

rational analysis would indicate that this is wrong and that in the absence of additional space we will have to reduce student numbers.

If we applied the agreed development plan norm to the space we currently have i.e. 8.12m² per student in a space of 2,286m² we would arrive at a space norm based engineering student population of:

282 engineering students

I doubt if the people in the region we serve would welcome a reduction in engineering student numbers of some 324 students but in the absence of additional space and with the impact of improved retention and HETAC progression policy we will be forced to do just that.

As a lot of the activity in the FTE area is day-release we are struggling to operate at present student levels with the present space. Our laboratories are cramped and come under additional pressure when students are required to work on their projects often in the evenings with the associated increase in personnel costs.

With improving retention rates (our retention efforts are now being supported by recently acquired HEA funding) the situation can only get worse. Our retention pattern for 1995 (1) to 2002 (7) can be seen in the Figure 1.0 below.

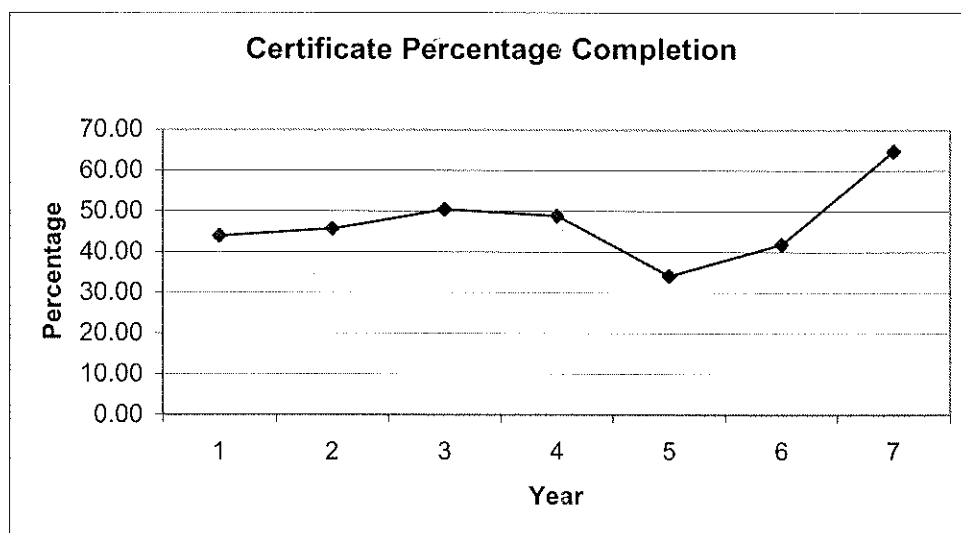


Figure 1.0 Certificate Retention Improvement

The recently announced HETAC policy on progression from Certificate to Diploma will put further and potentially breaking strain on student demand.

Access & Retention

Within the school we have sought to improve real and equitable access to our courses and in this regard we have moved the dual fronts of access and retention. Access is not real access if a previously educationally disadvantaged student is admitted to a course without having access to additional learning and developmental supports to help retain them on the course to successful completion.

On the access front we have worked with the Access Officer to target schools in the region that have historically had low numbers of students progressing to

higher education. In the past few months we have visited 14 schools in the region and developed sustainable links with teachers and pupils in these schools such that they view IT Tallaght a natural progression in their studies.

We have organised training and awareness raising events for teachers in the region via the West Dublin Teacher's Centre in the areas of general engineering and mathematics and we implemented a programme of providing "reader status" to teachers who wished to access our library resource. All of these activities are aimed at promoting the school of engineering in the local community as a place where the local community are viewed as valued customers for education and development.

We have been working in the area of retention for 5 years now and have pioneered and promulgated a "diagnostics model" to the institute sector in general. We run in the early days of a first year course a "maths diagnostic" programme to identify and subsequently support students at risk because of mathematical deficiency. This programme has helped improve our retention rates by some 10% to 15%. Additionally, we have looked at how we deliver our programmes and sought student feedback (from both successful and unsuccessful) on how we could improve how we deliver the programme of courses. Using a number of such initiatives we have improve or certificate retention rate, while maintaining standards, from approx. 46% to approx 70%.

