

A recent graduate's viewpoint ...

Call for more diverse study modules and better mentoring

In this special article *Samreet Singh*, a graduating student from the Building Services (Hons) degree course in TU Dublin, reviews his experience over the last four years. In doing so he highlights areas where the curriculum and course delivery could be improved, and also suggests that prospective employers need to re-appraise how they manage fresh intakes, especially with regard to mentoring.

Student experience

Building Services (Hons) in TU Dublin has two common entry routes – one through the honours mechanical engineering course and the other through first graduating the ordinary building services degree. Generally, in the second year of honours mechanical engineering, students are given the choice between continuing to third year in either building services, mechanical or manufacturing

engineering. History and statistics confirm that only the smallest percentage of students choose building services as their course.

But why is that? Experience says that the perception of building services engineering by students is where the issue emanates from. Students perceive the course as too “limited” with



the notion that the course itself only involves pipe-sizing and duct layout design, with similar convictions with regard to job roles after graduating. They lack the slightest hint of alternative subject matter covered such as modelling and simulation, acoustics, lighting design and the like.

From the perspective of students having to make that course choice, they are already exposed to a diverse range of manufacturing and mechanical topics. This leads to a good grasp on the broad career choices post-graduation, but the same cannot be said for building services as they lack the same exposure.

Commonly upon entering third year, students on the mechanical course are presented with a change of rhythm as

they confront unfamiliar subjects. Many of those students are not exposed to most of the terminology used by lecturers, reference documents and even product/system parts like valves or fittings. But soon – through lectures and multiple design projects – they are brought up to speed sufficiently prior to entering final year and the concluding design project.

Finding jobs

One of the prime benefits of a qualification in building services is that the demand for engineers in the industry far outweighs the numbers graduating annually. To satisfy unfilled roles, employers turn to mechanical engineering graduates who require initial training to be brought up to speed. In the search for jobs, final year students attend multiple career fairs that commence early in the academic year. When spring arrives, most students will have accepted their job offers. But with these career fairs happening as early as October, some students secure roles even before the turn of the year.

Aside from career fairs, the rise of digital media for job searches has become very popular. Career fairs shifting to virtual allows students and potential employers to converse without the shyness of having to appear in person. It also allows sharing of documents via screen share to enhance the employers pitch with uninterrupted one-to-one calls allowing for better conversation flow.

LinkedIn is now a popular job market for potential employers seeking graduates. LinkedIn also opens up the market to jobs abroad, or to firms who may not have attended careers fairs. This makes for more opportunities for graduates.

Multiple offers

With demand for building engineering graduates far outstripping the graduating numbers, students end up with multiple job offers and are faced with big decisions in making the right choice. So, what do students look for? There is no doubt that the salary for a graduate role is one of the key factors in choosing who to work for. However, this is not as important as it once was.

The push for a better work/life balance means that graduates also assess quite a number of other factors. These include holidays provided; flexible or hybrid work options; long-terms outlook on travel opportunities; chartership programs; career progression; graduate program structure; and similar non-salary issues. The employer's financial history or media reputation will also be considered.

Limited job types

From the perspective of a soon-to-be graduate, there are certain impediments and challenges facing both the graduate and the broader industry. There is currently a clear drawback in the abundance of mechanical systems' design jobs that simply involve the design or sizing of



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building systems. Of course this is an important role in the industry but, for final year students looking to graduate, it harbours a lack of diversification in the type of job roles available.

Why is this an issue? To realise ever-stringent low energy targets and the push for low energy and innovative solutions, there is simply not enough being done from a graduate's viewpoint. In some ways, it seems like this issue is being masked. Students are constantly being reminded of the fact that buildings contribute to 40% of global carbon emissions, so when it comes to ensuring they do their best in forming a sustainable future, why is it that they only have limited options?

To foster the creativity and innovation that is needed we need a generation of graduates offering fresh ideas. However, with the lack of graduates going into areas such as sustainability or lighting, or joining HVAC manufacturers, the same cycle is being repeated. This leads to a lack of new ideas being generated in these sectors, and a missed opportunity for such graduates to influence other engineers and the sector at large.

Graduate programs

Another issue is that engineering graduate programs are primarily to do with job opportunities provided by employers. For someone who wants to work in sustainability, for example, this entails completing a one or two year graduate program before then pursuing the preferred role in sustainability ... and there is no guarantee that this is an available option. Graduate programs are undoubtedly beneficial for students as they can experience different departments before making a choice. However, the issue is the lack of alternatives for someone who does not wish to do one. Having to work in a department that is not of interest to the person will not nurture their morale, nor let them strive to do their best for those periods.

In other countries, especially those with larger populations, these issues don't arise as the numbers graduating are far higher. Hence they experience innovative thinking across the board. But with such small numbers of building engineers graduating annually in Ireland, a fundamental switch in the education process is needed to focus on diversification in multiple fields.

The Irish building services industry has an established reputation abroad, especially in the area of data centres and other large-scale projects, so presenting graduates with multiple opportunities outside of Ireland. If similar diverse job types were available at home, especially in the early stages of their careers, graduating engineers would bring innovation and fresh thinking to bear on projects in Ireland. This would

undoubtedly help Ireland become more sustainable and help realise our carbon and energy reduction targets.

Mentoring

Aside from the issue of job types, another area requiring attention is mentoring. Over the years – and perhaps now more than ever with the pressure of workloads – there are serious gaps in the mentoring process that impact on a young engineer's development. For example, to students the term "low energy innovations" means using heat recovery in an AHU or using a heat pump.

This is not the limiting attitude that needs to be fostered. Students are taught to be so focused on theoretical knowledge that there is not enough practical or applied methodology being taught. They are essentially led to think inside the box rather than how to challenge themselves to seek out new ideas or concepts.

Even at the education stage there are inadequacies. A stark example is the lack of site visits or trips. As a result of this, students don't gain exposure to, or an appreciation for, real work considerations. Many would not know how much 5 bar f pressure can translate to through real world applications, how big an AHU can actually be, or even what an actual plantroom looks like. Citing Covid as an excuse is irrelevant as this has been the case for many years prior to the recent pandemic.

The one plus factor is that these issues are now being discussed much more openly by graduating students, and hopefully their new employers will now encourage dialogue and seek their opinions with a view to addressing them.

Conclusion

In conclusion, the opinions expressed here are obviously my own personal views. However, they are an accurate reflection of the challenges faced by most of my colleagues throughout the duration of the course, and also the anxieties and concerns we take into our new roles as working graduate engineers. ■

