. Simply graduating from a top university with a 1st or 2:1 degree is not enough anymore. I suggest working a couple of summers with an engineering firm to get hands-on experience of the industry. This also gets your foot in the door with the company you are working for and lets you build up contacts whilst still studying. The main aim for yourself and your employer is to get you chartered - you will be much more valuable as an employee once chartered. Working as a student can count towards the essential experience you need to get chartered. I wish I had made more comprehensive notes of my experience during my summer work and started the Chartership process earlier. An understanding of the industry currently and any developments is important. Get involved with the Institution of Civil Engineers or the Institute of Structural Engineers - attend their numerous lectures and join the Graduates and Student committees. This shows employers that you are passionate about Civil Engineering and it isn't just a day job.