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Published by Futureintech  
tel 04 473 2023  
fax 04 474 8933  
enquiries@futureintech.org.nz  
www.futureintech.org.nz

## Turning the IT tide

The recent dramatic downturn in tertiary enrolments in IT degree courses is causing organisations nationwide to come up with initiatives to encourage students back into this area essential to New Zealand's future growth.

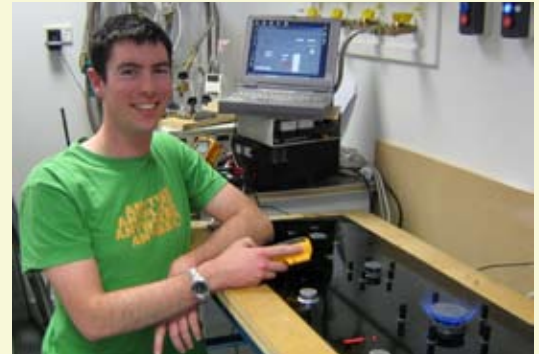
Information Technology has never been so important – or so unpopular. Figures released by the Department of Labour indicate that 4,000 new IT jobs were created each year from June 2001 to June 2005, while the number of students enrolled in IT degree courses fell by a dramatic 44 percent over the same period. Last year, 118 out of 134 IT specialisations were deemed to be in “acute shortage” of qualified staff.

Futureintech is going some way towards responding to the problem. Futureintech Ambassadors working in ICT roles are currently volunteering in classrooms to demonstrate the reality of what their work entails and how it relates to the curriculum. A brochure outlining the diversity of careers possible within the sector is currently in production.

But Futureintech is not the only organisation to have recognised the issue and determined to address it. The Department of Labour has compiled what it terms a “stocktake of initiatives to alleviate the ICT skills shortage” to enable such programmes to work together where possible and to make publicly available the combined details of the work currently being undertaken.

**Accelerating Auckland**, in various guises, takes up a large proportion of the document, from a project encouraging students with skills in the performing arts to learn ICT skills to present their work in a multi-media format; to a series of workshops with WIT, Microsoft, Vodafone, and Hewlett Packard to introduce girls in Years 12 and 13 to female role models in the industry.

**Better by Design** also focuses on Auckland, where under the directorship of Judith Thompson it arranges for final year IT students to spend time on work experience in a supportive workplace with an industry



*Simon Woods, an Electrical and Software Developer with Fisher & Paykel Appliances, Dunedin, volunteers as a Futureintech Ambassador to ensure that students are made aware of the opportunities offered by careers in ICT.*

mentor before committing to a full-time appointment.

Meanwhile in Wellington, **Summer of Code 2.0** is an internship programme which offers Computer Science and Technology students the opportunity to work in cutting edge technology companies over the summer, gaining on the job experience in some of the most exciting implementations of IT.

Nationally, **BrightSparks** provides electronics and software programmes of work in intermediate and secondary schools, providing a direct pathway to tertiary qualifications. The initiative also includes an interactive website and mentoring programme, as well as running a nationwide competition which recognises student innovation.

As a whole, these initiatives and the many others included in the stocktake indicate that New Zealand is taking seriously the gaps in its workforce. The more industries become involved in programmes to raise the profile of ICT careers, the more can be done to ensure that the future of information technology in New Zealand is secure.

# The facts about cadets

The latest addition to the Futureintech Factfiles for industry focuses on cadetships – programmes through which young people get on-the-job work experience while completing a tertiary qualification.

Cadetships take many different forms but usually a company will join forces with a particular university or polytech and sponsor students taking a specific course, which they are able to balance with work. The company will usually contribute course fees in return for the students' time, and their commitment to being employed by the company for a specified duration after their course is completed.

The Cadetship Factfile looks at the ways in which different companies have interpreted this basic template to make it work for them and their employees.

This new Factfile joins existing publications on Promoting your Industry, Flexitime and Scholarships. All are designed to assist industry in attracting and retaining qualified staff in a tight labour market.

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### Cadetships – doing it your way!

