Qualification Title: New Zealand Certificate in Applied Science (Level 3)

Qualification number: 2550

Date of review: 1 April 2019

This report refers to graduates awarded this qualification prior to: **31 December 2018**

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:

Graduates of this qualification will be able to, under supervision, in a science, technology, engineering and/or mathematics-related workplace;

- Apply scientific principles and collect, record, and process data to carry out basic tasks in an operational context, and
- Work collaboratively in a team and meet health and safety responsibilities.

Education Organisations with sufficient evidence

Education Organisation	Final rating
Wintec	Sufficient

Introduction

The purpose of this 60 credit, Level 3 qualification is to provide individuals with introductory operational and theoretical knowledge in science, technology, engineering and mathematics for employment and/or progression to higher level qualifications.

Graduates of this certificate can work with supervision as assistants in entry-level operational positions in science, technology, engineering, and/or mathematics-related fields of work including manufacturing and regulatory industries, and field work. This qualification may lead to further study in higher level qualifications in a wide range of technology, engineering, health or science-related disciplines.

Ara Institute of Canterbury is the qualification developer for this qualification and will be leading a review of this qualification later this year. A representative from Ara participated in the Consistency Review meeting.

During the graduate reporting period (1 January 2104 to 31 December 2018) one education organisation delivered a programme of study leading to the award of this qualification, and had 21 graduates in 2017, and 12 in 2018, 33 in total. The programme has two streams, science and engineering, providing a pathway to either; Diploma in Applied Science (Level 5); Bachelor of Engineering Technology (Level 7); or New Zealand Diploma in Engineering (Level 6). There were 17 graduates in the engineering steam and 16 in the science stream.

Evidence

The education organisation 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 the 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

Programme evidence

This qualification includes a range of mandatory conditions relating to the Graduate Profile - programmes must include a wide range of disciplines, basic protocol that are to be followed, and basic scientific calculations. The organisation provided evidence of how these conditions were met through their course content and range of assessment practices. They also detailed the range of practical and workplace related activities provided for students to gain experience of applied science workplaces.

Evidence of the graduate outcome mapping was provided, clearly showing how these were mapped to the modules, learning outcomes and the related assessment matrix.

Internal Moderation activities including pre-teaching (content), pre-assessment and post assessment moderation (assessments worth 10% or more) were described and samples of moderated material and scripts were supplied. These clearly indicated areas of good practice and improvements that had been implemented. It was acknowledged that moderation of off-campus delivery (including students' scripts) was an area for improvement. External Moderation had not been conducted, however is planned.

Graduate destinations and feedback

Graduate destination data shows that 15 out of 17 engineering graduates went on to study higher engineering qualifications, and 9 out of 16 science graduates went on to study higher science qualifications at the organisation. The remaining graduates did not pursue further study, and there was no detail provided about their destinations.

A graduate survey was conducted, with questions addressing readiness for further study and levels of confidence and readiness for each of the qualification's three GPOs, using a 6-point scale. Whilst the survey had a low response rate (12%) with 4 of the 33 graduates completing the survey, the additional comments with each question added some richness to the results. The responders considered they were well prepared for further study (mean score 4.75), and rated their overall satisfaction with the Certificate, as high (mean score 5.50). Results at GPO level showed consistent levels of confidence and/or readiness (mean scores 4.25, 5.00 and 5.00 respectively).

Next user feedback

Tutors delivering the pathway qualifications into which graduates progressed were surveyed using the same survey. With 13 tutors responding to this survey, results are representative of the graduates, and were able to be compared to the graduate's responses and results.

Tutors rated the graduate's readiness for the higher-level programme as being well prepared (mean score of 4.69), however there was a great range of scores (from 3-6 on the scale with a SD of 1.18) than graduate's ratings of themselves. Overall satisfaction with performance of the graduates was good (mean 4.77). At the graduate outcome level tutors generally rated their students (graduates) slightly higher than the gradates rated themselves. Commentary from next users (tutors) supported their ratings, confirming that graduates were good at analysing, problem solving and applying skills they had learnt, were prepared in terms of working collaboratively and meeting health and safety responsibilities.

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

Overall, the self-assessment undertaken by the organisation of their evidence, supported by a well-structured presentation at the review meeting, and the clarification of moderation practices post the meeting, provides a convincing case that the graduates match the graduate outcomes at the appropriate threshold.

The organisation used a good range of programme evidence; including mapping of learning outcomes and assessments to the graduate profile outcomes which provided assurance that graduate outcomes were well covered, and that by meeting all the learning outcomes of the modules, graduates are also meeting the graduate outcomes; confirmed qualification conditions were being met; and moderation activities and results provided confidence in the quality of assessment, the ongoing enhancement to course material, assessments and tutors marking.

The programme evidence was supported by and triangulated with, survey results and feedback from both graduates and next users (tutors of the higher-level engineering and science programmes at the organisation). Whist the graduate survey response rate did not adequately represent the whole cohort of graduates, the much higher response rate from tutors, and comparison of results with graduates' results, provided more robustness and confidence in the stated preparedness and confidence levels of the graduates. Survey results were well analysed and presented, both in the submission and presentation.

A range of improvements had been identified by the organisation including changing the timing of survey administration to increase response rate, examining the success rate of graduates in the higher-level pathways, and comparing these entering directly into these qualifications. Improvement strategies were expanded on in the post-review reflections.

Special Focus (includes special focus on a strand or outcome)

None

Examples of good practice

None

Issues and concerns

None

Recommendations to Qualification Developer

No recommendations were made at the Consistency Review