Qualification Title: New Zealand Diploma in Engineering Practice (with strands in Civil Engineering, Electrical Engineering and Mechanical Engineering) (Level 6)

Qualification number: 1714

Date of review: 10 April 2017

Final decision on consistency of the qualification: National consistency is confirmed

Threshold:

The threshold to determine sufficiency with the graduate profile was determined as evidence of:

> a practising civil, mechanical or electrical engineering technician demonstrating the understanding, skills and attributes, stated in the Institution of Professional Engineers New Zealand (IPNEZ) Competence Standard[1], in well-defined engineering activities.

Tertiary Education Organisations with sufficient evidence

Final decision on sufficiency of education organisations evidence, will be updated as other education organisations show sufficient evidence

Tertiary Education Organisation	Final rating
Competenz	Sufficient
Connexis Infrastructure ITO	Sufficient

Introduction

The purpose of this Level 6 qualification is to provide the engineering industry with practicing engineering technicians who consistently apply understanding and skills to the industry standard, in either the civil, electrical or mechanical areas of practice. These are the three qualification strands: civil engineering, electrical engineering and mechanical engineering. Graduates require 120 credits to be awarded the qualification and unit standards are used to assess each graduate profile outcome. The New Zealand Board of Engineering Diplomas (NZBED) is the qualification developer and oversees national processes of moderation and programme review. NZBED is a collaboration between three industry training organisations (ITOs) and includes representation from employers in the civil, mechanical and electrical industries. A NZBED representative attended the review meeting. Two of these three education organisations had graduates in 2015 and 2016. One education organisation provided evidence of 64 individuals who had graduated with the qualification, while another

[1] The twelve graduate profile outcomes of this qualification are identical to the twelve standards of the Institution of Professional Engineers New Zealand (IPNEZ) Competence Standard.

had just two graduates. Both organisations verbally presented their case, supported by evidence, that their graduates had met the graduate profile outcomes. Representatives of three education organisations attended the meeting.

Evidence

The education organisations provided a range of evidence to demonstrate that their graduates met the graduate profile outcomes.

The criteria used to judge the evaluation question were:

- The nature, quality and integrity of the evidence presented by education organisation
- How well the organisation has analysed, interpreted and validated the evidence, and used the understanding gained to achieve actual or improved consistency
- The extent to which the education organisation can reasonably justify and validate claims and statements relating to the consistency of graduate outcomes, including in relation to other providers of programmes leading to the qualification

The key evidence provided included:

- Trainee data records listing the number of graduates, the qualification strands they completed and the infrastructure companies where they were employed at the time of their graduation.
- A memorandum of understanding describing the collaboration between the three ITOs to form the New Zealand Board of Engineering Diplomas (NZBED), including representation from employers in the civil, mechanical and electrical industries. The NZBED is responsible for national moderation processes and programme reviews.
- Detailed minutes of two NZDEP moderation meetings in 2016 attended by the lead moderator, the qualification developer and representatives of the industry training organisations, and most of the workplace assessors. The minutes recorded that peer moderation of the assessed samples from specific assessors took place; however, the results of the moderation were not recorded. Additional evidence has been provided that confirmed the results of the moderation meetings.
- Copies of the pre-moderated NZDEP Assessment Checklist and Results form and evidence portfolio template that a candidate receives, as well as one sample of a completed portfolio.
- A copy of the Consent and Moderation Requirements (CMR) for civil, electrical and mechanical engineering practices and the Programmes of Industry Training (PIT).
- Graduate feedback that mostly came from surveys, with survey questions directly mapped against the required graduate profile outcomes. The response rates to the surveys conducted by the two educational organisations were 2/2 graduates (100%) and 12/64 graduates (19%).
- Feedback from two businesses where the two graduates work from one education organisation. There was no direct employer feedback from the other organisation on their 64 graduates.

How well does the evidence provided by the education organisation demonstrate that its graduates match the graduate outcomes at the appropriate threshold?

There is strong evidence of generally highly effective processes in place to ensure the graduates match the graduate outcomes at the appropriate threshold.

The qualification requires all candidates to be assessed practising their craft as engineering technicians in an industry workplace. The twelve graduate profile outcomes are identical to the industry benchmark, the IPENZ Standard. All graduates were working in engineering technician roles when they graduated, where they are required to follow standard operating procedures.

The NZBED is an active and well organised national collaboration between the ITOs and key industry employers who all share a strong stake in the competence and consistency of the qualification graduates. There are clear procedures in place to ensure graduates meet the graduate outcomes. NZBED is responsible for moderation and reviewing programme materials and related activity.

There was good evidence provided that the processes are authentic, transparent and sound, the performance of assessors and the educational organisations was being regularly reviewed and the procedures were being improved over time. The assessment processes and training materials were all pre-moderated and being periodically reviewed. The candidates are required to submit a portfolio of their engineering practice (and supporting evidence) undertaken in their workplace to meet the twelve graduate profile outcomes. For one educational organisation peer post moderation of the sole active assessor confirmed the assessment judgments. For the other educational organisation, it was stated that 5 of the 9 assessors were moderated and their judgments were confirmed. Evidence was supplied that confirm this claim.

Graduate and employer feedback was the other key evidence collected that supported to varying extents that the graduates match the graduate outcomes at the appropriate threshold. For both education organisations the survey questions clearly mapped against the twelve graduate profile outcomes. For one organisation feedback was collected from both of their two graduates and their respective employers; the feedback from both stakeholders was mostly consistent and it expressed confidence or high confidence in the graduates' ability to meet all the graduate outcomes. This is strong evidence that supported well the formal assessment results. For the other tertiary educational organisation 12 of the 64 graduates (19%) completed an online survey; this evidence provides a useful indication of the graduate views. The graduates expressed confidence they met all the graduate outcomes. There was no feedback from their employers which is a significant but not serious gap in this case, given the clear and real world evidence that graduates were assessed in the work place carrying out well defined engineering activities and were working in an engineering technician roles The tertiary educational organisation has plans in place to improve the quality of this feedback, particularly to increase the response rate of this feedback

Examples of good practice

- The New Zealand Board of Engineering Diplomas (NZBED) collaboration provided effective oversight of this qualification by the key industry stakeholders. The effectiveness of the structure is reflected in the range of processes in place, active participation in moderation meetings and various examples of ongoing improvements. This arrangement provided a high level of confidence in the moderation processes and the validity of the assessment results.
- Survey questions, for both the employer and graduates, were mapped in matrix against the graduate profile outcomes. In one case the graduate and employer ratings of confidence, that the graduates matched each of the graduate outcomes were compared, this provided well triangulated evidence.

Recommendations to Qualification Developer

There were no formal recommendations to the qualification developer.