

Who we are and what we're doing

THE ENGINEERING E2E PROGRAMME

Set up by the Government in 2014 and managed by the Tertiary Education Commission (TEC), Engineering e2e's task is to find ways to attract more students into tertiary study in engineering – particularly in the NZDE and BEngTech programmes – to help address New Zealand's critical shortage of engineers.

OUR STEERING GROUP comprises representatives of key stakeholder groups from the engineering education and employment sectors in a wide range of disciplines. The 16 members of the Group oversee and guide all of our initiatives and are a crucial link to the wider sector, playing an important role in gathering and disseminating information.



OUR WORK INVOLVES



Extensive consultation to find out the views and needs of our many stakeholders in education and industry



Wide-ranging research – the key to ensuring our decisions and actions are the right ones



Collaborative, informed decision-making for effective initiatives that are fit for purpose



Funding and support to make sure initiatives we put in place have the best chance of success

Our projects and initiatives

SECONDARY-TERTIARY PATHWAYS PROJECTS

Six tertiary providers – Otago Polytechnic, Ara, WITT, Wintec, Unitec, NorthTec – are collaborating with secondary schools on projects which aim to smooth transitions between secondary school and tertiary education in engineering prerequisite subjects. Projects are well underway with positive feedback from all participants. Engineering e2e is providing funding and support and this year is promoting project outcomes.



engineeringe2e.org.nz/casestudy/education/show/83

DEGREE APPRENTICESHIPS/SPONSORED DEGREES

This major long-term project is exploring how sponsored degrees could be added into our tertiary system and will develop models of delivery. Such degrees will enable both on-the-job training and the completion of a Level 7 qualification in engineering, and are particularly relevant for rapidly changing, high-tech industries. In 2017, we funded further research to determine employer needs. In the first phase of this programme Professor Jane Goodyer led a process with members of IPWEA to develop a level 7 standard. During phase 2, WelTec and Otago Polytechnic will work with employers to design a programme and develop end point assessments ready for a pilot in 2019.



Stepping into One Another's World (July 2015)

UK Degree Apprenticeships: A Year in Review (November 2016)

A Pilot Study of the Application of Degree Apprenticeships in NZ (June 2017)

EMPLOYER RESOURCE PORTAL

We have developed a resource portal giving employers a single access point for the latest tools to recruit, retain and grow engineering employees. The portal includes a range of research, examples of good practice and other materials from a large number of sources. In developing this site, surveys helped to determine what tools employers want and how they wish access to them.



<https://www.ree.org.nz>

MICRO-CREDENTIALS



We're funding eight feasibility studies for micro-credential pilots in engineering education. This initiative is in line with the Productivity Commission's recommendation that capable providers are encouraged to experiment with new delivery models.



Micro-credentials in engineering education:

Finding ways forward in a New Zealand context

GROWING THE PIPELINE

We ran a workshop which 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 New Zealand-based research by

Otago Polytechnic and, lately, a project to facilitate collaboration between industry and educators to improve the relevance of engineering education.



Talking with Employers Workshop Report (August 2015).

Creating Engineers – Climbing the Educational Staircase (November 2015).

Our projects and initiatives (cont.)

ENGINEERING EDUCATION HUBS

Engineering employers and educators were consulted to develop a vision and direction for engineering education hubs. Engineering hubs would be regionally-based centres for engineering education and involve employers, high schools, universities, industry training organisations and ITPs.

Regional Engineering Education Hubs (Nov 2017)

COMMUNICATIONS TO EMPLOYERS

We've written plain English definitions of the roles able to be carried out by NZDE, NZDEP and BEngTech graduates. We've published case studies of graduates and employers, completed research on employers' attitudes and needs, and prepared a communications and engagement plan.

OUR WEBSITE & NEWSLETTER

Key stakeholders are kept informed through our website and monthly newsletters. The site includes case studies and other examples of innovative and best practice, pdfs of all our publications, and an 'Our Progress' page.

engineeringe2e.org.nz

MAKE THE WORLD

The Make the World public awareness campaign continues to provide a public service to young people.

So far the campaign has delivered good results. The final evaluation of its first year highlighted a strong connection with the target audience (potential students) and key sub-segments (Māori, Pasifika and women). This is shown through:

- a positive perception of engineering increasing from 31% to 52% amongst potential students
- engineering moving from the 10th most considered career to 3rd, with 34% of females now seeing it as a possible career (was 11% prior to the campaign launch)
- an increase in positive perception amongst Māori and Pasifika, which is now 55% (was 25%).

However, it has been found that potential students are defaulting to universities when investigating engineering study options.

Communications tracking revealed the following:

- Only 29% of those who have contacted a university about studying engineering intend to contact an institute of technology or polytechnic.
- Understanding of the Bachelor of Engineering Technology (BEngTech) and New Zealand Diploma in Engineering (NZDE) qualifications remains low amongst all potential students – including those who have contacted an ITP about engineering studies.

We still have work to do to address the balance of graduates across the NZDE, the New Zealand Diploma in Engineering Practice (NZDEP), the BEngTech and the Bachelor of Engineering with Honours (BE[Hons]).

Ongoing funding for Make the World is providing a website content upgrade, digital display re-targeting, and search engine marketing support so Make the World can deliver an ongoing public service for young people.



Our milestones

2014

- Project begins in July
- First Engineering e2e Steering Group meeting – extensive consultation begins with stakeholders
- engineeringe2e.org.nz is launched
- *Monthly newsletters* begin
- *Engineering Barriers and Responses*
- NEEP Reference Group meeting
- Alternative Engineering Pathways Professional Forum

2015

- *Improving Pathways to Engineering Technology Education*
- Strategic update #1 for Minister: *Engineering Change*
- Pathways pilot begins
- Talking with Employers Workshop and *Report*
- First of our regularly updated *Work Plans*
- *Stepping into One Another's World*
- *Creating Engineers – Climbing the Educational Staircase*
- Strategic update #2 for Minister: *Engineering Our Future*

2016

- *Make the World* public awareness campaign launches in May
- Government allocates extra funding
- Secondary-Tertiary Pathways Project begins
- *Making Tertiary Study in Engineering More Relevant*
- *UK Degree Apprenticeships: A Year in Review*

2017

- Resource Portal scoping complete
- Research on Sponsored Degrees continues
- Degree Standard written
- Engineering Education Hubs research complete
- Project to raise employer awareness of NZDE, NZDEP & BEngTech
- Engineering micro-credentials pilot procurement underway
- Eight micro-credential feasibility studies funded
- *Micro-credentialing: A model for engineering education?*
- *A Pilot Study of the Application of Degree Apprenticeships in NZ*
- A series of *Info Sheets* published
- **Regional Engineering Education Hubs**

2018

- www.ree.org.nz launched.
- A hackathon for Wellington high school and ICT Graduate School students held
- He Toki Iwi Industry Māori Engineering Workforce Partnership funded
- Prof Julia Clarke, Manchester Metropolitan University, visited to discuss degree apprenticeships
- NZCER's *Engineering e2e: An evaluation* finds Engineering e2e's approach useful
- Phase 2 of the degree apprenticeship programme underway

