

Programme of Industry Training Details



NZQA has approved the programme of industry training in line with NZA requirements			
Provider name	Apprentice Training New Zealand 2010 Trust		MoE number 7741
Programme of Industry Training Title	New Zealand Apprenticeship in Engineering Fabrication (Trade) (Level 4) with strands in Heavy Fabrication, Light Fabrication, and Steel Construction		Programme ID 127679
Level	4	Credits	255 – 270 (depending on strand)
NZSCED code and classification			
030711	Engineering and Related Technologies > Mechanical and Industrial Engineering and Technology > Boiler-making and Welding		
Qualification to which the programme leads			
New Zealand Certificate in Engineering Fabrication (Trade) (Level 4) with strands in Heavy Fabrication, Light Fabrication, and Steel Construction [Ref: 2719-1]			
Aim of Programme of Industry Training			
<p>The purpose of this programme is to provide the engineering fabrication industry with skilled tradespeople who are able to safely and independently perform fabrication tasks within their chosen discipline, to industry standards.</p> <p>This programme is designed for people working in the industry and will typically be achieved in a workplace environment whilst completing a New Zealand Apprenticeship.</p>			
Entry Requirements			
<p>It is recommended, but not required, that people enrolling in this programme hold the National Certificate in Education Achievement (NCEA) Level 2 [Ref: 0973] or equivalent.</p> <p>People enrolling in this programme must hold a relevant position in Engineering Fabrication</p>			

(Trade) organisation and have signed an apprenticeship training agreement.

Learning outcomes and programme outline

The learning outcomes in this programme are the graduate outcomes of the qualification.

This programme will enable apprentices to gain broad knowledge and skills relevant to their chosen strand in the engineering fabrication (trade) discipline.

The relevant skills and knowledge are defined by the graduate outcomes of the qualification. Graduates of this programme will be able to:

- Apply an understanding of the relevant Health and Safety legislation and workplace safety culture in order to work safely and meet responsibilities in a commercial engineering fabrication environment
- Interpret drawings and/or specifications and select and use the appropriate fabrication materials, processes, tools and equipment for the task being undertaken
- Apply relevant knowledge of fabrication principles and practices, and problem solving skills, to perform engineering fabrication tasks to industry standards
- Apply knowledge of welding to safely weld to an appropriate industry standard in a commercial engineering fabrication environment
- Apply an understanding of effective and efficient processes and principles, and quality systems to the fabrication of components and/or provision of services in a commercial engineering fabrication environment
- Practice effective communication within an engineering fabrication team and the wider workplace
- Recognise the limits of own ability and the importance of working with integrity and maintaining currency in the engineering fabrication field

Graduates of the Heavy Fabrication strand will also be able to:

- Produce a range of heavy fabricated products, including trucks and trailers, earthmoving machinery, manufacturing equipment, and pressure vessels from heavy gauge plate, sections, and pipes using the appropriate tools and current relevant techniques

Graduates of the Light Fabrication strand will also be able to:

- Produce a range of light fabricated products such as ducting, architectural fixtures, and balustrading from light gauge sheet, sections, and pipes using the appropriate tools and current relevant techniques

Graduates of the Steel Construction strand will also be able to:

- Produce and install a range of structural steel elements for building and civil engineering projects, using the appropriate tools and current relevant techniques

Unit standards have been assigned to meet the graduate profile outcomes and all conditions specified within the qualification. Employers are encouraged to support learners to complete the unit standards in the sequence identified, however it is recognised that this may vary as operational requirements of the employer may result in learners acquiring skills and knowledge in a different order. The variation to assessment is limited by critical health and safety prerequisites as identified on unit standards.

It is expected that fundamental health and safety awareness will be a focus at the start of the programme through the completion of the health and safety unit standard and further embedded in all on-job and off-job learning throughout the duration of the programme.

It is also expected that employers comply with all relevant employment, health and safety, privacy and human rights legislation. This is achieved through provision of an adequate induction into the job, appropriate supervision and a safe working environment for the apprentice.

This programme is delivered over four years, and during that period the training will prepare apprentices for the achievement of all outcomes at Level 4. Apprentices undertake lower level unit standards towards the start of their training as the foundation of their apprenticeship. These standards contain the underpinning knowledge and skills that are fundamental to their development, and support the later achievement of the more specialised technical skills and knowledge.

