ENGINEERING e2e EDUCATION TO EMPLOYMENT

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

IN THIS ISSUE . . . *we acknowledge the achievement of the 500+ graduate target, celebrate our first MoU with an engineering professional body, and look at Georgia State University's student-oriented initiatives.*

FROM THE CHAIR...

500+ goal achieved, but still much work to be done!

The Tertiary Education Commission (TEC) has confirmed that there were 511 graduates from priority engineering courses in 2016, and therefore Engineering e2e has achieved its goal of 500+ engineering graduates by 2017.

A number of organisations have contributed to the achievement of this goal, including Futureintech, tertiary institutions, engineering professional organisations and others, so it's really encouraging to see it starting to pay off.

While the 500+ threshold is a big step, we still have quite a bit of work to do to correct the imbalance of graduates across the Diploma of Engineering (Level 6), Bachelor of Engineering Technology (Level 7) and Bachelor of Engineering (Hons) (Level 8) qualifications.

The National Engineering Education Plan (NEEP) research forecasted future shortages of engineers and indicated a particular need to increase graduates at Levels 6 and 7.

NEEP recommended that for business as usual (BAU), New Zealand should graduate 500 engineers at Level 6, 400 at Level 7 and 1,100 at Level 8. In 2016, New Zealand graduated 222 Level 6 graduates (278 short of the BAU target), 308 Level 7 graduates (92 short) and 1,236 Level 8 graduates (136 over the BAU target).

Engineering e2e is approaching its third anniversary and we currently have 12 projects underway – all are underpinned by research and are in the first phase of implementation. These include several work-integrated initiatives, including sponsored degrees, engineering education hubs, micro-credentials and secondary-tertiary pathways.

Our public awareness campaign has raised engineering from tenth to third place in potential students' career consideration.

Evaluation of this campaign has, however, highlighted an underlying problem regarding the perceived value of the ITP (Institutes of Technology and Polytechnics) sector amongst potential students and their influencers. Universities have benefited from the campaign and 2017 enrolment numbers indicate that this has been at the expense of the ITPs. The Engineering e2e Steering Group recognises the significant importance of improving perceptions of the ITP sector (and not just in engineering) and will continue to find ways to support this key part of our tertiary education landscape.

If you have any comments/questions about our work, please contact us at **engineeringe2e@tec.govt.nz**

SIR NEVILLE JORDAN
Chair, Engineering E2E Steering Group

FIRST MOU SIGNED WITH ENGINEERING PROFESSIONAL BODY

Engineering e2e and the Institute of Public Works Engineering Australasia (IPWEA) have signed a Memorandum of Understanding (MoU) to support each other's initiatives promoting engineering as a career.

"This is the first of a number of MoUs we are signing with professional engineering bodies to get their input into our activities," says Engineering e2e Programme Lead Angela Christie.

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From left: Engineering e2e Programme Lead Angela Christie, Steering Group Chair Sir Neville Jordan, IPWEA NZ's Vice President Samantha Gain and President Peter Higgs

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.

"These partnerships will provide a valuable feedback channel and enhance the effectiveness of our work," Engineering e2e Steering Group Chair Sir Neville Jordan said at the MoU signing.

IPWEA NZ President Peter Higgs says the Engineering e2e programme aligns very well with IPWEA's Fostering our Future initiative. "We had identified a shortage of engineers in local government and were moving in a similar direction as the Engineering e2e programme. It makes perfect sense for us to collaborate on addressing these skills shortages and attracting more school-leavers into engineering careers."

Sponsored degrees in asset management pilot

IPWEA is collaborating with Engineering e2e on its sponsored degrees pilot programme which is being funded by the TEC.

Led by Massey University's Head of Engineering Professor Jane Goodyer, the pilot is a work-based degree programme designed by employers and institutes of technology and polytechnics to fill a skills gap in asset management.

The programme, based on a UK model called Trailblazers, explores how to add sponsored degrees (or degree apprenticeships) into our tertiary education system and how to develop models of delivery. Such degrees will enable both on-the-job training and the completion of a Level 7 qualification in engineering, for example the Bachelor of Engineering Technology, and are particularly relevant for rapidly changing, high-tech industries.

A standard for this degree has already been developed in consultation with IPWEA NZ and employers.

WHAT OTHERS HAVE DISCOVERED

SO MUCH MORE TO DISCOVER...

DON'T FORGET TO REGULARLY CHECK THE DISCOVERIES SECTION ON OUR WEBSITE

'Discoveries' is where we keep research reports we've commissioned or that have informed our work, research from other organisations, and articles that provide an interesting perspective on engineering-related employment and education.

We also link to other organisations or initiatives which aim to increase the numbers of students studying STEM subjects or engineering.

engineeringe2e.org.nz/Discoveries

CREATING THE STUDENT-CENTRED UNIVERSITY

A Georgia State University initiative supporting students by creating a more student-centred environment has proved very successful – and it's something we could replicate here.

The University found that many students from minority groups or disadvantaged families were failing to enrol for tertiary study, dropping out or taking longer to complete a degree. It was decided that providing individualised support to students would make the greatest impact in overcoming this situation.

Measures included: personal interaction before enrolment; portals to guide students through each step; quick responses to help them get past any obstacles; peer tutors embedded in classes; Chatbot and mobile phone support; collecting and analysing data on student attendance and achievement; and employing additional student advisors. The administration team is alerted if students miss a class or achieve low grades and immediately offers support to each individual. Redesigning programmes and linking them to employment opportunities was another key aspect in shifting the focus to students. They can now more clearly see which qualifications their courses lead into, get accurate, up-to-date information on employment opportunities, and cross-credit more easily if they change their study direction. A particular emphasis was put on supporting students to succeed in Maths and Science subjects so that they would continue with them to a higher level.

The changed approach resulted in: more students enrolling from high school; increased retention rates; improved progression rates; a decline in the time taken to complete a degree; and more STEM-related degrees. Professor Timothy Renick, vice provost and vice president for enrolment management and student success, notes that although these changes were made at a time of government education cuts they led to increased revenue because more students were enrolling and also staying on at the university.

See Professor Timothy Renick's presentation:
Creating the student-centred university

IF YOU HAVE ANY ENQUIRIES, PLEASE CONTACT US: ENGINEERING E2E PROGRAMME TEAM
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