Application Pack

New Zealand Certificate in Engineering Fabrication(Trade) (Level 4)

With strands in Heavy Fabrication, Light Fabrication, and Steel Construction

(NZ2719) 255-270 credits, version 1

Your Experience: Our Qualifications

About the New Zealand Certificate in Mechanical Engineering (Trade)

This qualification recognises the skills required to safely and independently perform fabrication tasks within their chosen discipline, to industry standards in a broad range of sectors within the fabrication or construction industries. Specific roles for each of the strands may include:

- Heavy Fabrication strand - Process Plant Fabricator, Fabricator for pressure equipment, heavy transport equipment, or machinery, etc
- Light Fabrication strand - Sheet Metal Worker, Process Plant Fabricator
- Steel Construction strand - Structural steelworker for buildings, bridges and cranes, etc.

English Language

If English is not your first language, you may also be required to provide evidence of your English language skills as listed below. If you have no evidence of your English language skills and are a New Zealand citizen, resident or permanent resident, contact us.

• **IELTS 5.5 Academic** (no lower than 5.5 in any subtest).

This level of English is essential. If you are international and can demonstrate to us that your English is above this level we may accept you for assessment without an IELTS test.

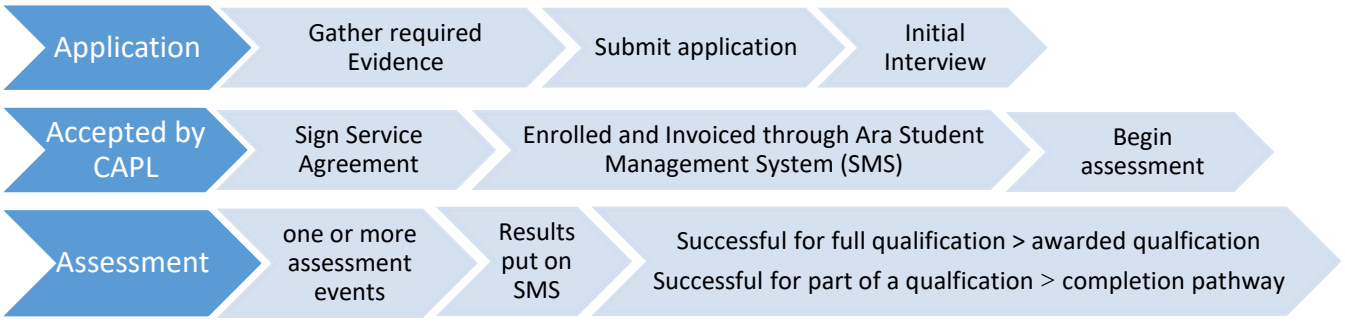
About assessment

To achieve the New Zealand Certificate in Engineering (Fabrication) Trade, Level 4 you need to match all the outcomes of the graduate profile (page 3) for this qualification. This graduate profile is the knowledge and skills a student is expected to show after successfully completing an apprenticeship in this industry. To show that you have the required knowledge and skills our assessor will ask you questions, at least partially based on evidence you provide, during a series of meetings. He may visit you at your work, and may ask you to demonstrate skills if you have no other evidence. Assessment is integrated; the questions asked and practical demonstrations and workplace visit required will allow our assessor to judge whether you have achieved the graduate profile outcomes being assessed.

After your application is received, you will be contacted within the following fortnight for an initial interview with an assessor to discuss your application. If your application is accepted, you will be sent a service agreement. If you accept this, the assessor will contact you to work out an assessment schedule with you.

Assessment for the whole qualification usually takes 3-6 months. Should you fail any part of any assessment, you may need to undergo further assessment, or enrol in a course of study. Any costs associated with this are additional. If we consider

Summary of Process



Fee

The cost of assessment for the full qualification (one strand) in 2019 is $2346.00. Any fees for enrolments required due to gaps in knowledge and skills are additional and not part of the CAPL process.

Fixed discounts may be available if evidence is provided of having already achieved a significant number of fabrication engineering unit standards or having achieved other relevant qualifications (with similar content).

International Students must pay in full within 30 days of receiving an Invoice from Ara; residents and New Zealand citizens have the option of paying by regular instalment (following a successful credit check).