By the time the apprentice has completed their apprenticeship they will be applying these skills and knowledge to satisfactorily perform all of the competencies required at the level of the qualification.

NZQA QUAL Rules Group Setup

To allow for the transition of graduates of the New Zealand Certificate in Mechanical Engineering (Level 3) [Ref: 2715] from learning outcome/component-based programmes, into this unit standard based apprenticeship, the NZQA Rules group for Qual Checking [Ref: 2719] have identified unit standards totalling 60 credits as being aligned to these component-based programmes.

The unit standards were determined by Te Pūkenga Work Based Learning Limited - Competenz Division on 30/07/2018, and are listed here:



2719 - Unit
Standards.docx

Apprentice Training New Zealand must confirm that the New Zealand Certificate in Mechanical Engineering (Level 3) [Ref: 2715] have been achieved and that these units listed will be the only units not achieved by these learners, prior to requesting an NZQA Qual Check verification for [Ref: 2719].

Once this condition has been met, NZQA will be then asked to award the qualification

manually.

Please note that this has reduced the overall credits required for learners who meet this condition to 195-210, rather than 255-270 credits as per the listed qualification.

Assessment standards aligned with qualification outcomes

Some unit standards in this programme apply to more than one outcome. These unit standards will provide partial credit to each applicable outcome, totalling the value of the unit standard. The credit value is **not** counted in full against each outcome it applies to.

A unit standard and its credits can only be counted once towards the programme. Unit standards with partial credits are denoted in both the Assessment standards number and Credit columns in the table below.

Core Outcomes	Assessment standards	Level	Credit	
Outcome 1 Apply an understanding of the relevant Health and Safety legislation and workplace safety culture in order to work safely and meet responsibilities in a commercial engineering fabrication environment Credits 15	21911	Demonstrate knowledge of safety on engineering worksites	2	2
	21912	Apply safe working practices on an engineering worksite	2	2
	29650	Demonstrate knowledge of the safe use of powered equipment in a mechanical engineering or fabrication workshop	2	2
	29651	Demonstrate knowledge of health and safety when welding and thermal cutting	2	3
	29652	Demonstrate knowledge of safety, health, risk assessment, and hazard ID and control on an engineering worksite	3	3
	29670 (also in outcome 2)	Demonstrate knowledge of fabrication machinery, materials, and processes	2	3 (partial credit of 1)
	2401 (also in outcome 6 & strands)	Shut down, isolate and start up machines and equipment	3	3 (partial credit of 1)
	21907 (also in outcome 4)	Demonstrate and apply knowledge of safe welding principles and quality assurance under supervision	2	4 (partial credit of 1)
	29675 (also in outcome 3)	Demonstrate knowledge of safety when lifting loads in engineering installation, maintenance, and fabrication work	2	2 (partial credit of 1)
Outcome 2	2395	Demonstrate and apply knowledge of the selection, use, and care of engineering	2	4

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<p>Interpret drawings and/or specifications and select and use the appropriate fabrication materials, processes, tools and equipment for the task being undertaken</p> <p>Credits 55</p>		hand tools		
	2396	Demonstrate and apply knowledge of the selection, use and care of portable hand held engineering power tools	2	4
	4433 (also in outcome 3)	Select, use and care for simple measuring devices used in engineering	1	2 (partial credit of 1)
	4435 (also in outcome 3)	Select, use and care for dimensional measuring equipment	2	3 (partial credit of 2)
	4436 (also in outcome 3)	Select, use and care for marking-out equipment	2	3 (partial credit of 2)
	25712	Demonstrate knowledge of pressure vessels and pressure piping for fabrication trades	4	4
	29397	Demonstrate knowledge of basic trade calculations and units of measure for mechanical engineering trades	2	4
	29399 (also in outcome 3)	Demonstrate and apply knowledge of trade calculations to solve problems for mechanical engineering trades	3	4 (partial credit of 3)
	29549	Demonstrate basic knowledge of the mechanical properties and selection of engineering materials	2	3
	29550	Demonstrate basic knowledge of common engineering metals	2	3
	29551	Demonstrate knowledge of the strength, mechanical properties, and treatment of engineering metals	3	3
	29653	Manually produce third angle orthographic drawings of simple engineering objects incorporating plane geometric shapes	3	3
	29654	Demonstrate knowledge of and interpret mechanical engineering drawings and geometric tolerancing	2	3
	29655	Manually produce engineering sketches	2	3
	29670 (also in outcome 1)	Demonstrate knowledge of fabrication machinery, materials, and processes	2	3 (partial credit of 2)
	29674	Demonstrate knowledge of mechanical fasteners used in	2	3

