ENGINEERING e2e EDUCATION TO EMPLOYMENT 38
NEWSLETTER : DECEMBER 2017

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

IN THIS ISSUE . . . ***Engineering e2e achievements 2017 ; 2018 NZDE/BEngTech Forum; feasibility studies for micro-credentials; research on Regional Engineering Education Hubs; Survey winner announced – new survey***

Another year of progress and achievement

2017 has been another year of significant progress and achievement for all our initiatives across a broad range of fronts, as can be seen in the table below.

BUT FIRST, I would like to mention a personal highlight – the excellent growth and extention of links with engineering professional groups and employers. Talking with people in the engineering industry has significantly improved our understanding of their needs. I have been really encouraged by professional organisations' willingness to engage. No meeting request or opportunity to get involved has been turned down. Growing these relationships has shown us engineering employers' areas of need, and allowed us to respond with tailored solutions.

Our engagement with the fire engineering sector, for example, has shown that this group alone has around 1,000 employees who need to be upskilled. We are funding the Institute of Fire Engineers and Manukau Institute of Technology to work together on a feasibility study for a fire-engineering micro-credential.

Growing our connections has revealed the breadth of engineering endeavour in New Zealand, something which has dramatically increased over the last few years. It has also demonstrated how important the range of qualifications and roles is to the profession. Employers depend on staff with engineering qualifications at all levels.

We're now looking ahead to the new year and the opportunities it brings for the future of the profession. The fusion of engineering disciplines is an exciting development, one which will lead to greater engagement with other professions. We know that engineering is based on teamwork and collaboration. I look forward to seeing engineers working more closely with people from other sectors, such as social science, as part of a multidisciplinary effort to meet New Zealand's future needs.

I would like to thank the Steering Group for their wise advice and commitment, and thanks also to all those who have supported Engineering e2e in 2017. Finally, thanks to the Engineering e2e team for their hard work throughout the year. I wish you all an enjoyable and well-deserved summer break, and look forward to working with you all, suitably refreshed, in the coming year.

Sir Neville Jordan
Chair, Engineering e2e Steering Group

ENGINEERING E2E'S ACHIEVEMENTS IN 2017

Initiatives	Achievements in 2017	Desired Outcomes
SECONDARY-TERTIARY PATHWAYS PROJECT Engineering e2e is funding projects from secondary schools and tertiary education organisations (TEOs) to work collaboratively to deliver programmes that successfully prepare and pathway students – particularly women, Māori, and Pasifika – into tertiary engineering study. Successful projects will also increase awareness of engineering as a career in the community, and increase enrolments in Level 6–7 engineering qualifications	Two project reports received (April and October 2017) Facilitated project managers meetings	Successful secondary-tertiary pathways in place. Improved collaboration between institues of technology and polytechnics (ITPs) and secondary schools. Increased enrolments in the New Zealand Diploma in Engineering (NZDE) and the Bachelor of Engineering Technology (BEngTech).
SPONSORED DEGREES/DEGREE APPRENTICESHIPS Exploration/development of models of delivery (particularly relevant for rapidly changing, high-tech industries) which allow both on-the-job training and completion of a Level 7 qualification in engineering.	Research: A Pilot Study of the Application of Degree Apprenticeships in New Zealand (June)	Employers participating in degree apprenticeships. A high proportion of course completions from pilot programmes.

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.

ENGINEERING E2E'S ACHIEVEMENTS IN 2017 (continued)

