Programme of Industry Training Details

NZQA has approved the programme of industry training in line with NZA requirements.			
ITO name	Infrastructure ITO	**MoE number**	8136
Programme of Industry Training Title	New Zealand Certificate in Wind Farm Maintenance (Level 4)	**Programme ID**	123457
Level	**4**	**Credits**	**232**
NZSCED code and classification			
031399	Engineering and Related Technologies > Electrical and Electronic Engineering and Technology > Electrical and Electronic Engineering and Technology not elsewhere classified		
Qualification to which the programme leads			
New Zealand Certificate in Wind Farm Maintenance (Level 4) [Ref: 3793]			
Aim of Programme of Industry Training			
This apprenticeship programme is designed to provide the electricity generation sector with graduates who have the technical and theoretical knowledge and experience of wind turbine maintenance to work safely and independently, meeting legislative requirements and industry standards on a wind farm. This programme is suitable for people with a trades background in electrical, mechanical and hydraulic areas. The graduate will be able to work safely and independently while taking responsibility for their own work and that of others.			
Entry Requirements			
New Zealand Certificate in Electricity Supply (Introductory) Level 2 with strands in Electricity Supply and Telecommunications [Ref: 2136], or demonstrate equivalent knowledge and skills.			
Learning Outcomes and programme outline			
The learning outcomes in this programme are the graduate outcomes of the qualification. This programme takes the form of mandatory unit standards in an individual training plan developed between the trainee, their employer and training advisor. The programme has been			

designed for self-paced on-job learning plus a combination of either: block courses with distance delivery with a provider; or off-job self-paced learning with trainee notes developed by Connexis.

There is no specific sequence of delivery for this programme, recognising the order in which learning opportunities arise may vary for individual trainees. It should be noted that expected total study hours are indicative only, as this is self-paced learning, and therefore the time required will also vary between individuals.

The unit standards listed in this document form a coherent programme endorsed by industry as appropriate, by laying generic foundations for wind farm maintenance work for electricity generation using wind turbines and aligns with the Global Wind Organisation standard for Basic Maintenance Training (BMT) for onshore or offshore wind farm generators. It ensures that graduates will work in accordance with the health and safety requirements while carrying out wind turbine maintenance on a wind farm. Trainees will complete work integrated and authentic learning which will ensure that the various components of the programme are relevant to current industry practices.

Learning will have both a theoretical and practical focus throughout the programme with assessments taking place on-job and off-job.

The programme will maintain currency with amendments to, and replacements of, relevant legislation, regulations, rules, and the Global Wind Organisation's standards that apply to wind farm technicians.

Evidence requirements for assuring consistency

Core evidence requirements for demonstrating consistency for the qualification will include:

- An audit trail of graduate programme results and subsequent employment outcomes.
- Evidence of employer support of the graduates of the programme and their feedback that the graduates display the graduate profile outcomes.

Assessment standards

Outcome	Assessment standards
1 Service and maintain electrical, mechanical and hydraulic systems in wind turbines in compliance with industry standards and asset owner's specifications. 105 credits	3271 Suppress fire with hand extinguishers and fixed hose reels (L2 C1) 3789 Sling varied regular loads and safely direct a crane during crane operations (L3 C15) 30072 Demonstrate and apply knowledge of slinging regular loads safely (L3 C14) 15757 Use, install and disestablish temporary proprietary height safety systems when working at height (L3 C4)

	23229 Use safety harness system when working at height (L3 C4) 17599 Plan a confined space entry (L4 C5) 25510 Operate an atmospheric testing device to determine a suitable atmosphere exists to work safely (L3 C4) 10509 Climb and work on electricity network structures (L3 C6) 17025 Carry out a rescue from an electrical structure (L3 C2) 28885 Demonstrate and apply knowledge of electrical legislation, regulations and codes of practice for substation maintenance (L4 C8) 28894 Plan and carry out low voltage (LV) and extra low voltage (ELV) electrical installations to substation equipment (L4 C4) 19950 Use test instruments and carry out electrical testing in the electricity supply industry (L3 C3) 23896 Demonstrate knowledge of electrical circuit protection for distribution networks (L4 C4) 28193 Use drawings, sketches, schedules and specifications in the electricity supply industry (L3 C3) 28895 Maintain substation earthing and bonding (L3 C3) 19323 Demonstrate knowledge of single and three phase transformers used in the electricity supply industry (L3 C4) 29483 Demonstrate and apply knowledge of single-phase and three-phase rotating machines (L3 C4) 19479 Use SCADA to manage the power system (L3 C5)