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		mechanical engineering		
	30472 (also in outcomes 3 & 5)	Demonstrate knowledge of engineering job planning and costing	3	3 (partial credit of 1)
	30473	Demonstrate and apply knowledge of computerised manufacturing for engineering fabrication	2	4
	30263 (also in outcome 3)	Perform fabrication operations	3	10 (partial credit of 5)
<p>Outcome 3</p> <p>Apply relevant knowledge of fabrication principles and practices, and problem solving skills, to perform engineering fabrication tasks to industry standards</p> <p>Credits 65</p>	4433 (also in outcome 2)	Select, use, and care for simple measuring devices used in engineering	1	2 (partial credit of 1)
	4435 (also in outcome 2)	Select, use, and care for dimensional measuring equipment	2	3 (partial credit of 1)
	4436 (also in outcome 2)	Select, use, and care for engineering marking-out equipment	2	3 (partial credit of 1)
	21913	Lift loads in engineering installation, maintenance, and fabrication work	2	2
	25704	Develop fabrication patterns manually for simple three-dimensional objects	3	5
	29398	Apply knowledge of basic trade calculations for mechanical engineering trades	2	4
	29561 (also in outcomes 4 & 5)	Demonstrate knowledge of efficient and effective processes in mechanical engineering or fabrication	3	3 (partial credit of 1)
	29672	Assemble fabricated components using mechanical connections	2	3
	29675 (also in outcome 1)	Demonstrate knowledge of safety when lifting loads in engineering installation, maintenance, and fabrication work	2	2 (partial credit of 1)
	30263 (also in outcome 2)	Perform fabrication operations	3	10 (partial credit of 5)
	29560 (also in outcomes 5 & 6)	Demonstrate knowledge of efficient and effective workplace procedures in mechanical engineering or fabrication	2	3 (partial credit of 1)
	30274 (also in strand outcome)	Cut fabrication materials using hand held power tools	3	5 (partial credit of 1)
	30272 (also in strand outcome)	Cut fabrication materials using machines	4	10 (partial credit of 5)

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	30472 (also in outcomes 2 & 5)	Demonstrate knowledge of engineering job planning and costing	3	3 (partial credit of 1)
	29399 (also in outcome 2)	Demonstrate and apply knowledge of trade calculations to solve problems for mechanical engineering trades	3	4 (partial credit of 1)
	25783 (also in strand outcome)	Demonstrate knowledge of and apply metal cutting and gouging processes	3	2 (partial credit of 1)
	25705 (also in strand outcome)	Develop fabrication patterns manually for complex three-dimensional objects	4	10 (partial credit of 5)
Choose assessment standards from one of the strand sets below:				
Heavy Fabrication Strand				
	25707	Demonstrate and apply knowledge of intermediate heavy fabrication trade practice	3	10
	25709	Demonstrate and apply knowledge of advanced heavy fabrication trade practice	4	12
	25699 (also in strand outcome)	Form heavy fabrication materials	4	20 (partial credit of 5)
Light Fabrication Strand				
	25706	Demonstrate and apply knowledge of intermediate light fabrication trade practice	3	10
	25708 (also in strand outcome)	Demonstrate and apply knowledge of advanced light fabrication trade practice	4	12 (partial credit of 10)
	25698 (also in strand outcome)	Form light fabrication materials	4	20 (partial credit of 5)
Steel Construction Strand				
	25707	Demonstrate and apply knowledge of intermediate heavy fabrication trade practice	3	10
	25709	Demonstrate and apply knowledge of advanced heavy fabrication trade practice	4	12
Outcome 4 Apply knowledge of welding to safely weld to an appropriate industry standard in a commercial engineering	21907 (also in outcome 1)	Demonstrate and apply knowledge of safe welding principles and quality assurance under supervision	2	4 (partial credit of 3)
	29561 (also in outcomes 3 & 5)	Demonstrate knowledge of efficient and effective processes in mechanical engineering or fabrication	3	3 (partial credit of 1)

