

IN THIS ISSUE ...

... we cover Engineering E2E's strategic update, and remind readers of the Our Progress web page, which diaries our latest initiatives. We also feature another of the many case studies you can find on our website.

ENGINEERING CHANGE, Engineering E2E's strategic update to the Minister of Tertiary Education, outlines what the Project has achieved to date, what we are doing right now, and, most importantly, what our Steering Group considers at this stage to be the initiatives that must be put in place in the short and immediate-term future to help ensure that the Government's goal of increasing engineering graduates to 500+ per annum from 2017 is achieved.

This is an important document, and I encourage all stakeholders to study it carefully (available at engineeringe2e.org.nz) and treat it as a call to further action.

It is also a living document and we look forward to your response. You may not agree with some of these recommendations, or think that perhaps they do not go far enough. You may have other initiatives you consider important.

The task in hand is ground-breaking. To achieve it will require input, universal agreement and activity from all levels of the engineering education and employment sectors.

To give your feedback, email us at engineeringe2e@tec.govt.nz.

SIR NEVILLE JORDAN
Chair, Engineering E2E Steering Group

Our past, present and future

The Engineering E2E strategic update *Engineering Change*, published in March, includes the following completed, current and on-going activities and recommends important actions (overleaf) for the immediate and long-term future.

	COMPLETED ACTIVITIES (to Feb 2015)	CURRENT + ONGOING ACTIONS
PROMOTION	ENGINEERING E2E FORMAL LAUNCH EVENTS (July/August 2014) Held in Auckland Hamilton and Wellington	WORKING WITH CAREERS INFORMATION PROVIDERS , such as CareersNZ and Futureintech, to ensure alignment
	ENGINEERING E2E WEBSITE LAUNCHED (August 2014) and developed over its first six months	
	ENGINEERING E2E MONTHLY NEWSLETTER ESTABLISHED (First issue August 2014)	ENGINEERING E2E WEBSITE: Continues to be developed as a resource for all stakeholders
	RESEARCH FIRST REPORT: ENGINEERING BARRIERS AND RESPONSES (October 2014) Research on barriers to the uptake of engineering study in New Zealand: Barriers in secondary education; Barriers in industry; Barriers in the tertiary space; Perceptions of engineering among students, parents, teachers and the public	ENGINEERING E2E MONTHLY NEWSLETTER: The newsletter has gained considerable traction, with good uptake by stakeholders
	MAKE THE WORLD: A discussion document for stakeholders that aims to distil the aspirations and future focus of the Engineering E2E project	
EDUCATIONAL DELIVERY	EXTENSIVE CONSULTATION WITH STAKEHOLDERS , including conference/forum attendance and Education Advisory Group meetings, to develop an understanding of activity in the sector, especially ITP actions and initiatives	CONTINUED CONSULTATION WITH STAKEHOLDERS
	NATIONAL ENGINEERING EDUCATION PLAN (NEEP) REFERENCE GROUP MEETING (19 November 2014): The first review of the NEEP (IPENZ 2010) by a reference group of employers, tertiary education and professional body representatives, which provided recommendations to help inform future engineering education funding decisions	CASE STUDIES OF GOOD PRACTICE IN ENGINEERING EDUCATION: Continued gathering and dissemination via the Engineering E2E website of good practice with regard education/industry links
	AKO AOTEAROA REPORT: IMPROVING PATHWAYS TO ENGINEERING TECHNOLOGY EDUCATION: Based on the Alternative Engineering Pathways Professional Forum (Nov 2014), interviews with students and other research, this report provides recommendations on how to improve pathways from school to tertiary to industry (particularly secondary-tertiary bridging and foundation courses) and how to address broader challenges to raising the profile of engineering in New Zealand	
	CASE STUDIES OF GOOD PRACTICE IN ENGINEERING EDUCATION: Gathering and dissemination via the Engineering E2E website of good practice with regard education/industry links	
EMPLOYER ENGAGEMENT	EXTENSIVE CONSULTATION WITH STAKEHOLDERS , including conference/forum attendance and meetings with professional group representatives and employers	EMPLOYER CONSULTATION WORKSHOPS: Pilot workshop to be held in Wellington in June
	CASE STUDIES OF GOOD PRACTICE IN THE ENGINEERING EMPLOYMENT SECTOR: Gathering and dissemination via the Engineering E2E website of good practice with regard to education/industry links	CASE STUDIES OF GOOD PRACTICE IN THE ENGINEERING EMPLOYMENT SECTOR: Continued development
OPERATIONS + POLICY	MONTHLY STEERING GROUP MEETINGS to provide governance and oversight	MONTHLY STEERING GROUP MEETINGS
	EARLY ENGAGEMENT WITH THE MINISTER	ENGINEERING CHANGE – STRATEGIC UPDATE (March 2015)
		USING ENGINEERING E2E KNOWLEDGE TO INFORM MINISTERS OF POTENTIAL ACTIONS