**How can you ensure that students in your field graduate with more than academic theory? That they have practical experience and an understanding of the day-to-day demands of your industry? And that they choose your company to put these skills into action?**

**The short answer is that you can't. But by offering cadetships you can make it a lot more likely.**

**What are cadetships**

Cadetship programmes take many forms, but in most a company will undertake to meet part or all of the course fees of selected students, while offering them on-site work during their study, and usually full-time summer employment. In many cases a job offer after graduation, and a commitment of a specified time period is part of the deal.

Cadetships are the natural successor to traditional apprenticeships: the opportunity to have your input into the training of future employees, while they also obtain academic or vocational qualifications.

**What's in it for your company?**

**The guarantee of qualified staff**

Offering cadetships enables your company to jump the recruitment queue. While your competitors are trying to attract new graduates who, in the current employment market, are able to pick and choose jobs, you can relax in the knowledge that you have not only already secured capable employees, but that they are familiar with the requirements of your industry.

**No wasted time when new employees start**


A new staff member who is comfortable with your working environment and aware of what is expected of them will be able to hit the ground running.

**Staff loyalty**

University is both increasingly essential and increasingly expensive. Financial support while necessary qualifications are obtained, and the promise of employment at the end of it are strong incentives to stay with a company and perform well for them.

**Additional staff for less specialised work**

While new cadets are being trained they provide an extra pool of hands for work that fully qualified employees might not have time for. As their training progresses they become an increasingly better deal as an employee: paid it, "I'm not sure I'm allowed to say this, but they do provide lower cost labour!"



*Current cadet Hayden Clendenen does not feel unduly bound by the commitment. "It's good, it means I have a guaranteed job. And I get to meet a world-wide company so the opportunities for an internal transfer to other parts of the world are good."*

All Futureintech Factfiles are available free of charge by emailing [enquiries@futureintech.org.nz](mailto:enquiries@futureintech.org.nz)

## Mind the gap

A guide to bridging courses offered by tertiary institutions is being developed by Futureintech and is available in a few weeks.

Promoting careers does sometimes yield moments of inspiration, when a student is exposed for the first time to a career path that captures their imagination and in which they can picture themselves being successful and fulfilled. But what happens when the epiphany comes at the end of Year 13, and the student is missing an essential subject? Back to the drawing board, with those brief dreams of being a surveyor or a forensic scientist put away for good?

Not necessarily, as a new Futureintech publication points out. Many tertiary institutions are keen to break down the traditional barriers of prerequisites. While clearly there are core subjects without which a student will not have the necessary foundations on which to build, some of these can be taken as summer school courses, or alongside the less demanding first year classes.

Bridging courses of some description are offered by most New Zealand universities and ensure that students need not find that their career options are limited by the academic decisions they make aged 17.

Professor Janis Swan, Associate Dean of Engineering at the University of Waikato, where bridging courses are well established, said "We are very appreciative of any way in which Futureintech can promote alternative pathways."

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### Promoting your industry

**IN MANY INDUSTRIES, PR** often doesn't get the attention it deserves. Properly done it can be a valuable marketing tool for individual companies, the entire industry and New Zealand's position in the international market.

To compete in the domestic and global markets, New Zealand's science, technology and engineering industries must establish and maintain an image of world-class expertise and service in engineering. Companies can learn a lot from New Zealand's handful of successful entrepreneurs in this field. Some have very quietly gained a greatly improved company profile and market share in their fields through innovative and proactive use of the media, often at a little cost.

Good PR can create a self-perpetuating pathway to success. An improved market and public profile not only expands your customer base, but can also help increase your desirability as an employer to the very young minds emerging or established in the professional arena.