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fabrication environment Credits 30	22906	Demonstrate and apply knowledge of welding low carbon steel	3	3
	22907	Demonstrate and apply knowledge of welding aluminium and stainless steel	3	3
	Select a minimum of 20 credits from the following Welding electives			
	2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6
	2672	Weld steel to a general purpose industry standard using the gas metal arc welding process	3	6
	30282	Weld steel structures in the downhand positions using the gas shielded flux cored arc welding process	3	4
	30283	Weld steel structures in the downhand positions using the gas metal arc welding process	3	4
	2674	Weld stainless steel plate in downhand positions using the gas metal arc and flux cored arc welding processes	3	6
	2675	Weld aluminium to industry standard in downhand positions using the gas metal arc welding process	3	6
	2676	Weld stainless steel sheet to industry standard using the gas tungsten arc welding process	3	6
	2677	Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process	3	6
	2678	Join steel using the oxyacetylene welding process	3	3
	30080	Join ferrous and non-ferrous metal components by torch brazing	3	6
	2680	Join metals using the resistance welding process	3	4
	2681	Weld steel structures using the submerged arc welding process	3	6
	2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6

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<p>Outcome 5</p> <p>Apply an understanding of effective and efficient processes and principles, and quality systems to the fabrication of components and/or provision of services in a commercial engineering fabrication environment</p> <p>Credits 10</p>	29560 (also in outcomes 3 & 6)	Demonstrate knowledge of efficient and effective workplace procedures in mechanical engineering or fabrication	2	3 (partial credit of 1)
	29561 (also in outcomes 3 & 4)	Demonstrate knowledge of efficient and effective processes in mechanical engineering or fabrication	3	3 (partial credit of 1)
	29562	Demonstrate and apply knowledge of process or task improvement in mechanical engineering or fabrication	4	3
	30472 (also in outcomes 2 & 3)	Demonstrate knowledge of engineering job planning and costing	3	3 (partial credit of 1)
<p>Outcome 6</p> <p>Practice effective communication within an engineering fabrication team and the wider workplace</p> <p>Credits 10</p>	29560 (also in outcomes 3 & 5)	Demonstrate knowledge of efficient and effective workplace procedures in mechanical engineering or fabrication	2	3 (partial credit of 1)
	30665	Demonstrate and apply knowledge of workplace communication in mechanical engineering trades	3	2
	2401 (also in outcome 1 & strands)	Shut down, isolate and start up machines and equipment	3	3 (partial credit of 1)
	<p>The achievement of this outcome is also met across multiple workplace unit standards that have already been given credit in other outcomes.</p> <p>The following unit standards have been identified as contributing to this outcome: 21907, 4433, 4435, 30263, 30473, 9184, 29652, 2396, 29672, 30272, 30274, 25710, 30440.</p>			
<p>Outcome 7</p> <p>Recognise the limits of own ability and the importance of working with integrity and maintaining currency in the engineering fabrication field</p> <p>Credits 5</p>	<p>There are no specific unit standards aligned to this graduate profile outcome, however the following unit standards have been identified as contributing to this outcome:</p> <p>30272, 30472, 29561, 29560, 25699, 25710, 30440, 25698, 25700, 9184, 21907, 25713, 30275, 30277, 30278, 2685, 2686, 2687, 2688, 2689, 2694, 2695, 2696, 2697, 31068.</p> <p>The relevant evidence requirements or performance criteria set against the specific condition are noted in the programme matrix.</p>			
<p>Strand – Heavy Fabrication</p>				
<p>Produce a range of heavy fabricated products, including trucks and trailers, earthmoving machinery, manufacturing equipment, and pressure vessels from heavy gauge plate, sections,</p>	<p>Compulsory assessment standards</p>			
	2401 (also in outcomes 1 & 6)	Shut down, isolate and start-up machines and equipment	3	3 (partial credit of 1)
	9184	Erect and dismantle non-notifiable prefabricated frame scaffolding up to five metres in	3	5

