

Istechnology academicenough?

Technology subjects at school level have long been the poor cousin to other more 'academic' subjects. Calls are growing for technology to be finally recognised as a subject counting towards university entrance.

To gain entrance to university students must achieve a certain number of credits at NCEA level, including a minimum number of "Approved Subjects". Technology is not yet included, despite subjects such as Sculpture, Drama, and History of Art all making the list.

It's even more galling given that technology is the only NCEA subject in New Zealand with a Scholarship level not to be on the approved list.

Who sets the list?

The list of approved subjects is largely determined by the universities themselves through the University Entrance Committee of the New Zealand Vice Chancellor's Committee. The universities have previously argued that technology subjects have not yet proven they provide enough academic quality for inclusion.

However this exclusion has long been a bone of contention for technology advocates. They argue that many talented and academic students are pushed towards other subjects by this, and that it fails to reflect the strides technology education has made over the last 10 years.

Why it should be included

The snubbing of technology is a serious issue, according to Brian Allen, Head of Technology at St Patrick's College (Kilbirnie).

"I've been teaching for 30 years and I've seen a lot of bright and talented kids who have been dissuaded from studying technology subjects by career advisors, who simply look at the list of approved subjects and tell them to study something else. I've seen it time and time again.

"I've had good kids taking graphics which has been a huge help to them when studying graphic design at university, but I believe technology would be an even greater advantage.

"The majority of current technology students will go on to study at technician or apprenticeship level and don't need to worry about university entrance. So it's an issue which affects a minority of students, but a very important minority.

"The really bright academic students are the ones we should be encouraging to study technology, or else New Zealand is going to fall further behind in technological development. It just means that we'll have to rely more and more on overseas expertise in the future."

BRIAN ALLEN, HEAD OF TECHNOLOGY
ST PATRICK'S COLLEGE (KILBIRNIE)

Making the change

According to IPENZ Chief Executive Andrew Cleland, the challenge is convincing all eight universities that technology should be included.

"Even after only one year of NCEA results, we probably have enough to gauge the levels of academic standards being achieved. We believe the issue should be reconsidered by universities as soon as possible.

"When the academic quality being achieved is clearly visible, due recognition should be granted."

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VIP helps kick-start new degree

Taking part in Futureintech's VIP scheme has paid off for Canterbury University, and the wider community, with the official proposal of a new degree in Computer Engineering.

The new degree – the Bachelor of Engineering (with Honours) in Computer Engineering – is being proposed by Canterbury University's Department of Electrical and Computer Engineering and Department of Computer Science and Software Engineering.

The proposal required extensive research and consultation, to assess demand from employers, industry groups and potential students. Much of this was undertaken by Dr Ian McLoughlin of the Tait Group Research, supported by a \$5,000 grant from Futureintech's VIP scheme which helped him to take three weeks out of his busy schedule.

Dr McLoughlin is the Principal Engineer in Tait Group Research,



Associate Professor Tim Bell

and has worked as a lecturer at Nanyang Technological University in Singapore among other roles.

"I think it went very well overall," says Dr McLoughlin. "We met all the University's objectives, and everything they required. The experience has helped create closer links between the University and Tait, and with Auckland University.

I hope to maintain these links, which should be beneficial for all the parties involved."

Dr Tim Bell, Associate Professor in the Department of Computer Science and Software Engineering is also very positive about the work undertaken.

"It was fantastic. Ian did a great job. The report was more thorough and useful than we could have done ourselves, partly because of his background, and also the time pressure on us. Ian's contacts and his direct experience in his own company were very valuable. He came up with very useful statistics and spotted things for us to watch out for.

"The proposal to introduce this new course hasn't been confirmed yet, but I'm confident we now have a compelling case."

Ambassador Profile: Scott Abernethy Senior Software Engineer Stratex Networks (NZ) Ltd, Lower Hutt

"Creativity is the key to being a software engineer. We have a big focus on usability engineering in my team, which is cutting edge work. We interact directly with customers to find out exactly what they want, not what the engineer thinks they want.

"Our managers are great because they recognise that our job is highly creative and we can't sit down for eight hours a day. We have lots of breaks for social interaction, including hacky-sack at three o'clock every day.

"I've been to many countries around the world interviewing our customers and checking our software is correctly designed. It's great! I've learned heaps and it's been lots of fun. I come to work everyday and just love what I do.

"I grew up on a sheep farm and my Dad bought me my first computer when I was five years old, which was the turning point for me. I've always written my own programmes and played with



computers. I suppose it was inevitable I ended up in this field.

"Away from work I'm into outside activities and creative things like painting, photography and I DJ a bit as well."