RECOMMENDED ACTIONS

Promotion

- **Develop and deliver a nation-wide awareness campaign** that: celebrates engineers and their achievements over a broad range of engineering disciplines; clarifies levels 6, 7 and 8 in terms of content and outcomes; and profiles Māori, Pasifika and women in the profession.

Educational Delivery – Secondary

- **Teacher education:** Identify and implement a range of strategies to improve the focus and relevance of science, maths and technology teaching in primary and secondary schools
- **Student achievement:** Identify and implement strategies to increase student achievement in science, maths and technology at all levels of primary and secondary schools
- **Secondary-tertiary transitions:** Work with secondary schools and TEOs (particularly ITPs) to develop practically-based engineering-related programmes in secondary schools (mostly Level 3), co-delivered by tertiary educators, to enable students to gain engineering prerequisite achievement standards through a practically-based programme
- **Develop engineering preparation courses:** Support is required for engineering educators to work proactively with industry, secondary schools and government agencies to develop a common set of flexible, multipurpose, mixed mode engineering-specific preparation courses or modules for secondary and tertiary students. These must be able to be used for preparation for engineering study while in school, as bridging programmes, and just-in-time refreshers/preparation for current students

Educational Delivery – Tertiary

- **Create a network of engineering educators** across all institutions that offer the NZDE, BEngTech and BE(Hons), to provide a forum to improve teaching and learning and share good practice
- **Establish a mixed-mode course initiative** – A research programme is urgently required to determine best



FEATURED CASE STUDY

DEFINING ENGINEERING ROLES BY QUALIFICATION

What skills can your engineering employees offer? It's important to have a sense of the skills your employees with different qualifications bring to your organisation. That way you can offer your workers the best experience, get the best out of them, and the best out of your workforce as a whole.

We talked to Chris Flynn, Senior Designer at Beca, about how his company recruits, makes use of and promotes its engineering staff.

engineeringe2e.org.nz/Employers/Case_study.cfm?ID=8



practice in mixed-mode (online and classroom) delivery, and to facilitate the development of new courses using methods recommended by this research

- **Demonstrate clear pathways:** Tertiary providers to collaborate with schools and careers information providers to demonstrate clear pathways from school to study and on to employment

Employer Engagement

- **Re-convene the NEEP Reference Group** to consider engineering employment targets based on the results of consultation
- **Implement actions resulting from employer consultation**
- **Promote recruitment and retention strategies to ensure diversity in the engineering workforce**

KEEP UP-TO-DATE WITH 'OUR PROGRESS'

Visit the Our Progress page on our website to find out the latest developments in the Engineering E2E Project and keep up-to-date with our initiatives.

See <http://engineeringe2e.org.nz/Progress>

We need you on the case...

Firstly, a huge thank you to everyone who has provided us with case study material. We now have a fascinating mix of stories of people and initiatives in both engineering education and employment.

We're still very keen to hear about any initiatives or promotional activities worth sharing – they could be something small we summarise in a paragraph or a complete case study – so please get in touch.

We're looking for stories about industry/education collaboration, recruiting/retaining staff or students, skills-

relevant delivery of courses or anything else you've heard about. The initiatives or activities don't need to have been 100% successful, as long as there is something we can learn from the example.

We're also interested in talking to New Zealand Diploma in Engineering and Bachelor of Engineering Technology students/graduates about their study or how they're applying their knowledge and skills in the workplace.

Email us at engineeringe2e@tec.govt.nz, or give us a call, phone **04-462 5256**.