To help us promote the industry as a whole, Futureintech needs your good news stories, press releases and opinion articles published in print and online. We will publish such successful company PR in our Case Studies series. They are also in the Futureintech website: [www.futureintech.org.nz](http://www.futureintech.org.nz)

**The many benefits**

- PR is good for recruitment, as people compare more favourably when they see positive editorial in the business technology press.
- Successful applicants and customers would also like to find PR-generated news releases on the Internet. The written word must be perceived as more credible than advertising and e-mail.
- Being read about in positive or neutral print or on the Internet increases your visibility and credibility as an authoritative and advertising

**futureintech** factfile 2

### Scholarships

**Education helps make studying engineering and science more fun. Without this kind of assistance, it can be a substantial barrier to entry for many young people, or it can be a barrier to entry for those who have already entered the profession.**

There are many ways to help young people who are new working for these

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### Flexitime: Can you afford not to offer it

**Why work nine-to-five?**

This Futureintech Factfile looks at how different policies could work, and the potential benefits and costs. Our case studies show a diverse range of companies who have introduced these policies and found them to be highly successful, in terms of attracting staff, retaining them, saving money and generating positive publicity.

**Some options**

**Flexible hours**

One of the most popular options is offering staggered hours - allowing staff to start and finish at different times. It can make life commitments, such as childcare and family duties, much easier for employees, without adversely affecting the employer.

Another option is to allow employees to spread their working hours over a week or a month, such as working four 10-hour days a week, or 80 hours in 9 days, to fit in with their other commitments.

Some companies allow employees to "bank" hours. Staff build up extra hours of work and then take the equivalent time off when needed.

**Flexible leave**

Some workplaces, such as the Treasury, allow staff to purchase extra annual leave by taking a reduction in salary.

Some employees let staff accumulate sick leave over a number of years, and/or offer up to three "welfare" days a year, where employees can "ring in" with. All this has a good track record of reducing levels of sick leave.

**Working from home**

Offering the ability to work from home for even just a few hours a week, can greatly help employees balance their work and personal commitments. Many companies provide laptops and remote access to their servers for this.

## VIP scheme 'sold out' for 2007

Because of the large number of worthwhile applications received in April, the Visiting Industry Professionals Scheme will not be open to further applications in 2007. Industry representatives and tertiary institutions wishing to apply for funding are instead encouraged to apply in April 2008.

VIPs are professionals from technology, engineering or science-based industries who spend up to three weeks in tertiary institutions, where their role can be in a teaching or advisory capacity or a combination of the two.

The VIP scheme is open to any tertiary institution in New Zealand that wishes to engage an industry professional to give a lecture series, assist with course planning or otherwise bring an industry perspective to the department. The overall purpose is to encourage educational departments to

develop closer connections with the industries in which their graduates are likely to work, and to ensure that students are equipped with the type of information and expertise which their future employers will require of them.

Current examples of ways in which the scheme is being made use of include Dr Max Kennedy, General Manager of Meat Biologics Research Ltd, who is helping the school of Chemical and Process Engineering at the University of Canterbury to investigate whether their courses meet the needs of the

bioprocessing industry; and Tony Carnovale, Technical Services Manager at Schneider Australia, working with students and staff of the School of Engineering at the University of Waikato on trends in industrial automation.

Peter Xu, Professor of Mechatronics at Massey University where Keith Colson of NextWindow Ltd has just completed a VIP placement, says "Students have been exposed to real-life technologies and links to industrial professionals. Keith and I have also agreed on a few projects for next year, and Massey students are being given opportunities to do summer practical work at NextWindow. Thanks to the VIP scheme Massey Engineering has established another substantial link with local industry."

## Situations vacant

Brett Williams, Director of Learning and Assessment at IPENZ, brought the national shortage of engineers to the attention of the public in an opinion piece in the *Dominion Post* this week.

Responding to the concerns of David Shillington, Head of Applied Science at UCOL, on the uninformed study choices made by science students, Williams asserted that similar issues were faced in the sectors of engineering and technology.

"Not only are there insufficient numbers of tertiary students enrolling in engineering generally, there appears to be a particular lack of awareness of the considerable opportunities available through engineering technician and technology programmes," Williams wrote.

A lack of trained technicians has serious repercussions for industry,

as fewer and fewer people have the necessary practical skills to install, test and maintain electrical equipment or basic public utilities and infrastructure.