Graduate Profile Evidence Requirements

Graduates of this qualification will be able to:

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
2. Interpret drawings and/or specifications and select and use the appropriate fabrication materials, processes, tools, and equipment for the fabrication task being undertaken
3. Apply relevant knowledge of fabrication principles and practices, and problem solving skills, to perform engineering fabrication tasks to industry standards
4. Apply knowledge of welding to safely weld to an appropriate industry standard in a commercial engineering fabrication environment
5. 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
6. Practise effective communication within a mechanical engineering team and the wider workplace
7. 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

If you choose more than one strand, the fee will be higher than that listed above for a single strand qualification.

Specific Evidence Requirements for an application

Please read through all outcomes first before noting what evidence you can provide. This completed template forms part of your application.

For each graduate outcome on the following pages please do the following:

A. Tick the boxes for the outcome requirements you know or have skills in, and can provide evidence for.

B. In the *Evidence you can provide* column, write the number equivalent to the type of evidence you can give for each **outcome requirement** from the numbers below (use as many numbers (types of evidence) as you can).

1	*Talk about this with the assessor*	**2**	*Provide written or photo evidence*	**3**	*Provide proof from an employer*	**4**	*Demonstrate this*

For example for Outcome 1, 3rd requirement: *Can you:* ☐ *Work safely and contribute to a safe workplace* you might put 1, 3, ***or*** 1, 2 (if you have certificates or are the company H&S officer for example), or just 1.

Be prepared to supply your supporting evidence. The same evidence can be used for more than one outcome. This evidence can include relevant courses undertaken and workplace responsibilities (e.g. Site Safe Passport, Health and Safety officer, welding ticket/procedure), photos, employer attestations/references, etc.

Graduate Profile Outcomes	**Evidence you can provide**
1. Apply an understanding of Health and Safety legislation and workplace safety	
Can you: ☐ Explain your own responsibilities in the workplace under relevant current Acts and Regulations ☐ Explain machine guarding principles and requirements ☐ Work safely and contribute to a safe workplace ☐ Explain how to identify, assess and control critical risk situations and associated hazards; and isolate, report on, and audit machines ☐ Explain what Personal Protective Equipment (PPE) is and what PPE is required by your industry	
2. Interpret drawings and/or specifications & select and use appropriate fabrication materials, processes, tools, and equipment for the task being undertaken	
Can you: ☐ Produce and interpret engineering sketches ☐ Produce and interpret simple component drawings ☐ Calculate and use fabrication engineering units of measurement (metric) ☐ Plan a job – process analysis, sequence, risk assessment, job costing, best materials to use, ergonomics, understand how objects fit together in 3D ☐ Explain the composition and characteristics of engineering materials (including where you would find this information if you work with a new material) ☐ Choose available and appropriate process/tools/ equipment to suit, material, plan, etc. **Although not required you may also be able to provide evidence of:** ☐ Using Computer Aided Design (CAD) for modelling ☐ Understanding Computer Numerical Control (CNC) machines	

Graduate Profile Outcomes	Evidence you can provide
3. Apply relevant knowledge of fabrication principles and practices, and problem solving skills	
Can you: ☐ Develop fabrication patterns for simple three-dimensional objects ☐ Develop jigs to enable assembly ☐ Apply calculations and measurements ☐ Understand and apply mistake proofing, process analysis, and sequencing ☐ Form, shape, and apply distortion control ☐ Cut materials using mechanical or thermal equipment, including manual and mechanised processes ☐ Explain damage minimisation ☐ Select and inspect simple lifting appliances, sling and secure loads, and carry out lifting procedures ☐ Carry out all work efficiently and according to specifications ☐ Interpret relevant standards such as codes of practice, Australian/New Zealand standards in welding	
4. Apply knowledge of welding to safely weld to an appropriate industry standard in a commercial engineering fabrication environment	
Can you: Weld using (note that all 4 are not required although you should now the different uses for each)- ☐ gas metal arc (GMAW) ☐ manual metal arc (MMAW) ☐ gas tungsten arc welding (GTAW) ☐ flux cored arc welding (FCAW) ☐ Perform common welding and cutting techniques on mild steel, stainless steel and aluminium ☐ Weld steel and steel structures and other metals to a general purpose industry standard using the relevant welding process and positions (note: positions must include downhand, as a minimum) ☐ Fillet and Butt in three different processes, thermal cutting and/or gouging ☐ Apply known solutions/methods to distortion control	
5. Apply an understanding of effective and efficient processes and principles, and quality systems to the fabrication of components and/or provision of services	
Can you: ☐ Explain different quality system models, e.g. lean manufacturing ☐ Identify and eliminate wasteful processes ☐ Apply the concepts of continuous improvement ☐ Explain quality control ☐ Explain process planning ☐ Explain delivery in full, on time and to specifications	