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and pipes using the appropriate tools and current relevant techniques Credits 80		height		
	30440	Mark out fabrication components using geometrical methods	3	5
	25783 (also in outcome 3)	Demonstrate knowledge of and apply metal cutting and gouging processes	3	2 (partial credit of 1)
	25710	Make up jigs and fixtures for use in engineering fabrication	4	5
	30272 (also in outcome 3)	Cut fabrication materials using machines	4	10 (partial credit of 5)
	30274 (also in outcome 3)	Cut fabrication materials using hand held power tools	4	5 (partial credit of 4)
	25699 (also in outcome 3)	Form heavy fabrication materials	4	20 (partial credit of 15)
	25705 (also in outcome 3)	Develop fabrication patterns manually for complex three-dimensional objects	4	10 (partial credit of 5)
	Select at least one unit from the following			
	30279	Cut steel using the manual gas cutting process	3	2
	30280	Cut metals using manual plasma cutting processes	3	2
	To achieve 270 credits for the programme, the learner must select a minimum of 10 credits at Level 4 from the below elective welding unit standards and the remaining credits at any level from the below elective unit standards.			
	2433	Produce engineering component drawings using CAD software	2	6
	2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6
	2672	Weld steel to a general purpose industry standard using the gas metal arc welding process	3	6
	30282	Weld steel structures in the downhand positions using the gas shielded flux cored arc welding process	3	4
30283	Weld steel structures in the downhand positions using the gas metal arc welding process	3	4	

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	2674	Weld stainless steel plate in downhand positions using the gas metal arc and flux cored arc welding processes	3	6
	2675	Weld aluminium to industry standard in downhand positions using the gas metal arc welding process	3	6
	2676	Weld stainless steel sheet to industry standard using the gas tungsten arc welding process	3	6
	2677	Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process	3	6
	30080	Join ferrous and non-ferrous metal components by torch brazing	3	6
	2681	Weld steel structures using the submerged arc welding process	3	6
	2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6
	18106	Gouge steel using the air carbon arc gouging process	3	4
	2352	Load work for metal surface finishing processing operations	3	5
	2353	Pre-treat work for subsequent metal surface finishing operations	3	5
	2355	Finish work using wet, dry, and vapour deposition metal surface finishing methods	3	15
	2360	Finish metal structural work using wet coating applications	3	10
	2361	Pre-treat metal structural work for subsequent surface finishing	3	5
	2363	Polish ferrous and non-ferrous metal parts to produce a decorative finish	3	10
	16961	Polish welded stainless steel fabrications	3	10

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	25701	Assemble and join heavy fabrication materials	4	20
	30275	Weld steel structures in all positions using the self shielded flux cored arc welding processes	4	6
	30277	Weld steel structures in all positions using the gas shielded flux cored arc welding processes	4	5
	30278	Weld steel structures in all positions using the gas metal arc welding process	4	5
	2685	Weld steel structures in all positions using the manual metal arc welding process	4	10
	2686	Weld aluminium in all positions using the gas metal arc welding process	4	10
	2687	Weld stainless steel sheet and plate in position using the gas metal arc or flux cored arc welding process	4	10
	2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12
	2689	Weld aluminium in all positions using the gas tungsten arc welding process	4	10
	2690	Weld steel pipe using the oxyacetylene welding process	4	12
	2691	Cut metals using mechanised thermal cutting equipment	4	4
	2692	Repair non-ferrous metal components using welding processes	4	10
	2693	Repair ferrous metal components using welding processes	4	10
	2694	Weld steel pressure pipe using the manual metal arc welding process with cellulosic electrodes	4	20
	2695	Weld steel pressure pipe using the gas tungsten arc and manual metal arc welding processes	4	15