		27654 Demonstrate knowledge of SCADA systems in the Electricity Supply power system (L3 C2) 30812 Demonstrate knowledge of sensor types used on wind generation equipment (L4 C10)
2	Diagnose and rectify electrical, mechanical and hydraulic faults with wind turbines in compliance with industry standards and asset owner's specifications. 125 credits	2395 Demonstrate and apply knowledge of the selection, use, and care of engineering hand tools (L2 C4) 2408 Align mechanical machinery (L4 C6) 2409 Level mechanical machinery (L3 C3) 4435 Select, use, and care for engineering dimensional measuring equipment (L2 C3) 2727 Service hydraulic power system components under supervision (L3 C20) 2731 Service hydraulic power system components (L4 C20) 20611 Demonstrate knowledge of hydraulic power systems (L3 C5) 30438 Dismantle, inspect, and assemble component parts within assemblies (L3 C6) 30813 Carry out fault finding and maintenance of generation plant and auxiliary equipment used in wind turbines (L4 C15) 30814 Carry out fault finding and maintenance of mechanical systems used in wind turbines (L4 C15) 30815 Demonstrate knowledge of wind turbine power control systems, and hazards associated with wind turbine installations (L4 C15) 30816 Demonstrate knowledge of hydraulics used in wind turbines (L4 C15)

Training arrangements and support
The programme is intended for both on- and off-job delivery for trainees. Some standards will be assessed off-job in a block course with a provider. On-job component will include learning under guidance with a supervisor and workshops for practicing the wind farm core skills and knowledge. Each trainee will engage with a training advisor who will, together with the trainee and employer, develop a training plan as part of the training agreement with the trainee. The trainee will have regular support and guidance sessions with the training advisor throughout the programme. The on-job component will include learning under guidance with a supervisor and assessed by a Connexis registered work place assessor. The cranes unit standards 3789 and 30072; and electricity supply industry standards 28885 and 28895 will be delivered and assessed off-job. Off-job delivery will be through provider block courses with distance delivery or by self-paced learning using Connexis developed trainee notes and assessed by a Connexis registered work place assessor. Trainees will be provided with sufficient information about Connexis including: programme and qualification requirements; induction; rules and regulations; withdrawals; assessment and appeals; health and safety; complaints and disciplinary procedures. There are comprehensive internal quality assurance systems in place to monitor and manage the national consistency of graduate outcomes as delivered by this programme. This evidence will be gathered from students and employers through customer collaboration and feedback in accordance with the requirements specified in the programme. The training advisor will provide regular feedback and guidance to the trainee and employer to ensure programme completion progress is being meet in line with Connexis's Quality Management System.
Assessment methods
The Quality Management System is in place to ensure that the assessment procedures are fair, valid, consistent and appropriate. Connexis is committed to resourcing the programme with staff who can develop assessment tools and schedules to meet external moderation standards. All assessment tools, available to both the students and the assessors, including workbooks and manuals, are all pre-moderated prior to being made public. This process forms part of the ITO's systems as the standard setting body for the electricity supply industry. Formative (informal) assessment is an integral and vital part of the teaching strategy, which provides feedback to learners. This is an on-going process of monitoring learner progress and could take different forms. This form of assessment is predominantly used in the on-job assessed unit standards. Summative (formal) assessment is a measure of the learner's achievement against the individual course purpose and its learning outcomes. A range of assessment methods, consistent with the teaching and learning methods, has been incorporated into the modules to ensure that all the intended outcomes of the programme are addressed and that assessment is valid, reliable and appropriate. These methods include written tests and practical demonstration assignments. This form of assessment is predominantly used in the off-job assessed unit standards.

The required standards for the assessment are clearly specified in relation to each Unit Standard in the programme. Trainees are provided with fair and regular feedback on progress and fair reporting on final achievement through current policies and procedures of the quality management system.	
Indicative duration of Programme of Industry Training	
Number of months	30 months
Total learning hours	2320