Graduate Profile Outcomes	Evidence you can provide
6. Practise effective communication within a mechanical engineering team and the wider workplace	
Can you: ☐ Confirm and clarify instructions ☐ Explain the importance of, and completing, workplace documentation ☐ Communicate with teammates, customers, supervisors, other management (including awareness of other cultures and languages in the workplace) ☐ Communicate health and safety matters **Although not required you may also:** ☐ Mentor apprentices, peers, etc.	
7. Recognise the limits of own ability and the importance of working with integrity and maintaining currency in the engineering fabrication field	
Can you: ☐ Work to an acceptable standard for a tradesperson ☐ Seek advice or guidance when required ☐ Show an understanding of alternative manufacturing and engineering processes ☐ show continual/lifelong learning and knowledge acquisition ☐ research new technology, processes, practices, equipment	

STRANDS – choose one *(or more, but see page 2 re extra fees)*

HEAVY FABRICATION STRAND	
Graduate Profile Outcomes	**Evidence you can provide**
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	
Can you: ☐ Perform a range of advanced positional welding techniques of at least one process relevant to your chosen strand (for example - structural steel all positions, aluminium plate all positions, repair weld non-ferrous metals, stainless tube, aluminium pipe). ☐ Demonstrate operational knowledge of welding quality assurance/control principles and procedures, including standards used, process theory, and trouble shooting. ☐ Manufacture heavy fabricated products that demonstrate knowledge and skills of advanced fabrication principles and processes. This should include complex forming and shaping tasks covering transitions and cutting plans, proficient use of jigs and assembly techniques, quality assurance principles including alignment of parts and distortion control, confirming work is to specifications and documenting and reporting work. It should also include use of the equipment required to handle heavy materials. ☐ Interpret and identify problems and construct complex fabrication drawings and patterns for the fabrication industry. Should include evidence of common transitions (complex radial line, triangulation and cutting plans); use of CAD or CAD related programmes, including use of NZS/AS 1100. ☐ Describe the use of common fabrication materials and fasteners used in the fabrication industry ☐ Cost a job and interpret data ☐ Use engineering calculations and engineering physics solutions to solve familiar, and unfamiliar, welding and fabrication problems. ☐ Describe your own work environment with regard to health and safety codes of practice, job planning, risk assessment, organisational methods, quality systems and standards used.	

LIGHT FABRICATION STRAND	
Graduate Profile Outcomes	**Evidence you can provide**
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	
Can you: ☐ Manufacture light fabricated products that demonstrate knowledge and skills of advanced fabrication principles and processes. This should include complex forming and shaping tasks covering transitions and cutting plans, proficient use of jigs and assembly techniques, quality assurance principles including alignment of parts and distortion control, confirming work is to specifications and documenting and reporting work. It should also include use of the equipment required to handle light materials. ☐ Perform a range of advanced positional welding techniques of at least one process relevant to your chosen strand (for example - structural steel all positions, aluminium plate all positions, repair weld non-ferrous metals, stainless tube, aluminium pipe). ☐ Demonstrate operational knowledge of welding quality assurance/control principles and procedures, including standards used, process theory and trouble shooting. ☐Demonstrate use of engineering calculations and engineering physics solutions to solve familiar, and unfamiliar, welding and fabrication problems. ☐ Interpret and identify problems and construct complex fabrication drawings and patterns for the fabrication industry. Should include evidence of common transitions (complex radial line, triangulation and cutting plans); use of CAD or CAD related programmes, including use of NZS/AS 1100. ☐ Describe the use of common fabrication materials and fasteners used in the fabrication industry ☐ Cost a job and interpret data ☐ Describe your own work environment with regard to health and safety codes of practice, job planning, risk assessment, organisational methods, quality systems and standards used, and be able to give examples related to specific tasks. ☐ Demonstrate a range of finishing skills	

