ENGINEERING e2e EDUCATION TO EMPLOYMENT 14
NEWSLETTER : NOVEMBER 2015

WORK WITH US TO ACHIEVE THE GOVERNMENT GOAL OF INCREASING ENGINEERING GRADUATES BY 500+ PER ANNUM FROM 2017

IN THIS ISSUE… ***we look at 'Engineering our future', our second strategic update, which summarises our progress so far, current projects and future plans. We also feature one of the many case studies from our website.***

THE ENGINEERING E2E STRATEGIC UPDATE *outlined in this issue will be sent to Minister Joyce this month. I hope to be able to meet with him to discuss our plans before the end of the year. The update will be made available on our website towards the end of November.*

On 21 October, TEC staff, including the Engineering E2E programme manager, met with employer representatives to discuss the idea of offering degree apprenticeships. In this first meeting, participants explored the possibilities and identified some of the issues that might need to be overcome along with the benefits to employers and potential employees. The response from employers was overwhelmingly positive and there was general agreement on the idea of establishing a pilot programme. Next steps include discussions with possible tertiary providers and working out some of the logistics of a potential pilot.

The Excellent Teaching and Learning in Engineering project is well underway with workshops for ITP staff being held around the country over the next two weeks. Each workshop will include several representatives from engineering departments at local ITPs and will focus on defining excellence in engineering delivery and identifying specific practices that will support that.

It's expected that 'excellence' will have varying dimensions, such as learner achievement, work-readiness, and supporting different groups of learners. A report of workshop outcomes will identify key areas/issues/topics across the sector, which will provide the basis for the future development and delivery of professional development workshops.

Finally, the recent request of Finance Minister Bill English and Tertiary Education, Skills and Employment Minister Steven Joyce for the Productivity Commission to review new and emerging models of tertiary education is welcome news. We hope that it will encourage links between employers and more flexible approaches to engineering education

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.

'Engineering our future – Better pathways from education to employment'

Engineering E2E has just completed its second strategic update – 'Engineering our future'. This outlines the progress made so far in 2015 and where we're going next, and looks at what some innovative employers, individuals and educators are doing to bring Engineering E2E to life.

The Engineering E2E Project divides into four workstreams, each with initiatives and specific, measurable goals: educational delivery; employer engagement; promotion; and guidance.

1. EDUCATIONAL DELIVERY

To produce great engineers we need the highest possible standard of teaching and learning. High-tech and fast-changing industries need new models for training engineers, both within educational settings and within industry. We want more engineers and also a more diverse range of engineers – including more women, Māori and Pasifika. Engineering E2E has four initiatives underway in the Education Delivery workstream.

Secondary/Tertiary Techlink Pathways Pilot

This pilot programme between polytechnics and Technology Education New Zealand aims to boost students' interest in engineering, from when they start to make study choices at secondary school. The pilot, underway in Hamilton, Wellington and Dunedin, also aims to develop engineering graduates from ITPs who are 'work-ready plus'. It will model collaboration between schools and ITPs that can be copied, and lead to more students enrolling in engineering study at polytechnics.

Degree Apprenticeships

Employers will play a more important role as educators, and on-the-job training will grow in importance. We commissioned research from Massey University's Associate Professor Jane Goodyer and Dr Greg Frater. Their June 2015 report *Stepping into One Another's World: Apprenticeships – Transforming Engineering Technologist Education* in New Zealand, has provided valuable information on where we can best make a difference. One of those is through employers sponsoring degrees while their employees learn on the job.

Excellent Teaching and Learning

This initiative encourages educators to share good practice, research, and what works best to get the engineers the country needs. We've recently contracted Ako Aotearoa, the National Centre for Tertiary Teaching Excellence, to provide models of best practice such as learning environments that reflect a growing, diverse body of students.

2. EMPLOYER ENGAGEMENT

Employer Workshop

An employer workshop in June 2015 explored the findings in Professor Geoff Scott's Professional Capability Framework report that graduates need three types of skills and abilities:

- personal capabilities (self awareness, decisiveness, and commitment)
- interpersonal capabilities (influencing and empathising)
- cognitive abilities (diagnosis, strategy, flexibility and responsiveness).

The recommendations from the workshop are being taken up throughout all Engineering E2E workstreams.

Growth Through Diversity

Research is under way on how to boost the numbers of women, Māori, Pasifika and other groups in the engineering workforce.

3. PROMOTION

A public awareness campaign is rolling out from late 2015 to show the general public how amazing engineers are.

The campaign slogan MAKE THE WORLD MORE... (as shown on the right) will help show how engineers contribute to creating a healthier, more adventurous, more practical and more beautiful world.

INDUSTRY LINKS CASE STUDY...

PROJECT-BASED LEARNING: IMPACT PROJECTS

Every Albany Senior High School Year 11-13 student works for a whole day every week on an Impact Project, in which they can explore their interests and/or potential careers. Many work on technology-related projects which contribute to their local community and present a great opportunity for engineering employers and educators to raise awareness of engineering pathways.

This year's projects include: making a water tower turbine to generate electricity; constructing a model glider using a 3D printer; developing a solar-powered electrostatic smoke precipitator; using programming to analyse a logic gate using artificial intelligence; developing a virtual tour of the school and uploading it to Google Maps; creating a solar dehydrator to preserve food; and developing an ecological sanitary waste disposal system.

www.engineeringe2e.org.nz/Employers/Case_study.cfm?ID=34

4. GUIDANCE

The Engineering E2E Steering Group

Partnering engineering with science to benefit all New Zealanders is the key role of the Engineering E2E Steering Group. With representatives of all parts of the engineering sector, we're collaborating and spreading the word on how education can contribute to turning innovative science and research into practical results. See our story on page X for more on how the Steering Group is modelling partnership.

FIND OUT MORE...

- Check out the Our Progress section on the Engineering E2E website: **engineeringe2e.org.nz/Progress**

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