We have recently attracted €150k of funding from the HEA towards our retention plans and this has give a valuable impetus to our work

Given the demography of the region we are likely to continue and mainstream these and related activities but our main constraint is space. We need space to provide academic support services and other facilities that we currently provide in ill-suited corners of staff rooms, common rooms or canteens. If we had more space these services could be mainstreamed and retention and access would both improve.

Engineering Technician Place Availability in Dublin

There are 80 engineering courses (Certificate and 3-year Diploma) that act as entry streams for students to the institute sector. They are shown in Table 1.2 below.

Institute	Number of Engineering Courses*
Athlone	8
Blanchardstown	1
Carlow	6
Cork	8
DIT	13
Dundalk	6
Galway	6
Letterkenny	6
Limerick	9
Sligo	6
Tallaght	3

Tralee	3
Waterford	4

* Source CAO

Table 1.2 Engineering Entry Streams by Institute

The school has three full time entry streams on to its programmes. These entry streams are provided at certificate level in the following disciplines:

Mechanical Engineering
Electronics
Electromechanical Engineering

The school admits approx. 200 students onto these three streams each year. Throughout the last 3 years we have been unable to increase the diversity of our intake because of space constraints in lecture\tutorial rooms and laboratories. Yet we have been asked by a number of prospective third level students in the region why we do not provide a greater range of engineering courses and in particular why we do not provide a stream in Civil Engineering.

There is a very strong correlation between the number engineering course entry streams and the engineering student population. In addition there is a strong correlation between entry stream and retention. Students who want to do a particular engineering course but who live in the IT Tallaght region and cannot or will not travel to another institute will reluctantly opt for an IT Tallaght course and often show little or no commitment to that course.

The point made above for Civil Engineering is very important particularly when we have also been asked by the Construction Industry Federation (CIF) why we do not provide a "very badly needed" stream in Civil and Construction Engineering. When one looks at this situation closely an alarming fact arises as shown below:

Institute	Civil Engineering	Nominal Places*
Athlone	Y	60
Blanchardstown	N	0
Carlow	Y	60
Cork	Y	60
DIT	Y	60
Dundalk	Y	60
Dun Laoghaire	N	0
Galway	Y	60
Letterkenny	Y	60
Limerick	Y	60
Sligo	Y	60
Tallaght	N	0
Tralee	Y	60
Waterford	Y	60

* Source CAO

Table 1.3 Civil Engineering Place Availability

From the above table it can be seen that there are only **60 Civil Engineering Technician places available in Dublin (DIT)**. This is 60 places for a population of over 1 million people yet the same number of places is available in Carlow with a population of approx. 50,000.

The only reason that the School of Engineering at IT Tallaght cannot respond to the identified demand in the region for a more diverse engineering programme is because it is space constrained. We argue that this is another pressing reason as to why the construction of the engineering building should begin as a matter of urgency.

Apprentice Provision

At the time of opening the DE&S saw no need for an apprenticeship facility at Tallaght. This was the right decision at the time. However, this situation has changed dramatically and we have been under pressure from the local community and employers to provide some apprenticeship places.

With a view to future-proofing we believe that we could and should provide an electrical apprentice facility that could if the demand for electrical apprenticeship wanes be used to support the technician programmes in mechanical and electronic engineering.

We are suggesting that a facility for 60 electrical apprentices be provided as part of the engineering building.

Research in Engineering

We have been exhorted by many policy makers and industry to engage in applied research. Within engineering we now have a focused but vibrant research activity that has attracted national public and private funding. We have two strong research teams in the mechanical\manufacturing and electronics areas. These teams comprise of approx. 12 active staff researchers and 12 post graduate students. This activity cannot grow to meet the identified demand from industry in the region for applied research if we do not get additional space. We believe that this is another compelling reason for the need to undertake construction of the engineering building as agreed in the development plan as a matter of urgency.

We are Not in the Me Too Camp

The history of the school of engineering has been one of trying to solve its space problems in an innovative way and a space requirement was one of the drivers for the creation of the TDC with Hewlett-Packard and Intel (IBM are now partners) in 1995. When we could not meet the needs of these companies with the space available on campus we sourced and successfully made the case to the DE&S for additional off-campus space leased by the state and equipped by the private sector.

