Qualification Title: New Zealand Certificate in Applied Science (Level 4)

Qualification number: 2551

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;

- Apply scientific principles and collect and examine scientific data to carry out routine tasks, with supervision, in an operational and/or research context.
- Contribute collaboratively to a team in a science, technology, engineering, and/or mathematics environment
- Apply health and safety principles relevant to a science, technology, engineering, and/or mathematics environment.

Education Organisations with sufficient evidence

The following education organisations have been found to have sufficient evidence.

Education Organisation	Final rating
Waikato Institute of Technology	Sufficient
Real World Education	Sufficient
Universal College of Learning	Sufficient

Introduction

The purpose of this 60-credit, level 4 qualification is to provide individuals with broad operational and theoretical knowledge in science, technology, engineering, and/or mathematics for employment and/or progression to higher level qualifications.

The qualification will also identify for the science, technology, engineering, and/or mathematics related sectors in Aotearoa New Zealand those employees who are able to work with broad supervision in entry-level operational positions in manufacturing and regulatory industries, field work, research and development.

The qualification leads to the New Zealand Diploma in Applied Science (Level 5) [Ref: 2552] and further study at levels 5, 6 or 7 in a wide range of technology, engineering, health or science-related disciplines. Graduates of this certificate can work with supervision in entry-

level positions in science and technology-related files of work including manufacturing and regulatory industries, field work, research and development.

The qualification document states that this qualification builds on New Zealand Certificate in Applied Science (Level 3), and it is recommended candidates hold a Level 3 qualification in science, although the Level 3 is not a stated pre-requisite for this Level 4 qualification.

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) three education organisations delivered programmes of study leading to the award of this qualification, and they had a total of 41 graduates between them.

One organisation used the qualification in 2017 and 2018 to prepare students for higher levels of study in engineering but has now discontinued this due to continued low enrolments, using the Level 3 as an alternative pathway programme. They had 10 graduates over this two-year period.

Another organisation used this qualification in 2016 to provide preparation for students to higher levels of study. Once the NZ Certificate in Study and Career Preparation became available, they converted to that qualification and therefore only had one cohort of graduates (6 graduates).

The other organisation, which offers specific training for School Science Laboratory Technicians and for Laboratory Skills, has aligned their programmes to this qualification, and has had 25 graduates during the reporting period.

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 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 outcomes e.g. graduate profile outcome one - programmes must include a wide range of disciplines, basic protocol that are to be followed, and basic scientific calculations. Two of the participating organisations provided evidence, in their post meeting submissions, 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 by two organisations, clearly showing how GPOs mapped to the modules, learning outcomes and the related assessment matrix.

The specialised education organisation demonstrated how their programme was aligned to the relevant Codes of Practice for the areas their programmes were designed for and offered detailed explanation of their delivery and improvements based on student feedback via exit interviews.

Whilst moderation activities were being undertaken by the education organisations (mostly internal), evidence of how the results were used to strengthen the quality of assessment material and tutor practices did not feature in the submissions.

Graduate destinations and feedback

All three organisations provided evidence of graduate destinations, some more detailed than others. For those offering this qualification as a pathway to higher learning, 7 of 10, and 5 of 6 graduates progressed to higher level study at their institutions. Success rates and/or progress to date in the higher-level programme was provided by one organisation, during their presentation. The other organisation stated that 92% of their graduates were in employment in science-related workplaces, and in some cases had received promotions or increased responsibility as an outcome of completing the qualification, however this was not supported by details of how this feedback was collected, and from which employers.

Two organisations had surveyed their graduates about their satisfaction levels with qualification and the preparedness with graduate profile outcomes. One had a 50% response rate (3 out 6) with a generally positive result, the other had only one response from their 10 graduates and acknowledged that this was not representative.

Employer and next-user feedback

Two of the organisations had surveyed next-users (4 tutors, and 5 tutors) using the same survey questions as for their graduates, and triangulating this with results from graduates.

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 three organisations of their evidence, supported by their presentations at the meeting and post-review reflections and additional evidence, demonstrates that their graduates meet the graduate outcomes at the determined threshold.

The range of programme evidence presented, including mapping of GPOs to learning outcomes and assessment, strategies used to enhance content and delivery based on student feedback, and internal moderation activities, provides confidence that the programmes covered the graduate profiles outcomes well.

Graduate survey results, with questions relating to graduate profile outcomes, supported claims that graduates had met the outcomes, and were strengthened when triangulated with the tutors of the higher-level programmes' responses to the same survey. Results showed high levels of satisfaction with graduate preparedness and overall performance of the programme.

Graduate destination information demonstrated the majority of graduates had followed the qualification's stated education or employment pathways.

The organisations identified where they had evidence gaps and generally presented effective strategies for addressing these gaps in the future, or should the programme be offered again.

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 specific recommendations were made to the Qualification Developer. The organisations participating in the Consistency Review expressed interest in having input into the upcoming review.