The internationally recognised courses and training programmes in New Zealand, the numerous and varied job opportunities and levels of remuneration which compare extremely favourably with other sectors mean that engineering ought not to have any difficulty in attracting the numbers needed. Williams blames lack of general awareness of the courses and pathways possible – a lack of information which Futureintech is working to reverse.



*Frucor food technologist Jenny Griffiths demonstrated the product development process to students at Alfriston College, Auckland last month, and discussed her own pathway to a career in food.*

*Jenny has been a Futureintech Ambassador since May, and finds it "a great way to not only practice my presenting skills and gain confidence in speaking to groups, but also to let people know about different careers in this field. It is very rewarding and can be done without interfering with day-to-day work."*

## Futureintech News



The latest season of Ambassador training sessions has seen 41 new Futureintech Ambassadors trained in Auckland and 11 in Dunedin, with further events planned over the next month in Christchurch, the Central North Island and Napier.

These sessions have confirmed that Futureintech will exceed its target number of Ambassadors for the year by a considerable margin, and continue to provide enthusiastic young professionals to support the curriculum and encourage students towards careers in technology, engineering and science. Many thanks to all the companies who allow their employees to volunteer their time.

Facilitators in Auckland have been involved for the second year with West-Sci, an annual collaboration between Unitec and ESR. To help engage more Pacific Island students in science-based careers, local schools are invited to send their two most able Pacific Island science students to take part in a day of activities and presentations from science professionals. This year Futureintech Ambassador Maui Hudson, scientist and Maori Development Officer with ESR, was one of the speakers, while Futureintech Ambassador Veronika Maka, an electrical engineer with GHD, will be the key-note speaker at

the dinner this Friday. Students and their parents are invited to attend the dinner, where the participants give feedback on the programme and what they have learned by it.

Vectek Electronics Ltd, Napier, is taking its Futureintech partnership further by inviting electronics and physics teachers to visit its manufacturing facility. Interested teachers can observe the design and assembly processes and discuss ways to encourage students with an aptitude for electronics to consider a career in the field.

### Futureintech Facilitators

#### North Auckland

##### Rod Hare

*Hosted by Riley Consultants Ltd*

Telephone: 09 989 7872

Mobile: 021 714 359

Fax: 09 489 7873

email: [rhare@futureintech.org.nz](mailto:rhare@futureintech.org.nz)

#### Central/West Auckland

##### Angela Hart

*Hosted by Stormwater Solutions*

Mobile: 021 479 892

email: [ahart@futureintech.org.nz](mailto:ahart@futureintech.org.nz)

#### South/East Auckland

##### Gay Watson

*Hosted by Fraser Thomas Ltd*

Telephone: 09 278 7078

Mobile: 021 479 802

Fax: 09 278 3697

email: [gwatson@futureintech.org.nz](mailto:gwatson@futureintech.org.nz)

#### Central North Island

##### Margaret Brunton

*Hosted by Carter Holt Harvey Kinleith*

Telephone: 07 886 3876

Mobile: 021 479 803

Fax: 07 886 3614

email: [mbrunton@futureintech.org.nz](mailto:mbrunton@futureintech.org.nz)

#### Napier/Hastings

##### Jenny Dee

Mobile: 027 2907 937

email: [jdee@futureintech.org.nz](mailto:jdee@futureintech.org.nz)

#### Wellington

##### Phil Sadgrove

Telephone: 04 473 2025

Mobile: 021 479 891

Fax: 04 474 8933

email: [psadgrove@futureintech.org.nz](mailto:psadgrove@futureintech.org.nz)

#### Christchurch

##### Colin Bell

*Hosted by Meyer Consulting*

Mobile: 021 479 890

email: [cbell@futureintech.org.nz](mailto:cbell@futureintech.org.nz)

#### Dunedin

##### Lynne Newell

*Hosted by Fulton Hogan Ltd*

Mobile: 021 479 804

email: [lnewell@futureintech.org.nz](mailto:lnewell@futureintech.org.nz)

**e-news is researched and  
written by Laura Fergusson**