STEEL CONSTRUCTION STRAND	
Graduate Profile Outcomes	**Evidence you can provide**
Produce and install a range of structural steel elements for building and civil engineering projects, using the appropriate tools and current relevant techniques	
Can you: ☐ Perform a range of advanced positional welding techniques of at least one process relevant to your chosen strand (for example - structural steel all positions, aluminium plate all positions, repair weld non-ferrous metals, stainless tube, aluminium pipe). ☐ Demonstrate operational knowledge of welding quality assurance/control principles and procedures, including standards used, process theory and trouble shooting. ☐ Demonstrate knowledge and skills of steel construction principles and processes including forming and shaping - Portals, Beams, Radius profiles and Pipe branches – and quality assurance principles including alignment of parts and distortion control ☐ Manufacture a range of structural steel elements, including care, maintenance and use of the equipment required to handle structural materials ☐ Select and apply broad operational and theoretical knowledge of site installation and rigging techniques, and select appropriate mobile or fixed platforms in relation to operational requirements ☐ Safely use elevated work platforms, mobile scaffolds, rigging equipment (qualification/unit standard evidence required). ☐ Install a range of structural steel elements on site. Should include evidence of planning and managing all health and safety requirements of 2-3 jobs, including ergonomic considerations, according to government regulations and procedures, determining, planning and undertaking each job as per drawings, engineer's instructions associated standards and customer considerations, evaluating completed tasks and confirming work is to specifications; documenting and reporting work. ☐ Develop basic engineering drawings using CAD or CAD related programmes -drawing construction patterns and transitions of complex steel construction components, use AS/NZS1100. ☐ Describe the use of common fabrication materials and fasteners used in the fabrication industry ☐ Cost a job and interpret data ☐ Use engineering calculations and engineering physics solutions to solve familiar, and unfamiliar, welding and fabrication problems. ☐ Describe your own work environment with regard to health and safety codes of practice, job planning, risk assessment, organisational methods, quality systems and standards used.	

Application checklist

Please email your application to capl@ara.ac.nz or post it to:

CAPL
Academic Innovation & Research
Ara
PO BOX 540
Christchurch 8140

How do I apply?
To make a CAPL application you need to send us:

YourChecklist

1. **Your completed application form** ☐
2. **Your summary of evidence template** ☐
3. **Your current and detailed Curriculum Vitae (CV) or work history** which should contain: ☐
   - Relevant work history including your positions, tasks and responsibilities
   - Formal qualifications eg school, polytechnic, university, trade certificates
   - Informal qualifications eg 'in house' workplace training workshops
   - Relevant life experience or transferable skills

Your CV format may be quite different from this. Please use whatever format is understood by your industry but in depth enough to show your level of skills and knowledge for the qualification you are applying for.

4. **If you are an employee within a company please supply us with an attestation* from your current employer** and, if possible, employers you've worked for over the past five years. We will need to be able to contact your employer/s to verify this evidence. ☐
   OR
   If you are self-employed please supply us with attestations* from two or more people or companies you work with, or for. We will need to be able to contact your attesters to verify this evidence.

   **An attestation is a letter or email where the writer is certifying (attesting) that they personally witnessed or know something to be true. Each attestation we require must tell us:*
   - *the nature of the job/work that you worked on*
   - *when and where it was carried out (for example: 12 residential builds in Canterbury from 2014 -2017)*

   and can include:
   - *the quality of the completed job/work*
   - *your performance*

5. **Identification documents** ☐
   Bring with you to the initial interview your birth certificate or passport proving your identity, plus permanent residency, visa and change of legal name certificate [e.g. marriage certificate], if relevant.

   If your interview is by video conferencing rather than in person, please MAIL an ORIGINAL verified copy (a verified photocopy of your original document), signed as being a true and accurate copy by one of the positions listed below. We cannot accept a scanned or photographed copy.
   - Justice of the Peace (listed in the Yellow Pages)
   - Solicitor
   - Registrar or Deputy Registrar of the Courts

   The following needs to be included on the copy to be considered a verified copy: the words "original sighted"; company or position, name, and signature of the person sighting the original document.

Applicant Details (to be completed by applicant):

Last Name:	Click to enter name.	First Name:	Click to enter name.
Preferred first name:	Click to enter.	Date of Birth:	Click to enter date of birth.
Mobile:	Mobile number.	Other phone:	Home or work phone.
Email:	Click here to enter preferred contact email.	Male: ☐ Female: ☐ Other Gender: ☐	
Postal Address:	Click to enter address we can post to.		
Last Secondary school you attended (or write overseas if outside NZ)	Click to enter school.		
Highest secondary school level achieved (or write overseas qualification)	Click to enter		
Your last year at Secondary School:	Click to enter.	First year of tertiary study (any qualification):	Click to enter.

Tick the box if English is your first language or the language you were educated in ☐

Personal statement which summarise your experience and learning, and which supports this application:

Applicant Evaluation ***(to be completed by Ara staff):***

Recommendation (include facilitation course if relevant):
Click here to enter text. The box will expand as you write.

Approved by:		Date:		*Programme Leader or CAPL Assessor*
Approved by:		Date:		*CAPL staff*