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	2696	Weld steel or stainless steel pressure pipe in all positions using the gas tungsten arc welding process	4	12
	2697	Weld aluminium pipe in all positions using the gas tungsten arc welding process	4	12
Strand – Light Fabrication				
Produce a range of light fabricated products such as ducting, architectural fixtures, and balustrading from light gauge sheet, sections, and pipes using the appropriate tools and current relevant techniques Credits 80	Compulsory assessment standards			
	2401 (also in outcomes 1 & 6)	Shut down, isolate and start-up machines and equipment	3	3 (partial credit of 1)
	9184	Erect and dismantle non-notifiable prefabricated frame scaffolding up to five metres in height	3	5
	30440	Mark out fabrication components using geometrical methods	3	5
	25783 (also in outcome 3)	Demonstrate knowledge of and apply metal cutting and gouging processes	3	2 (partial credit of 1)
	25710	Make up jigs and fixtures for use in engineering fabrication	4	5
	30272 (also in outcome 3)	Cut fabrication materials using machines	4	10 (partial credit of 5)
	30274 (also in outcome 3)	Cut fabrication materials using hand held power tools	4	5 (partial credit of 4)
	25698 (also in outcome 3)	Form light fabrication materials	4	20 (partial credit of 15)
	25700	Assemble and join light fabrication materials	4	20
	25708	Demonstrate and apply knowledge of advanced light fabrication trade practice	4	12 (partial credit of 2)
	25705 (also in outcome 3)	Develop fabrication patterns manually for complex three-dimensional objects	4	10 (partial credit of 5)
	Select a minimum of one unit from the following			
	30279	Cut steel using the manual gas cutting process	3	2
	30280	Cut metals using manual plasma cutting processes	3	2
	Select one of the following units			
	2363	Polish ferrous and non-ferrous metal parts to produce a decorative finish	3	10
16961	Polish welded stainless steel fabrications	3	10	

To achieve 270 credits for the programme, the learner must select a minimum of 10 credits at Level 4 from the below elective welding unit standards and the remaining credits at any level from the below elective unit standards.			
2433	Produce engineering component drawings using CAD software	2	6
2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6
2672	Weld steel to a general purpose industry standard using the gas metal arc welding process	3	6
2675	Weld aluminium to industry standard in downhand positions using the gas metal arc welding process	3	6
2676	Weld stainless steel sheet to industry standard using the gas tungsten arc welding process	3	6
2677	Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process	3	6
2678	Join steel using the oxyacetylene welding process	3	3
30080	Join ferrous and non-ferrous metal components by torch brazing	3	6
2680	Join metals using the resistance welding process	3	4
2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6
2352	Load work for metal surface finishing processing operations	3	5
2353	Pre-treat work for subsequent metal surface finishing operations	3	5
2355	Finish work using wet, dry, and vapour deposition metal surface finishing methods	3	15
2360	Finish metal structural work using wet coating applications	3	10
2361	Pre-treat metal structural work for subsequent surface finishing	3	5
2363	Polish ferrous and non-ferrous metal parts to produce a decorative finish	3	10

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	16961	Polish welded stainless steel fabrications	3	10
	2687	Weld stainless steel sheet and plate in position using the gas metal arc or flux cored arc welding process	4	10
	2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12
	2689	Weld aluminium in all positions using the gas tungsten arc welding process	4	10
	2690	Weld steel pipe using the oxyacetylene welding process	4	12
	2691	Cut metals using mechanised thermal cutting equipment	4	4
	2692	Repair non-ferrous metal components using welding processes	4	10
	2693	Repair ferrous metal components using welding processes	4	10
	2696	Weld steel or stainless steel pressure pipe in all positions using the gas tungsten arc welding process	4	12
	2697	Weld aluminium pipe in all positions using the gas tungsten arc welding process	4	12
Strand – Steel Construction				
Produce and install a range of structural steel elements for building and civil engineering projects, using the appropriate tools and current relevant techniques Credits 65	Compulsory Assessment Standards			
	2401 (also in outcome 1 & 6)	Shut down, isolate and start-up machines and equipment	3	3 (partial credit of 1)
	9184	Erect and dismantle non-notifiable prefabricated frame scaffolding up to five metres in height	3	5
	30440	Mark out fabrication components using geometrical methods	3	5
	25783 (also in outcome 3)	Demonstrate knowledge of and apply metal cutting and gouging processes	3	2 (partial credit of 1)
	25710	Make up jigs and fixtures for use in engineering fabrication	4	5
	30272 (also in outcome 3)	Cut fabrication materials using machines	4	10 (partial credit of 5)
	30274 (also in outcome 3)	Cut fabrication materials using hand held power tools	4	5 (partial credit of 4)
	25713	Demonstrate knowledge of steel construction workshop and worksite operations, procedures and processes	4	4