Initiatives	Achievements in 2017	Desired Outcomes
ENGINEERING EDUCATION HUBS Engineering e2e is consulting employers and educators to develop a vision and direction for engineering education hubs. Engineering hubs would be regionally-based centres for engineering education which involve employers, high schools, universities, ITPs and industry training organisations (ITOs).	A literature review of education hub models, including those currently running in Ireland and Austria (May) Research: *Regional Engineering Education Hubs: an investigation into mechanisms for improving the supply of engineers for New Zealand Industry* (Nov)	Regionally-based centres for engineering education are in place, involving employers, high schools, universities, ITPs and ITOs.
MICRO-CREDENTIALS Micro-credentials are emerging as an important part of the mix of alternative credentials. These are packages of learning designed to meet specific learner needs that are smaller than a conventional qualification. Implemented well, micro-credentials would provide students and employers with better information, support the mixing and matching of courses, give TEOs more flexibility, and encourage innovation.	*Micro-credentialing: A model for engineering education?* – a report from Mischewski Consulting that explores how micro-credentials might be used to improve the uptake of engineering education, particularly of the NZDE (May) Funded eight micro-credentials pilot feasibility studies and facilitation (Nov)	A range of micro-credentials pilots delivered.
GROWING THE PIPELINE OF WORK-READY ENGINEERS In 2014, Engineering e2e ran a workshop that introduced industry leaders to the Professional and Graduate Capability Framework developed by Australian academic Emeritus Professor Geoff Scott. Participants explored how the framework could help determine perspectives on graduate profiles and future skill needs. This workshop led to further NZ-based research and, lately, a proposal to facilitate collaboration between industry and educators to improve the relevance of engineering education.	Contracted Ara Institute of Canterbury to deliver the Making Tertiary Studies in Engineering More Relevant Implementation Project (Sep)	Sustainable collaboration between industry and institutions providing NZDE and BEngTech programmes to ensure best practice for graduate engineers.
COMMUNICATIONS TO EMPLOYERS The development and implementation of a communications plan that raises awareness of the value of NZDE, New Zealand Diploma in Engineering Practice (NZDEP) and BEngTech graduates amongst small to medium engineering firms – particularly those in regional locations.	Plain English definitions of the roles able to be carried out by NZDE, NZDEP and BEngTech graduates agreed and published (July) Case studies of graduates and employers published (throughout the year) Research on employers' attitudes and needs completed (October) Draft communications and engagement plan prepared (October)	Small- to medium-sized engineering firms recruit more NZDE and BEngTech graduates.
RESOURCE PORTAL A resource portal that gives engineering employers a single access point for the latest tools to recruit, retain and grow employees, with an emphasis on supporting the development of a diverse engineering workforce. The portal would also link employers to examples of good practice and provide a form of 'how to' guide and examples of what others have done.	Working group formed, including key industry partners and representatives from the Engineering e2e Steering Group, to assist in developing a set of stories about how people could use the portal – written from the perspective of different users (May) Portals from around the world that demonstrate good practice identified and used to visualise the types of portals that can be achieved (May) Design brief and timeline created for the development of portal (May) Contracted Ocular for the development of an employer portal (Sep)	A user-friendly portal with good visitor numbers. Feedback from employers that they find the portal content valuable.
SUPPORT FOR IPWEA NZ'S 'FOSTERING OUR FUTURE' 'Fostering our Future' is an Institute of Public Works Engineering Australasia (IPWEA) NZ initiative to actively manage the future capability and capacity of the public works engineering profession in New Zealand. It responds to the significant challenges faced by public works organisations to attract and retain the people they need.	Co-funded a project to investigate initiatives which establish engineering pathways into the public works sector (Sep)	IPWEA has identified a mix of initiatives that they believe will help to establish engineering pathways into the public works sector.
PUBLIC AWARENESS CAMPAIGN Raise interest in engineering and the broad range of study options available; key messages are around individual achievements of a diverse range of people.	Wave Two evaluation complete and available (Feb) Contracted OPEN Communications to maintain Make the World campaign (Aug)	Improved public awareness of engineering and the education pathways to the engineering profession.
ENGINEERING e2e WEBSITE AND COMMUNICATIONS	Case studies, progress updates, and research published (ongoing) Monthly newsletter and other regular communications Current publications reviewed and updated Series of info sheets published (ongoing) Communications plan for 2017 developed	Stakeholders are familiar with Engineering e2e initiatives.

