futureintech enews for industry

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The importance of technology education

A higher standard of living for New Zealanders will only come about if we have more wealth creators. But these wealth creators - innovative and entrepreneurial types – aren't created by accident. Education, particularly technology education, is needed to grow and nourish them.

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This is why Futureintech is releasing an info sheet on technology education *"The Drive for Innovators and Entrepreneurs"*, looking at the challenges and opportunities facing a subject which is often underappreciated by schools and industry.

The challenges

Technology education has now been a part of the school curriculum for 10 years. Teaching graduates trained specifically in technology are slowly coming through, and a limited amount of professional development is available to teachers – but not enough.

Technology suites exist in many schools now, but too many are separated rooms where food technology, materials, and ICT rooms with rows of computers operate in complete isolation from each other, running against the very nature of the curriculum.

And some schools have been tempted to just re-label traditional programmes (such as woodwork and metalwork) as 'technology' without ensuring they actually reflect those values of entrepreneurship and innovation.

There are also issues at tertiary level. Most universities don't count technology subjects as part of their entry requirements, an approach which reinforces technology as a 'non-academic' subject in the minds of many students. (*See the article on page four as further evidence of this).*

The benefits

At its best, technological practice extends the classroom – it takes students into the community, and into local enterprises. It can also bring community partners into the school.

Entrepreneurial skills are all about picking up and using innovation in a way that is commercially sensible. Partnerships with local enterprise can play a big role in developing these entrepreneurial skills.

Technological practice can be motivational and empowering for students. They are encouraged to take risks, show initiative, and take responsibility for their work. They learn to explore, research and begin the transition towards being independent learners, which is of life-long importance.

The opportunities

As well as the obvious example of Futureintech, a wider range of resources and programmes are becoming available for technology teachers and schools. For example, the government's GIF – Technology Education programme is providing $6 million to boost technology teaching and learning.

Techlink is another New Zealand Trade & Enterprise-funded project to create links between schools and enterprise, with examples of best practice and resource materials available.

Sponsorship is one possible option for the funding and promotion of technological learning. In some circumstances it may be appropriate and worth investigating.

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VIP scheme 2005

Software engineering, highway safety and industrial fermentation are among the topics featured in this year's Futureintech VIP scheme.

The VIP (Visiting Industry Professionals) scheme provides funding for engineering, technology and/or science professionals to spend time in a tertiary institute sharing their knowledge with staff and students.

Six projects from around New Zealand have been selected to receive up to $5,000 in funding each.

In each case industry professionals help with guest lectures and tutorials, advise on research projects and/or help develop new courses.

The aim is to build closer links between academia and the private sector, to help improve the quality and relevance of teaching and learning, and give students a better idea of what to expect in the workforce.

Already the scheme is making an impact – Canterbury University is considering establishing a new degree in Computer Engineering, thanks to work done by Dr Ian McLoughlin of Taits. Funding from the VIP scheme allowed Dr McLoughlin to play a key part in the research and consultation for the proposed new course. To find out more about the next round of VIP funding, click here.

University of Waikato, Department of Materials and Process Engineering
VIP Dr Randolph Greasham, formerly Director of Bioprocess Research and Development (USA), will work on a three-day intensive masters course on industrial fermentation. He will present three lectures, lead discussion groups, meet with students studying biochemical engineering, and visit IRL Biopharm in Wellington.

University of Canterbury, Civil Engineering Department
Senior staff from GHD (an environmental, engineering and management firm) will help teach a new course on the integrated design of multi-disciplinary civil engineering projects.

University of Auckland, Civil Engineering Department
VIP Dr John Morrall, President of the Canadian Highways Institute, will be taking a Masters of Engineering in Transportation course on Highway safety and operations. He will also meet with Transit and LTNZ officials and make a presentation at an industry forum.

Manukau Institute of Technology, Electrical and Computer Engineering
VIP Steven Kessel, Senior Software Engineer, and former lecturer now working for an international ICT company producing simulated weaponry. He will be teaching data communications and computer programming, and advising staff on programme redevelopment.

Waikato Institute of Technology, School of Science and Primary Industries
VIP Dr Trevor Atkins, HortPlus Ltd, will be making presentations on the applications of technology in the agricultural and horticultural industries. He will be looking at ways to improve and tailor courses to meet the needs of industry, and will discuss suitable projects for research.

University of Canterbury, Computer Science and Software engineering
VIP Roger Jarquin, Head of Jade Development Plant, Jade software, will be helping to fine-tune the department's degree programme, particularly the proposed degree in Computer Engineering.

