

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

IN THIS ISSUE ... we announce our *Make the World* campaign, which will be a major focus for Engineering E2E activity over the coming year. We also feature one of the many case studies from our website – www.engineeringe2e.org.nz.

THE ENGINEERING E2E STEERING GROUP held its first meeting late last month and was very pleased to welcome Professor Janis Swan, Acting Dean of Engineering at Waikato University. Janis fills the place left by Professor Margaret Hyland, who resigned late last year due to increasing work commitments. Janis has a process engineering background and extensive experience in the university sector. She will bring an interesting perspective to the steering group.

We are pleased with the progress on a number of our key projects since our last meeting. TEC is developing the Request for Proposals (RFP) and application process for Secondary-Tertiary Pathways funding for high schools and ITPs. Information about this fund will be available on both the Engineering E2E and TEC websites by the end of February.

Jim Doyle, researcher for Ako Aotearoa's Excellence in Learning and Teaching project gave the Steering Group an update on his work. Jim held discussions with heads of engineering departments at ITPs. Following this five regional workshops, which involved engineering tutors, were held. Through these workshops, key characteristics of excellent teaching and learning were identified. Excellence in teaching focused on leadership qualities and what makes an effective teacher. Jim's next step will be to send an initial report to the engineering departments so that they are able to complete a gap analysis. Following this, Ako Aotearoa will complete a final report, which will identify key areas for professional development for engineering tutors. Jim will present his findings at next week's Engineering Education Forum to be held at Weltec in Wellington.

The big news for the Steering Group was hearing that the much awaited Public Awareness Campaign is very close to getting underway.

Finally, I met with Minister Joyce late last year to discuss the Engineering E2E Strategic Update and the Steering Group's plans for 2016. I was encouraged by the Minister's interest, he has a good understanding of our activity to date.

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 E2E: Make the World campaign

This year sees the launch of Make the World – Engineering Education-to-Employment's (Engineering E2E) public awareness campaign – and a call for engineers and educators around the country to get involved.

It's a perennial challenge – how do we encourage more young people into engineering when so often the general public has little idea of what engineers actually do or the great career opportunities available?

Engineering E2E is playing a key role, managing the 15-month Make the World campaign and facilitating the involvement of individuals and organisations. An Employer Reference Group will be established to provide technical advice and guidance for the campaign. The emphasis will be on collaboration. We're using our existing relationships to engage engineers and educators – the strength of the campaign will be based on engineers pulling together for the good of the profession.

The campaign's main purpose is to raise awareness of engineering and engineering careers through a wide cross section of society, including employers and educational institutions. It will also target groups which are under-represented in engineering – Māori, Pasifika and women.

The campaign aims to change perceptions about engineering and stimulate discussions. In response to the shortage of New Zealand Diploma in Engineering (NZDE) and Bachelor



EDUCATION LINKS CASE STUDY...

SECONDARY/TERTIARY ENGINEERING PILOT PROGRAMME BEGINS THIS YEAR

A Waikato initiative starting in 2016 aims to get local students into engineering. Developed by Wintec and two secondary schools, the pilot programme focuses on preparing students to successfully complete the New Zealand Diploma in Engineering (NZDE).

Thirty students will spend two days a week at Wintec, taking half-year courses in Mechanical Engineering and Building and Construction. During the three days at school their Maths and Physics lessons will be delivered around an engineering context.

Project-based learning is a key component of the programme. At Wintec, the students will work on practical activities and get experience in using specialist machinery. They will develop a minibike in the Mechanical Engineering course and construct a sleep-out in Building and Construction.

School-based learning in Maths and Physics classes will focus on engineering-related projects rather than particular achievement standards. Assessment will be based on what the students are learning and will lead to NCEA achievement standards in those areas.

Secondary teachers will deliver the lessons, supported by a Wintec engineering tutor as they design the new courses. As well as meeting New Zealand Curriculum requirements, the courses will give students the knowledge and skills needed to start the NZDE programme in 2017.

www.engineeringe2e.org.nz/Employers/Case_study.cfm?ID=42

FIND OUT MORE...

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

of Engineering Technology (BEngTech) graduates, it will focus on alternative pathways into engineering careers. This involves raising awareness of these qualifications and career opportunities and trying to change the perceptions of prestige which have led to increasing enrolments in university engineering programmes and a corresponding decrease of enrolments in institutes of technology and polytechnics.

Engineering E2E is developing a range of communication materials with a broad discipline approach to showcase the remarkable things engineers do. These will be designed for employers and educators to use beyond the term of the campaign.

Engineering enrolments and qualification completion rates

ACTUAL ENGINEERING ENROLMENTS & QUALIFICATION COMPLETIONS 2008-14

| | EFTS Delivery | Qualification Completions |
|------|---------------|---------------------------|
| 2008 | 6,916 | 1,640 |
| 2009 | 7,504 | 1,727 |
| 2010 | 7,826 | 1,911 |
| 2011 | 7,782 | 1,939 |
| 2012 | 7,907 | 2,080 |
| 2013 | 8,228 | 1,983 |
| 2014 | 8,615 | 2,023 |

After two years of moderate increases in the number of EFTS (equivalent full-time students) delivered to engineering students in 2009 and 2010, there were two years of virtually no growth in 2011 and 2012. The numbers picked up in 2013, and have steadily grown since through to 2015.

Recently there has been a significant increase in enrolments in Level 8 (BE[Hons]), and in 2016 and 2017 we expect to see further increases in levels 6 (NZDE) and 7 (BEngTech) – the focus areas of the Engineering E2E programme.

Our projections for 2016 are for an increase of both EFTS delivery and qualification completions of around 5% each year. Partly as a result of the Make the World campaign, we hope to see a further increase in the EFTS delivery rate in the following year.

PROJECTED ENGINEERING ENROLMENTS & QUALIFICATION COMPLETIONS 2016-17

| | EFTS Delivered | Qualification Completions |
|------|----------------|---------------------------|
| 2016 | 9,679 | 2,266 |
| 2017 | 10,215 | 2,475 |

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

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