

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

IN THIS ISSUE ... we look at the Engineering E2E Secondary-Tertiary Pathways Project and research into excellent teaching and learning in engineering education.

IT'S EXCITING TO SEE THE RESEARCH AND PLANNING we've done over the past 18 months starting to bear fruit. Funding for the Engineering Education to Employment (EE2E) Secondary-Tertiary Pathways Project is now available and our public awareness campaign *Make the World* launches on 1 May.

This newsletter includes information about the Secondary-Tertiary Pathways Project. More information, including the Request for Funding Applications and an application form, is available on TEC's EE2E website.

Already stakeholders are getting on board to support *Make the World* through their own initiatives, existing and new. A good example is a Wellington-based event organised by engineers from four New Zealand companies, who have extended an existing careers event. This year's event will consist of three one-day sessions for 300 Year 11-13 students and, for the first time, a public open day, which will be held in August.

ITPs are also showing their interest, with many planning to make use of the campaign's collateral to spread the word to their communities. One idea is a competition where students share how they would *Make the World* as a way to build inspiration. They could also create content to include on the soon-to-be-launched **maketheworld.nz** website.

If you'd like to promote *Make the World* in any way, or would like to receive more information, please contact IPENZ, **engineeringe2e@ipenz.org.nz**.

Max Kerr leaves the Engineering E2E Steering Group this month. Max coordinates the Metro CE's group and has made a very valuable contribution to our work. We wish him all the very best for his retirement.

We are pleased to welcome Lisa Drysdale as a new Steering Group member. Lisa is currently Group Asset Maintenance Leader for Fonterra and has recently become Chair of the New Zealand Board of Engineering Diplomas.

Earlier this year, Angela Christie returned to her role of General Manager – Outreach at IPENZ and project management of Engineering E2E has been picked up by Liz Bryan, principal analyst at TEC, email **liz.bryan@tec.govt.nz**.

SIR NEVILLE JORDAN
Chair, Engineering E2E Steering Group



Applications for Secondary-Tertiary Pathways Project funding now due

We invite interested, eligible tertiary education organisations and secondary schools to apply for funding for this new E2E initiative.

Engineering E2E research over the past year highlighted a misalignment of school curricula, subject choice, and delivery between secondary and tertiary education in the 'engineering literacies'. It identified an urgent need to develop articulated pathways between secondary schools and tertiary education if we are serious about increasing enrolments in Level 6-7 engineering qualifications.

Engineering E2E's Secondary-Tertiary Pathways Project is designed to help answer this need by providing funding for secondary schools and tertiary education organisations to work collaboratively to deliver sustainable secondary-level programmes designed to successfully prepare and support students into tertiary engineering study.

We are looking for innovative joint proposals from secondary schools and eligible TEOs. The applications need to tell us how you will work collaboratively to deliver programmes that will successfully prepare and support students – particularly women, Māori, and Pasifika – into tertiary engineering study. Applications are invited for partnerships between secondary schools and tertiary providers.

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.

Successful projects will improve the pathway from secondary school to tertiary engineering study, increase awareness of engineering as a career in the community, and increase enrolments in level 6–7 engineering qualifications. Partnerships must involve one or more tertiary providers approved to deliver TEC-funded, quality assured engineering qualifications at Levels 6 and 7 on the NZQF, and one or more secondary schools.

Applications close 5pm Friday 27 May 2016. It is planned that funding allocations will be approved by early July.

More information on the project, including the Request for Funding Applications and an application form, is available at www.tec.govt.nz/Funding/Policies-and-processes/Engineering-Education-to-Employment--Secondary-Tertiary-Pathways

For examples of projects in this area, see www.engineeringe2e.org.nz/Education



FEATURED CASE STUDY

SUPPORTING SCHOOLS IN TEACHING ELECTRONICS

A Waikato initiative highlights the importance of engaging young students with engineering. A group of engineers combined their enthusiasm for promoting engineering with selling an educational product. They aim to capture students' interest in electronics and encourage them into engineering or science-related careers.

See: http://engineeringe2e.org.nz/Employers/Case_study.cfm?ID=36

RESEARCH INTO EXCELLENT TEACHING AND LEARNING IN ENGINEERING EDUCATION

Building on their work in the *Improving Pathways to Engineering Education Summary Report*, Ako Aotearoa was contracted by TEC in late 2015 to explore what excellent engineering education looks like in practice, focusing on the delivery of the BEngTech and NZDE in 13 institutes of technology and polytechnics.

The project began with an overview of background literature, followed by phone interviews with the heads of each of the engineering schools delivering BEngTech and NZDE qualifications, focusing on the environment within which qualifications are delivered. Five regional workshops were held in Dunedin, Auckland, Wellington, Hamilton and Palmerston North for local teachers of the BEngTech and NZDE, focusing on identifying concepts of excellence and potential barriers to achieving it. Findings were then circulated to the participating engineering faculties, and their response formed the basis of the final project report.

The report identifies the characteristics of an effective learning environment, which fall under five headings:

- Engineering has a high level of support from the institution, including access to appropriate resources.
- Student satisfaction is a key measure of an effective learning environment.
- There is a high level engagement right across the learning environment.
- There is a high level of collaboration between providers, and between providers and industry.
- The programme must be relevant to industry.

The characteristics of an excellent educator are also identified: excellent educators are excellent leaders who have technical competencies as educators and a set of personal, interpersonal, and cognitive capabilities that enable them to effectively facilitate the learning process.

It was recommended that a professional development programme that could lead to the spread of excellent education in engineering faculties be established.

See www.engineeringe2e.org.nz/Progress



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