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DIT-Topcon Internship Experience

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Topcon Internship Experience

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Background

The Dublin Institute of Technology (DIT: <http://www.dit.ie/>) is one of the largest Higher Education Institutes in Ireland, with 20,000 students registered and over 2000 members of staff. It has been providing technological higher education for over one hundred and twenty years encompassing the full spectrum of Third Level programmes. During that time the Institute's alumni have played important roles in technical and scientific innovation, economic and social development and culture and education both in Ireland and internationally.

The CEO of Topcon Positioning Systems Inc., Ray O'Connor is a DIT School of Surveying alumnus and in October 2013 Ray visited his Alma Mater in the Bolton Street campus. On behalf of Topcon, Ray made a very substantial donation of surveying and optometry equipment to the DIT which has significantly enhanced the surveying capabilities of over 300 DIT surveying, engineering and architectural students who undertake surveying modules during their studies. Whilst visiting, Ray also gave a motivational lecture to the current students of the Honours BSc degree in Geomatics (<http://www.dit.ie/geomatics/>) and raised the possibility of a DIT BSc Geomatics student internship with Topcon.

The BSc Geomatics at DIT is the only undergraduate programme offered in spatial information science on the island of Ireland. The number of disciplines encountered by Geomatics students, over the 4 year programme, has grown significantly in the last decade to include advanced geodetic surveying techniques, photogrammetry, GIS, land management and mathematical methods. In addition, one semester in the third year of the programme is dedicated to gaining practical work experience in industry either at home or abroad. During this semester learning on the job is supported by workplace mentors and an academic supervisor. This semester provides students the opportunity to develop a better idea of prospective careers while simultaneously improving their employability.

Planning

I was fortunate to be a third year BSc Geomatics student when Ray O'Connor came to visit DIT and as one of the top academic achievers in my year I was offered the opportunity to undertake an internship with Topcon in their Livermore offices in California. On receiving the internship opportunity my initial feelings were a combination of nerves and excitement. Realising that I would be living on my own in a foreign continent came with a certain sense of apprehension however, I did look forward to and was excited by this opportunity.

In advance of beginning my internship I was in close contact with Topcons' HR manager Cheryl Erickson, my Geomatics Work Placement Coordinator - Helen Murray and my supervisor – Dr. Audrey Martin, who together ensured that all logistical and academic issues were addressed. From a legal and visa perspective, Topcon wholly setup and facilitated the internship as undertaking these processes in the United States were new to DIT staff. In addition, my flights, accommodation and much more were kindly taken care of by the Topcon Team

Internship

For six months, from early February to August 2014, I worked as an intern for Topcon Positioning Systems Inc. in their head office in Livermore, California. The original plan was that I would stay for three months concluding in May. However, after a successful and fruitful 3 month work placement requirement from DIT, my internship was extended through the summer. This was in consultation with my workplace mentor Stephen Rosenegger who believed I would benefit by continuing with Topcon.

During my time with Topcon Positioning Systems I formed part of the validation team which consisted of two other members: Jon Olson and Jason Nichols and our supervisor: Steve McCain. The validation team are responsible for testing new equipment prior to its release. In addition, this team also troubleshoot and re-test equipment where customers had issues. This team worked really well together and being part of it was a great experience for me as it placed me at the forefront of surveying technology and development.

Whilst with Topcon Positioning Systems I was involved in a wide array of tasks which provided great learning opportunities for me. One area where I had a lot of involvement was testing a new machine control system for the bulldozer. This consisted of testing the performance of the new system against the current system in a range of terrain and vehicle conditions. We used GPS to measure along the graded tracks to define the cut/fill values between the actual heights graded by the bulldozer and the heights it should have graded.



I was active in both the testing and the data management aspects of the project which provided a good balance of practical work on the test site using the instrumentation and driving the bulldozer and also working in the office. Much of the work I did with Topcon Positioning Systems directly related to theory I had covered in class previously so I had a basic understanding of many of the processes involved and it allowed me to see the theory put into practice. For me what was really enjoyable was putting this information into practice with state of the art equipment and realising some of the theoretical workflows in the field. My time spent with the validation team at Topcon Positioning Systems has enabled me to envisage possible career avenues that my BSc in Geomatics can lead to.



Academic Assessment

Whilst working with Topcon I had to fulfil my academic requirements for the Work Placement module. This entailed submitting a reflective journal to my academic supervisor, Dr. Audrey Martin, in DIT. The forth-nightly journal outlined my learning experience and related the learning achieved on the job to my theoretical studies undertaken to-date. Dr. Martin provided feedback on each submission. The assessment element also included an employer evaluation from which was completed by my workplace mentor Stephen Rosenegger and submitted to DIT. Whilst in employment, DIT students are normally visited on-site by a member of academic staff and this criteria was fulfilled via a Skype interview whilst I was in the office in Livermore. I also submitted a the final report and on my return to DIT gave a 10 minute powerpoint presentation of my work-placement experience to my peers and academic staff.

Evaluation

Overall, I found my experience at Topcon Positioning Systems in CA to be an extremely positive one, everyone I met while working in the Livermore office was incredibly friendly and helpful. The staff were always very inclusive and often invited me out after work hours. This ensured my time spent with Topcon Positioning Systems was not only very educational but also exceptionally enjoyable.

Now, I am back in university in Ireland completing my final year of the BSc in Geomatics. Currently, I am in the early stages of writing my final thesis. My time at Topcon Positioning Systems has contributed significantly to the selection of my research topic, which involves establishing an International GNSS Service (IGS) base station on the roof of the DIT Bolton Street campus. The base station comprises of a Topcon CR-G5 antenna and the Topcon NET-3GA receiver. Both were part of the equipment donated to the DIT by Topcon in 2013.

I believe the Internship will continue this academic year and I am confident that the next student from DIT Geomatics selected to partake in the internship program at Topcon will have an extremely valuable experience. I hope that the Topcon–DIT relationship will continue to grow.