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	25705 (also in outcome 3)	Develop fabrication patterns manually for complex three-dimensional objects	4	10 (partial credit of 5)
	31068	Use high level access equipment to carry out work at height30279	3	4
	31143	Install steel construction components to plan and specifications	4	10
Select a minimum of one of the following:				
	30279	Cut steel using the manual gas cutting process	3	2
	30280	Cut metals using manual plasma cutting processes	3	2
To achieve 255 credits for the programme, the learner must select a minimum of 10 credits at Level 4 from the below elective welding units standards and the remaining credits at any level from the below elective unit standards.				
	2433	Produce engineering component drawings using CAD software	2	6
	2671	Weld steel structures in the downhand positions using the manual metal arc welding process	3	6
	2672	Weld steel to a general purpose industry standard using the gas metal arc welding process	3	6
	30282	Weld steel structures in the downhand positions using the gas shielded flux cored arc welding process	3	4
	30283	Weld steel structures in the downhand positions using the gas metal arc welding process	3	4
	2674	Weld stainless steel plate in downhand positions using the gas metal arc and flux cored arc welding processes	3	6
	2675	Weld aluminium to industry standard in downhand positions using the gas metal arc welding process	3	6
	2677	Weld aluminium to industry standard in the downhand positions using the gas tungsten arc welding process	3	6
	30080	Join ferrous and non-ferrous metal components by torch brazing	3	6
	2681	Weld steel structures using the submerged arc welding process	3	6

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	2682	Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process	3	6
	18106	Gouge steel using the air carbon arc gouging process	3	4
	2352	Load work for metal surface finishing processing operations	3	5
	2353	Pre-treat work for subsequent metal surface finishing operations	3	5
	2355	Finish work using wet, dry, and vapour deposition metal surface finishing methods	3	15
	2360	Finish metal structural work using wet coating applications	3	10
	2361	Pre-treat metal structural work for subsequent surface finishing	3	5
	2363	Polish ferrous and non-ferrous metal parts to produce a decorative finish	3	10
	16961	Polish welded stainless steel fabrications	3	10
	25701	Assemble and join heavy fabrication materials	4	20
	30275	Weld steel structures in all positions using the self shielded flux cored arc welding processes	4	6
	30277	Weld steel structures in all positions using the gas shielded flux cored arc welding processes	4	5
	30278	Weld steel structures in all positions using the gas metal arc welding process	4	5
	2685	Weld steel structures in all positions using the manual metal arc welding process	4	10
	2686	Weld aluminium in all positions using the gas metal arc welding process	4	10
	2687	Weld stainless steel sheet and plate in position using the gas metal arc or flux cored arc welding process	4	10
	2688	Weld stainless steel tube using the gas tungsten arc welding process	4	12
	2689	Weld aluminium in all positions using the gas tungsten arc welding process	4	10

	2690	Weld steel pipe using the oxyacetylene welding process	4	12
	2691	Cut metals using mechanised thermal cutting equipment	4	4
	2692	Repair non-ferrous metal components using welding processes	4	10
	2693	Repair ferrous metal components using welding processes	4	10
	2694	Weld steel pressure pipe using the manual metal arc welding process with cellulosic electrodes	4	20
	2695	Weld steel pressure pipe using the gas tungsten arc and manual metal arc welding processes	4	15
	2696	Weld steel or stainless steel pressure pipe in all positions using the gas tungsten arc welding process	4	12
	2697	Weld aluminium pipe in all positions using the gas tungsten arc welding process	4	12

Training arrangements and support

This programme is recognised as a New Zealand Apprenticeship, and as such Apprentice Training New Zealand carries out an assessment of the company and apprentice to ensure the right skills and knowledge are learnt in a supportive environment by a motivated apprentice.

