ENGINEERING e2e EDUCATION TO EMPLOYMENT 25
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WORK WITH US TO ACHIEVE THE GOVERNMENT GOAL OF INCREASING ENGINEERING GRADUATES BY 500+ PER ANNUM

IN THIS ISSUE . . . *we cover the new research report Making Tertiary Studies in Engineering More Relevant. Our featured case study is of a school/industry partnership that has seen a increase in girls going on to engineering study.*

FROM THE CHAIR...

I AM VERY PLEASED TO ANNOUNCE *the release of the important new research report Making Tertiary Studies In Engineering More Relevant, which we feature in this month's issue.*

Engineering e2e commissioned this research on the recommendation of employers whom we invited to a workshop in June last year. Engineers from over 40 companies took part in this project, which was designed to improve tertiary education providers' understanding of what employers need from engineering graduates.

The report makes 13 recommendations and the Engineering e2e Steering Group looks forward to further discussion with tertiary providers and Government agencies to support their implementation.

On behalf of the Engineering e2e Steering Group, I'd like to acknowledge the efforts of Otago Polytechnic's research team: Dr Barry Law, researcher; Sharon Wagg, project manager; and Stuart Terry, online survey designer.

SIR NEVILLE JORDAN
Chair, Engineering e2e Steering Group

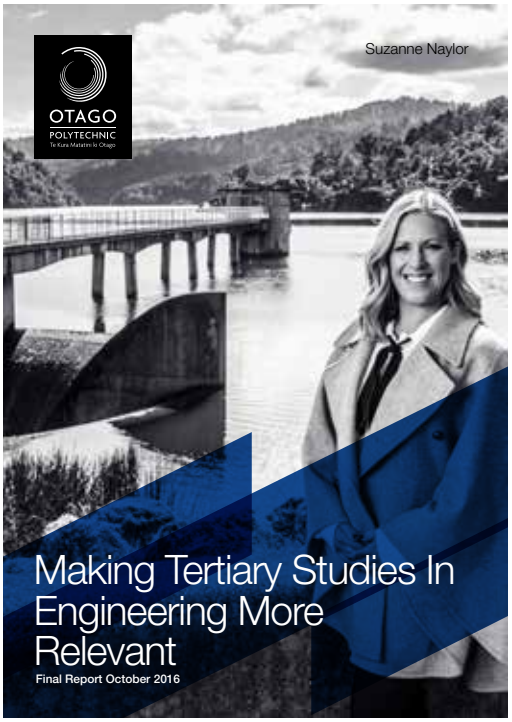
Initiatives undertaken through the Engineering E2E programme contribute directly to the achievement of the Government's Business Growth Agenda priority of building a more productive and competitive economy.

NEW RESEARCH REPORT RELEASED:

Making Tertiary Studies In Engineering More Relevant

Otago Polytechnic has just completed its Making Tertiary Studies In Engineering More Relevant research report, which is designed to improve tertiary education providers' understanding of what employers need from engineering graduates.

BACKGROUND



Employers attending the Engineering e2e Talking with Employers' workshop in June 2015 defined successful engineering graduates as being 'work-ready for today' when they have the requisite key skills and knowledge, and 'work-ready-plus for tomorrow' when they also have a wide range of personal, interpersonal and cognitive capabilities that enable them to work effectively in different situations and to continuously develop their competencies and capabilities. See **Engineering e2e Talking with Employers Workshop Report**.

As a main focus of the workshop, employers reviewed the Professional and Capability Framework developed by Geoff Scott, Emeritus Professor of Higher Education and Sustainability at the University of Western Sydney, to identify the key capabilities and competencies of successful engineering graduates.

Many of these employers were already engaged in providing advice to individual tertiary education organisations (TEOs) through their industry advisory groups, and they identified the need for nationwide research based on the Professional and

Graduate Capability Framework to provide feedback from graduates on the capabilities and competencies required for their work and a better understanding of how TEOs can keep tertiary education relevant from the graduate perspective.

The researchers adapted a successful online survey used for Australian engineering graduates with three to five years of work experience for New Zealand graduates, ensuring it aligned with the attributes from engineering graduate profiles required for international accreditation of the two-year diploma, and three-and four-year degrees.

Researchers focused on gaining a representative sample from the engineering graduate population, ensuring it was ethnically diverse and included male and female graduates from large and small engineering companies from around the country that provided services or developed products in a range of disciplines.

The survey covered six areas: judging effectiveness at work; personal capabilities; interpersonal capabilities; intellectual capabilities; key skills and knowledge; and keeping tertiary education relevant. Graduates rated the importance of each in effective, early career practice and, where appropriate, asked the extent to which this had been given focus in their professional studies. The responses were analysed to identify themes and reasons why graduates rated items as they did.

The online survey was followed up with workshops with employers, senior engineering staff from Schools of Engineering in TEOs, Project Steering Group members and representatives from IPENZ (Institution of Professional Engineers New Zealand) to test the veracity of the data produced; discuss the key findings, highest rating attributes of successful engineering graduates and other results; and to identify the key implications of the findings.

KEY FINDINGS FROM THE REPORT

Analysis of the survey data revealed that graduates require not only the requisite technical knowledge and skills to perform well in the workplace but also personal, interpersonal and cognitive capabilities.

Graduate ratings of strategies to keep higher education relevant showed that the extent of focus in study was considered relatively unimportant, while great value was placed on:

- work placements;
- problem-based assessment rather than memorising facts;
- real-world case-studies
- projects that developed personal, interpersonal capabilities delivered by teaching staff with current industry experience.

More than 80% of graduates described their work as challenging, particularly when things went wrong, in terms of: their professional/ethical capabilities; time management; problem-solving; decision-making skills; and coping with stress.

FEATURED CASE STUDY

ONE EMPLOYER MAKES A BIG IMPACT

A school-industry partnership set up to encourage girls into engineering is hugely successful for Southland Girls' High School, for STEM subject uptake in the school, and for the partner company New Zealand Aluminium Smelter.

But the biggest winners are the students, with around half of those involved in the programme going on to study engineering at tertiary level.

Read more at: www.engineeringe2e.org.nz/Employers/Case_study.cfm?ID=52

REPORT RECOMMENDATIONS

The report makes 13 detailed recommendations for TEOs, employers, TEC, The Productivity Commission and MBIE.

FIND OUT MORE...

Download the PDF of the full report, which includes comprehensive recommendations for all major stakeholders.

IF YOU HAVE ANY ENQUIRIES, PLEASE CONTACT US: ENGINEERING E2E PROGRAMME TEAM
Tertiary Education Commission Te Amorangi Mātauranga Matua
Phone 04 462 5256 Email engineeringe2e@tec.govt.nz
www.engineeringe2e.org.nz