ENGINEERS AND EMPLOYERS – YOU'RE INVITED TO THE 2018 NZDE/BENGTECH FORUM

The 2018 NZDE/BEngTech Forum will be held at the Weltec Petone campus (21 Kensington Avenue, Petone, Lower Hutt), 12-13 February 2018. This is an annual event attended by people who deliver NZDE and BEngTech qualifications.

The overall theme of the forum is achieving excellence in teaching and learning associated with the two qualifications. A particular focus of the 2018 Forum will be how we ensure that the graduates of these qualifications demonstrate the skills, knowledge and attributes expected of them by employers. What innovative fields of engineering are NZDE/BEngTech graduates part of? What kind of cutting edge projects are graduates involved in? And how do the qualifications prepare them for work in these areas?

The New Zealand Board for Engineering Diplomas and the NZBEngTech Management Group are pleased to invite engineers and engineering employers to the forum. We believe that as key stakeholders your participation will add considerable value.

For more information about the forum please contact NZBEngTech Coordinator Rachel McKeag, email **Rachel.McKeag@weltec.ac.nz**, or NZDE Coordinator Kim Willis, email **kim.willis@nzbed.org.nz.**

If you wish to make a presentation or facilitate a workshop, please provide a 100-word abstract outlining the theme of your presentation by Friday 15 December 2017 to Rachel or Kim.

A link to the programme and registration will be available in the next Engineering e2e newsletter.

EIGHT FEASIBILITY STUDIES FOR MICRO-CREDENTIALS

Engineering e2e has engaged with engineering education providers, employers of engineers, professional associations and policy agencies. We've found there is a keen interest in exploring the potential role of micro-credentials, but some uncertainty about where best to invest energy and effort.

In July 2017, Engineering e2e published the research report **Micro-credentials: A model for engineering education**, which found that many of the elements needed for micro-credentials to succeed are in place in New Zealand. There are opportunities to offer micro-credentials across the spectrum of engineering education and many local and international models to draw on.

Our work prioritises the uptake of the NZDE in engineering disciplines that have been under-served, and for people in employment. Our efforts have generated eight potential candidates for micro-credentials.

We have selected pilots for further development and detailed design. The experience of other attempts to introduce micro-credentials suggests that this development phase can be time-consuming. As a result, we are looking to continue to provide support and promote collaboration among the pilot leads.

Read more about the micro-credentials feasibility studies.

RECRUITMENT SURVEYS

WE HAVE A WINNER!

Congratulations, Sam Richards, Managing Director of Richards Consulting Engineers, the winner of the draw for the $500 Prezzie Card for participants in Engineering e2e's recent online survey on engineering qualifications and recruitment.

Thanks to everyone who took the time to complete our Recruitment Practice survey – it provided some useful insights into recruitment of engineers and employers' attitudes towards different engineering qualifications.

We learned that it is often tough for employers to find the engineers they need. To help, Engineering e2e and Business New Zealand are building an engineering employer resource portal to provide practical tools to help companies recruit, retain and develop the engineers they need – a 'one stop shop' for engineering employers.

To provide the tools that will be most useful, in a way that works for you, we need more information and ask that employers complete this short, 10-minute survey:

ENGINEERING EMPLOYER RESOURCE PORTAL SURVEY

REGIONAL ENGINEERING EDUCATION HUBS – LATEST RESEARCH FROM ENGINEERING E2E

'Regional hub' describes groups that are organised in geographical locations to address a specified educational and employment need. They would be formed by like-minded organisations to create educational pathways around the needs of the learner.

In Engineering e2e's latest report, **Regional Engineering Education Hubs an investigation into mechanisms for improving the supply of engineers for New Zealand industry**, Massey University researchers Dr Greg Frater, Professor Nigel Grigg and Dr Ishani Soysa identify two main functions for hubs and a series of factors that need to be considered in the establishment of regional hubs.

IF YOU HAVE ANY ENQUIRIES, PLEASE CONTACT US: ENGINEERING E2E PROGRAMME TEAM
Tertiary Education Commission Te Amorangi Mātauranga Matua
Phone 04 462 5392 Email engineeringe2e@tec.govt.nz
www.engineeringe2e.org.nz