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Futureintech in schools

Studying the Ruru

David Henry School in Tokoroa has been using Futureintech's contacts to enhance their school programmes. With the help of Central North Island Facilitator Margaret Brunton, the school has enlisted a series of outside experts to help the students with their technology project on the theme of Ruru (otherwise known as the Morepork).

Jan Hoverd of Biodiversity Waikato has visited the class to explain the characteristics of the Ruru, while a local engineer has helped the students build homes for the birds.

According to the teacher, bringing an engineering perspective has given her and her students a much better idea about what an engineer does and how structures work.

The students have loved having new people in the classroom, and the school is now looking to use an engineer to help with their school-wide electronics and control theme.

Wellington projects

Futureintech has been hard at work in Wellington, building links between schools and industry. One of the recent projects has involved a session for Wellington High Students on information science, with help from Futureintech Ambassador Scott Abernethy.

A future young engineer from David Henry school in Tokoroa.

Students with their Ruru houses, designed with the help of basic engineering principles.

Scott is a Software Engineer with Stratex New Zealand, and his session covered not just the technical programming language, but also workplace culture and the importance of teamwork in ICT projects.

It was a valuable learning experience for the students, and a chance to see how lessons learnt in school are put in place in real careers.

Canterbury Update - May 2005

A trip over to the West Coast, returning through the Mackenzie Country has resulted in all Neil Potter's contacts for 2005 being made. Neil was impressed with the enthusiasm of the staff to get some involvement with the Futureintech programme. There have been some issues identified when calling in to some of the schools. The major question was how we would get the Ambassadors to the more isolated areas. One solution, it would seem, lies in the introduction of the Westnet and Cantatech video conferencing facilities in the area and secondary schools. More on this as we develop some protocols for Futureintech and discuss with our Ambassadors, but Neil thinks this is potentially a very exciting opportunity.

Auckland projects

Students in Auckland are discovering the worlds of inventors and forensic scientists, thanks to the help of Futureintech Ambassadors.

Buckland's Beach Intermediate have been studying innovation and inventors, and using technologist Wendy Robinson to teach the students about brainstorming and product development.

Meanwhile Botany Downs secondary school are planning to use scientist Kitty Lai from ESR for their units on forensics, being studied by a class of gifted & talented Year 9 students.

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Futureintechnews

Skills shortages in Canterbury

Identifying skills shortages, and planning ways to avoid them, is the focus of work by the Canterbury ICT growth Pilot project.

Two recent reports have highlighted the challenges ahead.

Lincoln University has predicted that over the next five years the number of people employed in ICT in Canterbury will increase by 33% - that is, if enough graduates are produced. Graduate numbers from relevant university programmes are stagnant, while at the polytechnic level, numbers are in steady decline.

The report notes that this problem is "especially baffling [in] a strong industry with good remuneration prospects and career paths."

A similar study on the school sector has identified some challenges in attracting enough students into technology/ICT subjects. An interim report by the Christchurch College of Education has identified the lack of academic recognition for technology subjects in school as a major problem.

The report found that students, perhaps influenced by their parents, have "very strong perceptions" that IT & Electronics are not academic pursuits. This perception isn't helped by the lack of recognition of these courses by the government and universities. For example, there was no bursary equivalent and now there are no scholarship achievement standards in these subject areas.

Gender issues were raised by several teachers surveyed, noting that girls tend to be more attracted to the creative side of ICT, such as graphic and web design.

Some possible industry initiatives were mooted – many of which Futureintech is already working on, including:

- Visits to schools by industry professionals
- Student visits to industry
- Road shows promoting IT careers
- Development of posters and other resources promoting ICT careers.

Kiwi Physics

A funky new CD-Rom for physics teachers and their students is being launched this month, thanks to help from Helen Clark, Jonah Lomu, Matthew Ridge, Marc Ellis and Futureintech.

Kiwi Physics is an interactive CD-Rom with games, puzzles, quizzes and piles of information for the classroom. Famous New Zealanders help explain scientific principles in a fun way, with the help of exciting graphics and humour.

The CD was produced by CWA Learning Media with help from a group of experts.

IPENZ President Roly Frost presents Steve Jenkins of ACENZ with a certificate of appreciation for their support of Futureintech.

www.futureintech.org.nz

Futureintech's website contains a wealth of information for students, parents, teachers and careers advisors. It has profiles of young people working in technology, engineering and science, and the companies they work for, along with information on different courses, careers and scholarships available.

Contact us:

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The new Futureintech sign goes up – overlooking the end of SH1 in Wellington, a prime advertising position

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