The current lack of space is now impacting our ability to respond to the needs of our students and industry in the region and as we have run out of space in the TDC and have stretched our on-campus space resource to breaking point

we can no longer respond to clearly identified demographic and industry need.

We now have a timetable that runs from 08:00 to 10:00 each day and from September to August each year. Not many institutes or schools have this operational profile. We have been innovative and flexible in our responses to students and industry in the region but we have now hit saturation point and only additional space will help us continue our response to industry.

The school is in a space crisis and we need the recognition and help of the DE&S to overcome this problem as we have exhausted all other avenues open to us save to reduce student numbers!

Conclusions

- *Given the size of the population we are expected to serve we are under-resourced when compared to any other institute in the sector*
- *Having developed a leading position in the sector for engineering course design, delivery and innovation we are about to lose it due to lack of space*
- *The engineering student space norm is way short of those recommended by the DE&S and we have in the past developed solutions that reduced the burden on the state like the TDC but this type of solution is no longer available to us*
- *We are operating at 54% of the space norms as agreed with the DE&S in our development plan or at an engineering student population 215% above that derived by using the same space norm. We are patently overcrowded at current engineering activity levels. Increase activity is out of the question and indeed reduction in student numbers may be the only option open to us in the absence of adequate space*
- *Our access and retention initiatives are now bearing fruit and these will put an additional pressure on space as will the new HETAC progression policies*
- *The space constricted diversity within our engineering programme means that we do not attract students from the region who wish to attend the college because we cannot offer the course they want*
- *The lack of Civil Engineering Technician places in Dublin needs to be addressed as a matter of urgency and we could provide a solution within the agreed development plan for the engineering building*
- *As with civil engineering we could also respond to the demand for Electrical Apprenticeships within the agreed development plan for the engineering building*
- *Regionally needed engineering research will all but stagnate in the absence of additional space*

Appendix 3

Total Project Costs

DEPARTMENT OF EDUCATION AND SCIENCE - PLANNING AND BUILDING UNIT

TOTAL PROJECT COST

INSTITUTE/COLLEGE	PROJECT
Institute of Technology Tallaght	Engineering Building
PROJECT DESCRIPTION	PROJECT STAGE
Provision of an Engineering building with a floor area of 5,320 square metres	1 (Stage on which Total Project Cost is based)
BASE DATE	31st December 2005

				TOTAL COST
				€
1	BUILDING CONTRACT	€/m²	Total	
1.1	Basic Building Cost (New Build) 5,320 m ²	1,831	9,740,920	
1.2	External Works Allowance %		609,868	
1.3	Abnormal Costs		463,640	
1.4	Works to Existing (if applicable) m ²		1,999,360	
1.5	Fixed Furniture and Associated Fittings		1,081,894	
	Construction Cost	€	13,895,682	13,895,682
	Less V.A.T. (13.5%)		-1,652,790	
			12,242,892	
2	PROFESSIONAL FEES			
2.1	Architect 6.10 %		746,816	
2.2	Quantity Surveyor 3.05 %		373,408	
2.3	Civil/Structural Engineer 2.35 %		287,708	
2.4	Services Engineer 2.35 %		287,708	
	13.85 %		1,695,640	
2.5	Project Supervisor Design		60,000	
			1,755,640	
	Value Added Tax, 21%		368,685	2,124,325
3	LOOSE FURNITURE & FITTINGS			
3.1	Estimated cost		7,110,065	7,110,065
4	EQUIPMENT			
4.1	Estimated cost (based on submitted schedule)	included in 3 above		0
5	SUNDRY COSTS			
5.1	Advertisement for selection of tenderers		5,000	
5.2	Planning Application fee		38,000	
5.3	Fire Certificate Application fee		12,500	
5.4	Clerk of Works		100,000	
5.5	Service Charges, Statutory Contributions		447,359	
5.6	Increased Costs during construction or Price Variation Buy-out (estimated amount inclusive of post contract fees, if applicable)		1,389,568	
5.7	Other, if any (specify)		0	
				1,992,427
	TOTAL PROJECT COST	€		25,122,499