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

Qualification number: 2612

Date of review: 06 June 2024

This report refers to all graduates awarded this qualification in the period **1 January 2018** to **31 December 2023**

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 who, operating at a technician level scope of practice as outlined by the Dublin Accord (International Engineering Alliance, 2002), are able to:

- perform technical operations to the standards, ethical and professional responsibilities required by the engineering profession
- work collaboratively within team environments to provide a comprehensive engineering service in the relevant specialist area
- carry out activities as an engineering technician while applying the principles of the Health and Safety at Work Act 2015, the Resource Management Act 1991 and the Treaty of Waitangi, as relevant.

Graduates of the Civil Engineering strand will also be able to:

- apply engineering theory to practice when working within well-defined engineering problems[1] relevant to their specialist field of civil engineering
- apply engineering knowledge to make informed problem-solving decisions in civil engineering and to implement these decisions
- identify, evaluate and manage risks within well-defined engineering problems relevant to the field of civil engineering.

Graduates of the Electrical Engineering strand will also be able to:

- apply engineering theory to practice when working within well-defined engineering problems relevant to their specialist field of electrical engineering
- apply engineering knowledge to make informed problem-solving decisions in electrical engineering and to implement these decisions
- identify, evaluate and manage risks within well-defined engineering problems relevant to the field of electrical engineering.

[1] Well-defined engineering problems can be solved in standardised ways, are frequently encountered and hence familiar to most practitioners in the specialist area, have consequences that are locally important but not far-reaching and can be resolved using limited theoretical knowledge but normally require extensive practical knowledge.

Graduates of the Electronics Engineering strand will also be able to:

- apply engineering theory to practice when working within well-defined engineering problems relevant to their specialist field of electronics engineering
- apply engineering knowledge to make informed problem-solving decisions in electronics engineering and to implement these decisions
- identify, evaluate and manage risks within well-defined engineering problems relevant to the field of electronics engineering.

Graduates of the Mechanical Engineering strand will also be able to:

- apply engineering theory to practice when working within well-defined engineering problems relevant to their specialist field of mechanical engineering
- apply engineering knowledge to make informed problem-solving decisions in mechanical engineering and to implement these decisions
- identify, evaluate and manage risks within well-defined engineering problems relevant to their field of mechanical engineering.

Graduates of the Fire Engineering strand will also be able to:

- apply engineering theory to practice when working within well-defined engineering problems relevant to their specialist field of fire engineering. apply engineering knowledge to make informed problem-solving decisions in fire engineering and to implement these decisions
- identify, evaluate and manage risks within well-defined engineering problems relevant to their field of fire engineering.[2]

Education Organisations with sufficient evidence

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

MOE Number	Education Organisation	Final rating
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Manukau Institute of Technology (6010)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Unitec (6004)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Wintec (6019)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as WelTec (6008)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Nelson Marlborough Institute of Technology (6011)	Sufficient

[2] Note that this threshold statement is drawn directly from the graduate profile outcomes of version 3 the qualification as review participants agreed that they were all relevant and of importance.

6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as NorthTec (6012)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Otago Polytechnic (6013)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as UCOL (6009)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Southern Institute of Technology (6015)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Toi Ohomai Institute of Technology (6025)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Ara Institute of Canterbury (6006)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Western Institute of Technology at Taranaki (6017)	Sufficient
6683	Te Pūkenga - New Zealand Institute of Skills and Technology trading as Open Polytechnic of New Zealand (6022)	Sufficient

Introduction

The New Zealand Diploma in Engineering with strands in Civil Engineering, Electrical Engineering. Electronic Engineering, Mechanical Engineering and Fire Engineering (Level 6) (version 3) is a 240-credit qualification intended to provide the engineering industry with engineering technicians specialised in their respective fields (refer to the 5 strands above).

There have been 1699 graduates in the reporting period of 2018-2023.

There were thirteen tertiary education organisations (TEOs) with graduates, which were represented in an online consistency review meeting.

Vocational Engineering Education New Zealand Incorporated (VEENZ) is the qualification developer who were represented in the consistency review. Following the development of the first version of this qualification in 2015, VEENZ developed a national curriculum document, and this has become the single approved programme of study leading to the award of the qualification for all education organisations accredited to offer this curriculum. This curriculum is supported by a handbook providing guidance for organisations as they deliver their programmes of study.

In addition to governance, VEENZ also provides guidance for and management of the educational quality of the unified diploma system by accrediting the education organisations who award this qualification and managing the external moderation of assessments.

While the civil engineering field has been the recipient of the largest number of these graduates, the electrical, electronic and mechanical engineering specialist fields have all had graduates from the programme/strands. The newest strand, added in version 2 of the qualification, Fire Engineering, is delivered by only one TEO and has had two graduates.

TEOs reported that their graduates were both domestic and international students. Most TEOs reported that some of their students were working in the engineering industry and studying the qualification part-time.

Evidence

The TEOs presented 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 TEO 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.

Evidence provided included:

- confirmation that each TEO has a coherent programme of study, ensuring that all programme components and assessments align with and lead to the graduate profile outcomes (GPOs) – see comments above that all TEOs deliver a unified programme
- evidence of internal and external moderation activities that assured that the programme was assessed at an appropriate level
- records of feedback from graduates, employer organisations, and next level tutors supporting that the programmes had provided students with a range of skills aligned to the graduate profile outcomes and appropriate to a technician-level role in the engineering industry.

How well does the self-assessment and supporting evidence provided by the education organisations demonstrate that its graduates match the graduate outcomes at the appropriate threshold?

The TEOs provided good evidence related to the alignment of their approved programme of industry training with the GPOs, and of the quality and suitability of the programme and assessments in terms of supporting the consistency of the graduate outcomes. Given that all TEOs deliver a unified programme, quality assured by VEENZ, this evidence was similar for each TEO.

Evidence relating to assessment and moderation was strong, demonstrating good internal and external moderation processes facilitated by VEENZ.

Graduate engagement supported the premise that graduates had gained, and were using, the skills and knowledge outlined in the graduate profile outcomes. Most graduates who responded to surveys continued to work in roles that required the application of the skills and knowledge required by the GPOs.

Feedback from employers indicated that they are satisfied that the graduates met the graduate profile outcomes and were proficient at their job at the completion of the qualification.

Several TEOs also offer the Bachelor of Engineering Technology (BEngTech), into which some graduates have progressed. Feedback from BEngTech tutors provided confidence that graduates who enrolled in further study were well-prepared and met the GPOs.

Overall, the self-assessment and supporting evidence supplied by the TEOs demonstrated that their graduates meet the graduate outcomes at the determined threshold.

Good Practice

The VEENZ collaboration and structure provides an effective oversight of this qualification by the key industry stakeholders. The effectiveness of the structure is reflected in the range of quality assurance processes in place, the providers' active participation in meetings and the various examples of ongoing improvements with curriculum and assessments. This arrangement provided a high level of confidence in the moderation processes and the validity of the assessment results.

Special Focus

None

Issues and concerns

None

Recommendations to Qualification Developer

None