

DEVELOPMENT OF MATHEMATICAL PATHWAYS FOR VET STUDENTS TO ARTICULATE TO RELATED HIGHER EDUCATION COURSES

Irene Penesis^a, Sue Kilpatrick^b, Robin Barnes^b, John Roddick^c, Bernardo León de la Barra^d, Shaun Belward^e, Karl Sammut^f

Presenting author: Irene Penesis (irene.penesis@utas.edu.au)

^aAustralian Maritime College, University of Tasmania, Launceston TAS 7250, Australia.

^bCentre for University Pathways and Partnerships, University of Tasmania, Launceston TAS 7250, Australia.

^cSchool of Computer Science, Engineering and Mathematics, Flinders University, Adelaide, SA 5001, Australia.

^dSchool of Engineering and ICT, University of Tasmania, Hobart TAS 7001, Australia.

^eSchool of Engineering and Physical Sciences, James Cook University, Townsville QLD 4811, Australia.

^fCentre for Maritime Engineering, Control and Imaging, Flinders University, Adelaide SA 5001, Australia.

KEYWORDS: mathematics, pathways, VET to HE, engineering

ABSTRACT

Australia needs more qualified professionals in the Science Technology Engineering and Mathematics [STEM] areas. The national focus on widening participation in higher education (HE) includes strengthening pathways from vocational education and training (VET) into higher education/university? VET students often lack the mathematics skills necessary to articulate successfully to [their chosen degrees – to higher degrees that require such skills?].

Current approaches such as bridging and foundation mathematics programs are not tailored or sufficiently contextualised for VET articulators. An Office for Learning and Teaching project focussing on developing contextualised mathematics pathways for four key disciplines (education, engineering, business and health science) to facilitate the transition from VET courses to higher education and increase student confidence and readiness was thus implemented. This project was led by the University of Tasmania and partners with Flinders University, James Cook University and the University of Notre Dame Australia. In the first year of the project (2013), mathematics pathways were developed for engineering and education, followed by business and health science in 2014.

This project was recently concluded and the pathway to engineering has been active for over a year. A formal articulation agreement has been established through TasTAFE and the University of Tasmania where current VET students are able to enroll in university foundation mathematics units and receive credit towards their VET diploma in engineering. In addition to the foundation units, the students are required to do an online component. This comprises selected compulsory topics which are not covered in the foundation units with supporting examples, practice problems, practical application and self-assessed quizzes for each mathematics topic covered in the foundation units. All elements are contextualised to engineering. VET students are applied learners and often struggle with the transition to HE. The online component of the pathway has been designed to support the student by providing the context to the mathematics they are learning. Another advantage of the pathway is that it exposes the VET students to HE units and the university environment while satisfying the university mathematics entry requirements.

This presentation describes the process of the pathway development and the opportunities for cross sectoral course support and delivery.

Proceedings of the Australian Conference on Science and Mathematics Education, Curtin University, Sept 30th to Oct 1st, 2015, page 54, ISBN Number 978-0-9871834-4-6.