

# The Secondary-Tertiary Pathways Projects

Engineering e2e is funding six collaborative initiatives between secondary and tertiary institutions to deliver programmes to prepare and pathway students into tertiary engineering study.

## Unitec's West Auckland Engineering Pathway initiative



Unitec Institute of Technology partnered with six West Auckland secondary schools and a number

of engineering firms to create a vocational pathway into engineering qualifications. The programme uses engineering problems to contextualise maths and physics, with courses co-created and co-delivered by secondary school teachers and Unitec staff.

It includes professional development for school Maths and Physics teachers. The programme will continue in 2018 and possibly extend to involve more schools. Unitec is running activities for Year 9-10 students this term, planned so that they can be easily replicated in schools next year.

## Ara Institute of Canterbury's in-schools programme



In 2016, staff from the Department of Engineering and Architectural Studies at Ara Institute of Canterbury taught

Electronics to Year 12 and 13 students at Papanui High School for two periods a week. The students visited Ara for two sessions a week, where they used the extensive electronics facilities. The programme uses hands-on electronic activities combined with relevant theory to engage students with the course material. In 2017, the programme expanded to include Christchurch Boys' High School and a one-day multi-school course.

Staff are considering how they might reach more schools and students in 2018, possibly by providing short modules, targeting younger students or co-teaching curriculum-related courses with teachers.

## WITT's NZDE course for students



The Western Institute of Technology at Taranaki's initiative gives Year 13 students the opportunity to study towards the

NZDE Engineering Fundamentals paper for half a day a week within school time, and achieve NCEA credits.

Staff are promoting the advantages of the NZDE, as an end in itself and pathway to higher qualifications, to students and teachers. WITT has established three new scholarships for course students who enrol in the NZDE.

A new engineering taster course was introduced for Year 11-12 students. It targeted girls' schools and was very successful, with careers advisors positive about the opportunity to promote engineering as a valid career option for their students.

## Otago Polytechnic's engineering modules



Otago Polytechnic is collaborating with local secondary schools and the University of Otago to develop engineering modules

that can be taught in NCEA Technology, Maths or Science classes. The first pilot modules have been trialled in classrooms and, when finalised, will be made freely available to schools throughout New Zealand.

An Engineering Technologies Information Day for Year 12-13 students was launched this year; it will be repeated next year with a similar event to be held in Central Otago.

## NorthTec's out-reach programme



NorthTec has focused on engaging students, teachers and parents with engineering. A series of engineering

taster events have helped raise awareness of engineering as a career and the NZDE pathway. A screening of the Dream Big movie followed by presentations from engineers was successful in enthusing students and parents, with five students subsequently enrolling for the NZDE and others contacting NorthTec to find out more about the programme.

In 2018, Year 13 students can study towards the NZDE Engineering Fundamentals programme and gain NCEA credits.

## Wintec's Year 13 PD and in-schools programme



Wintec trialled a successful engineering programme for Year 12-13 students in 2016, and modified

it to cover more engineering disciplines in 2017. Students from two schools attend Wintec two days a week and study Maths and Physics within an engineering context at school.

Staff trialled a Design Thinking for Educators course this year, preparing teachers to support students working on a Design Thinking Challenge. This includes input from industry, with students having to design a solution for a typical customer.

The team plans to offer the Integrated Engineering and Design Thinking programmes again in 2018. They have also run engineering taster days which could be delivered at the Wintec campus again or at schools.

## FIND OUT MORE...

Progress reports on all Engineering e2e initiatives can be found at [www.engineeringe2e.org.nz/Progress](http://www.engineeringe2e.org.nz/Progress)