Apprentice compatibility and requirements:

- Apprentice Training New Zealand Account Managers will also engage in a conversation with the apprentice to ensure s/he understands his/her responsibilities, where to go for help and the importance of progressing at a steady rate to complete within the timeframe required.
- The apprentice will be required to complete a 15 -20 minute test with Apprentice Training New Zealand Account Manager which assesses the apprentice's reading, writing and comprehension ability. This test includes mechanical aptitude, reasoning and number skills. It identifies areas of weaknesses so that extra support can be offered where it is required. Extra support may include advising the employee and employer of Literacy and Numeracy Providers that can offer specialist support.

Company compatibility and requirements:

- The company that the apprentice is employed with will need to have the right types of equipment so that learning and assessment can take place on-job. If the employer does not have the right equipment in some areas, there needs to be an agreement put in place so that the apprentice can go elsewhere to complete the unit standards.
- The apprentice will need to have access to eLearning via use of a mobile device, personal computer or laptop within their workplace or their home environment.

- Employers are required to support their apprentices throughout the training programme. Initially this is achieved through workplace tasks and on-job training by a designated trainer. This is followed by completion of tasks under close supervision in the workplace. The level of supervision will be adjusted as apprentices develop their skills, knowledge and confidence through the programme. This programme requires the apprentice to operate under broad supervision prior to any assessment. Employers have access to real-time data on their learner's progress through the programme via an Employer Portal.

Apprentice Training New Zealand supports the apprentice and employer by:

- Organising block courses and distance learning
- Apprentice Training New Zealand Account Managers actively manage the progress of apprentices. This is supported by visits to the workplace to ensure that apprentices are steadily progressing through the programme to meet the training plan milestones. The frequency of visits is dependent on the learner's capability and the employer's ability to support their learner's progression, and is adjusted as appropriate throughout the apprenticeship.
- Providing assessment material for all on-job components
- Providing an eLearning platform with study guide resources and assessment functions

Learning and Assessment Methods

Learning Methods

Learning will take place on-job by completing day to day tasks under supervision, by attending off-job training with a training provider, the use of workbooks or a combination of all three methods.

- On-job training enables learners to develop job-related skills by watching colleagues, emulating their behaviours and practicing under supervision. It also involves mentoring from supervisors, workplace trainers, or other personnel delegated by the employer.
- Block courses with structured and approved courses give learners the opportunity to develop new skills they can take back into the workplace. Courses provide all learners with the same skill set regardless of their workplace experience and ensure all learners have relevant and transferable skills. Courses may be a combination of classroom tuition and workshop practice with the emphasis on development of technical skills and the embedding of learning.

Assessment Methods

Assessment of unit standards can be achieved by:

- Completing theory questions, providing evidence (such as job cards, photographs, designs, videos, etc.), the apprentice being observed by an assessor or verifier completing a task(s) or a combination of these.
- Assessment evidence can be captured through assessment guides, via an on-line

portal, through eLearning, and block courses.

Transition Arrangements

The following exemptions are available for those who need to transfer to the qualification to which this programme leads. The table includes exemptions arising from earlier replacement of standards or recommended alternative standards.

Credit For	Exempt From
21910	29654
20799	29550
20917	29549
21905, 21908	29397
21905, 21908, 16955, 16956	29398, 29399
25075	29670, 30263
2430	29655
4797	29551
2431, 2432	29653
21909	29674
2683	30279, 30280
25702	30272, 30274
25703	30272, 30274
25874	30440
25875	30440
2673	30282, 30283
2684	30277, 30278
25711	30473

Consistency of Graduate Outcomes

Apprentice Training New Zealand will participate in any NZQA Consistency events.

Apprentice Training New Zealand will monitor the performance of graduates in the real world to demonstrate the consistency of graduate outcomes by:

- ensuring programmes continue to meet current industry needs through ongoing consultation at the Sector and Technical Advisory group levels.
- utilising Industry Subject Matter Experts in our Product development and review processes

Programme of Industry Training Details



- operating systematic and robust quality assured assessment practices
- collecting workplace evidence including both graduate and employer feedback, through the use of surveys demonstrating that graduates meet the graduate profile outcomes
- any other relevant evidence as appropriate.

Indicative duration of Programme of Industry Training

Number of months	48 months
Total learning hours	2550 - 2700