Scott has talked to students about software engineering at careers events and worked with Wellington High students on Java programming.

Ambassadors in action

Careers events

Careers events are gathering steam as students start to think about their options for next year. Ambassadors from a range of different professions, including telecommunications, roading, transport, environmental and power systems have been talking to students around the country.

As well as numerous events organised by schools, engineering companies in Otago and Southland have hosted tours and discussions for interested students.

Creating links in the Central North Island

The CNI region now has an enthusiastic team of Futureintech Ambassadors ready and willing to work with teachers and students in schools within the Central Plateau and Waikato areas. Many of our Ambassadors are already actively involved in schools or helping to promote careers in science, engineering and technology at careers events.

Ambassadors Nichola Evans and Sean Barnes helped to organise the Engineering Day in Rotorua recently, which was an opportunity for secondary school students to experience the wide range of engineering careers available.

In Tokoroa, Futureintech Ambassadors Joanne Yeoh, James Iopu, Brett Kaye and James Ravenscroft are supporting teachers at David Henry School with a sandpit project and planning for teaching electronics and control. Further North, Bridget Doran and Isa Stuckenberger are helping Matangi School with a road safety project.



Tristan Reynard answers questions from a captivated audience

Food, fashion & maths in Auckland

Textile technology students at Birkenhead College were visited by Susie Walker of Hartman Manufacturing recently and came away with much to think about regarding work opportunities in the field of fashion. They were also struck by Susie's outfit (self designed and sewn) and her unique and fashionable shoes.

Teachers of mathematics are recognising the merits of using surveyors to help convey the practical uses of the subject, and the School of Surveying is coming to the party by developing units of work for mathematics teachers.

Meanwhile St Kentigern College is using Futureintech Ambassadors for their Senior Food Technology classes. Nick Seager and Tracey Petley-Hibbs, both from Nestle, are helping teacher Carolyn Norquay with a unit on "convenience food". They'll be showing the students how

they generate new ideas, how they tackle production and process, and issues around labeling and the Fair Trading Act.

Creating a new Gateway

Designing a better, and safer, entranceway to their school is the challenge for a group of Year 6 students at Boulcott Street School in Wellington. They've been tackling the issue with the help of Neighbourhood Engineer Tristan Reynard of GHD.

In their first meeting Tristan introduced the students to the role of an engineer, showing them plans he's developed for a local BMX track, and the process he's undertaking to make it a reality. The next step is for the students to apply this new understanding to their own local challenge.

According to their teacher, the students have been inspired and haven't stopped talking about Tristan's visit.

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The size of the challenge

More evidence, if it was needed, on the shortage of engineers has come from the OECD with its latest study on tertiary graduates.

Just over 5% of New Zealand's graduates have a professional engineering degree or higher – the lowest rate in the OECD. The average is around 15%, and is close to 30% in South Korea.

Figures from the Ministry of Education on engineering and technology qualifications also make grim reading. From 1997 to 2002, graduates numbers have stagnated. At university level the numbers have gone from 1,570 to just 1,587, while at polytechnic level it's also been a miniscule increase from 2,043 to just 2,077.

Reaching for the stars

Christchurch students have a once in a lifetime opportunity next month to hear just how far a career in technology, engineering and society can take them.

Dr Jack Bacon from NASA will be talking to school students about the Space Shuttle and International Space Station projects, and NASA's plans for future space exploration.

The free presentation has been organised by IPENZ and Futureintech and will take place in the Christchurch Town Hall on Monday 9 August

Discovering engineering in Waikato

A joint initiative is tackling the skills and workforce shortage in Waikato's mechanical engineering industry, with an innovative careers day taking place this month.

The Workchoice Trust and WECA (Waikato Engineering Careers Association) have combined forces to link Waikato Year 12 students with regional engineering businesses on Tuesday 16 August.

All schools in the Waikato have been invited to send interested Year

12 students to spend a day with WECA members learning how the industry operates, possible career paths and insights into training and development.

According to WECA Facilitator Angela Shaw, the event provides a valuable opportunity for industry to support schools and students. "Expectations about career options become more accurate and important relationships are formed through interaction," she says.

WECA currently has 50 industry members and 170 Waikato secondary students registered with the association. For more information about WECA visit www.weca.org.nz.

Weird science thrills students

Interactive science for school students has proved a real hit in Auckland – particularly anything involving explosions and bodily functions...

More than 6000 people turned up for Auckland University's "Incredible Science" festival held last month, with highlights including slime, bloodstains and chemical explosions.

Long queues lined up for interactive activity areas, while lectures on subjects ranging from bacteria to brains were packed out. Forensic science proved a popular topic, thanks to shows like CSI, according to the university officials.

