WORK WITH US TO HELP CREATE THE ENGINEERING GRADUATES THAT NEW ZEALAND NEEDS

Thank you, Sir Neville

Founding chair of the Engineering e2e Steering Group Sir Neville Jordan stepped down at the end of last year. We'd like to thank him for his huge commitment in helping to create more engineering graduates.

Neville Jordan KNZM was appointed chair of the Engineering e2e Steering Group in 2014 at the outset of the programme.

He was responsible for working with the Steering Group to set Engineering e2e's strategic direction and to engage our stakeholders but, more than that, he set the tone of Engineering e2e's work.

Sir Neville's approach was to find opportunities for innovation and challenge the status quo. He encouraged risk-taking and expected things to get done. Not content just to guide the programme, he got involved: he completed micro-credentials to see how well they worked, visited engineering employers, gave presentations, judged our hackathons, supported our work with international organisations and made a guest appearance in the Institution of Fire Engineers video.

We hugely appreciate Sir Neville's infectious 'can do' approach to the programme, his wisdom and sound judgement. We can't thank him enough for his support over the past four years.

Five Engineering e2e micro-credentials pilots running in 2019

Last year, we funded eight feasibility studies on micro-credentials. This has resulted in five pilot programmes which are running this year.

Micro-credentials are packages of learning designed to meet specific learner needs. They are generally smaller than conventional qualifications and are emerging as an important part of the mix of alternative credentials. They validate skills and learning linked to specific workforce demands.

In 2017, Engineering e2e engaged with engineering education providers, employers of engineers, professional associations and policy agencies, and commissioned the research report **Micro-credentials: A model for engineering education** (July 2017). Last year, we funded eight feasibility studies on micro-credentials, resulting in five pilot programmes:

1. Strengthening a professional development system

The Electricity Engineers Association (EEA) is using a micro-credential to develop the next generation of professional engineers/technicians in line and cable design areas. EEA is working with employers, technical subject matter experts, micro-credential designers, other stakeholders and providers to deliver targeted, well-aligned credentials that address specific industry skills needs.

The pilot will also introduce employers to the opportunities around micro-credentials and how they could address skills gaps and strengthen the electricity supply industry's professional development system. It is hoped that micro-credentials will offer a broad mix of skill sets from a range of providers that deliver employers and learners a relevant and coherent programme of skills and current knowledge requirements.

The EEA's role in curation of learning will provide a more united, evolving approach to industry professional development.

The focus for this pilot is to codify and deliver specialised competencies and assessment around line/cable design.

2. MIT's Pasifika Pathway Project

The Pasifika Pathway Project is a partnership between the Manukau Institute of Technology (MIT) and AIMHI (Achievement in Multi-Cultural High Schools) – a group of nine decile one urban secondary schools with a large proportion of Māori and Pasifika students.

The Project sets up a bridging programme to prepare students for engineering education. The students' NCEA credits are assessed against the New Zealand Diploma in Engineering (NZDE) course to identify gaps in their knowledge of mathematics. To fill these gaps, four delivery models will be explored and implemented by the school teaching staff, MIT staff or a mixture of both.

The aim is to ensure a solid pathway is mapped out so that the students can progress into the NZDE programme – on successful completion, the students gain cross-credits towards the NZDE Engineering Mathematics course.

3. An alternative pathway for those unable to engage in on-campus courses

Unitec submitted a feasibility report on using micro-credentials to provide an alternative pathway for part of the NZDE (Civil) qualification. The report found that an alternative pathway had the potential to open up this programme to people who may be unwilling or unable to engage in on-campus courses.

Unitec's pilot comprises five three-credit micro-credentials recognising knowledge and capabilities in the design, construction and maintenance of urban roads. The micro-credentials will be online, on-demand and shareable. Learners can demonstrate competency through recognition of prior learning or through the completion of online learning resources. Assessors will review these and verify that the learner has demonstrated the related competency before awarding the micro-credential.

Those who complete all five micro-credentials will be able to sit the same exam as students enrolled at Unitec. Learners passing the exam can then receive a cross-credit to the equivalent course at Unitec.

4. Meeting the NZDE Graduate Attributes

Otago Polytechnic completed a feasibility study and a report on the use of micro-credentials in New Zealand engineering education and evaluated the appropriateness of Edubits – Otago Polytechnic's platform for delivery of micro-credentials – as a delivery mechanism.

The report identified several opportunities for Edubits to deliver micro-credentials, both within an NZDE framework and directly to industry. This included the development of the recognition and assessment of prior learning (RPL/APL) pathways to demonstrate the meeting of the NZDE graduate attributes, thereby opening access to those in the engineering industry wishing to obtain an NZDE.

Otago Polytechnic's pilot will involve the development of RPL/APL pathways, including the delivery of micro-credentials that allow candidates to demonstrate the attainment of graduate attributes.

5. I.AM badges for public works engineering

The Institute of Public Works Engineering Australasia NZ Division's (IPWEA NZ) pilot is a collaboration with employers of public works engineers and strongly supports their goal of addressing a skills shortage in the public works profession. IPWEA NZ will develop six I.AM badges – micro-credentials that demonstrate the development of distinct competencies aligned with the range of activities and roles in public works engineering. The design currently anticipates that learners will complete between 10-20 hours of learning for most micro-credentials.

IPWEA NZ plans to explore the use of existing platforms and qualification development expertise to develop online, on-demand micro-credentials. It also plans to offer an 'I.AM Accredited' badge that attests to the completion of a mix of I.AM micro-credentials.

Wellington Science Hackathon #2

A huge thank you to all who took part in the second Wellington Science Hackathon. The two-day hackathon for students from Wellington high schools and the local ICT graduate school was held at Victoria University of Wellington's School of Architecture and Design in December.

As with our first hackathon in February, each team had students from the high schools and the graduate school.

The students used their own skills and resources to develop solutions, supported by mentors who are experts in science, IT and team work.

It was absolutely inspiring to see the enthusiasm of our hackers and truly impressive to see what they achieved in two short days. The top prize went to a team of students from Taita College, St Bernard's College and the ICT-Graduate School.

e2e
ENGINEERING
EDUCATION TO EMPLOYMENT