Te Waka Te Pokapū Whakawā i Kā Mātauraka o Mua
Centre for Assessment of Prior Learning (CAPL)

CAPL Application Pack

New Zealand Certificate in Mechanical Engineering (Trade) Level 4 with strands in Fitting and Machining, General Engineering, Machining, Maintenance Engineering, Metal Forming, and Toolmaking

NZ2714) 280-300 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 engineering tasks within a chosen engineering trade discipline, to industry standards. Specific roles for each of the strands may include:

- Fitting and Machining strand - Fitter Turner, Fitter
- General Engineering strand - General Engineer
- Machining strand - Machinist
- Maintenance Engineering strand - Maintenance Engineer, Heavy Industrial Engineer, e.g. marine/rail/electrical
- Toolmaking strand - Toolmaker, Die Maker, Mould Maker

NOV 2022

Graduate profile evidence requirements

Graduates of this qualification 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 mechanical engineering environment
- Interpret drawings and/or specifications and select and use the appropriate materials, processes, tools and equipment for the mechanical engineering task being undertaken
- Apply knowledge of relevant engineering principles and practices, and problem solving skills, to perform engineering tasks to industry standards
- Apply an understanding of effective and efficient processes and principles, and quality systems to the production of components and/or provision of services in a commercial mechanical engineering environment
- Practise effective communication within a mechanical engineering team and the wider workplace
- Recognise the limits of own ability and the importance of working with integrity and maintaining currency in the mechanical engineering field

Graduates of the Fitting and Machining strand will also be able to:

- Build and install complex machines where both precision fitting and machining skills are required

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

- Build, maintain, and repair a broad range of machinery and equipment using fitting, machining, fabrication, hydraulics, pneumatics, and welding skills and knowledge

Graduates of the Machining strand will also be able to:

- Plan, sequence, and machine complex engineering components to a high degree of tolerance and finish, using current and relevant machining technologies and techniques

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

- Apply knowledge of maintenance engineering strategies and practices to monitor, inspect, maintain and repair facilities or plant and equipment.

Graduates of the Toolmaking strand will also be able to:

- Apply knowledge of tool design and function to manufacture tooling for relevant industrial processes, using current and relevant manufacturing technologies and techniques

If you choose more than one strand the fee will be higher proportionally than that listed in the Information Pack for a single qualification.

English Language Requirements

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 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.

Specific Evidence Requirements

Please read through all outcomes first before beginning to outline your evidence.

For each graduate outcome on the following pages please:

- Tick the boxes for the outcome requirements you know or have skills in and can provide evidence for; then tick the type of evidence you can give for each outcome (tick as many as you can). Be prepared to supply supporting evidence. The same evidence can be used for more than one outcome.
- Include relevant courses undertaken and workplace responsibilities (e.g. Site Safe Passport, Health and Safety officer, welding ticket).

Outcomes	Your Evidence (your evidence may be used for more than one outcome)
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 why and how you guard machines* ☐ *Work safely and contribute to a safe workplace* ☐ *Explain how to identify, assess and control hazards; and isolate, report on, and audit machines* ☐ *Explain what Personal Protective Equipment (PPE) is and what PPE is required by your industry*	I can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
2 Interpret drawings and/or specifications & select and use appropriate materials, processes, tools and equipment Can you ☐ *Produce and read engineering sketches* ☐ *Produce and read simple component drawings* ☐ *Explain limits and fits, and geometrical tolerancing* ☐ *Calculate and use mechanical 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* ☐ *Provide an overview of manufacturing processes* Although not required you may also ☐ *Use Basic Computer Aided Design (CAD)* ☐ *Understand Computer Numerical Control (CNC) machines* ☐ *Use marking out equipment*	I can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
3 Apply relevant engineering principles and practices, and problem solving skills Can you ☐ *Apply calculations and measurements* ☐ *Use tools and equipment correctly* ☐ *Monitor condition and safety of tools and equipment* ☐ *Undertake basic fault finding and root cause analysis* ☐ *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* ☐ *Self-inspect and understand Non Destructive Testing* ☐ *Calibrate measuring equipment* ☐ *Interpret relevant standards*	I can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*

Outcomes	Your Evidence (your evidence may be used for more than one outcome)
4 Apply an understanding of effective and efficient processes and principles, and quality systems to the production 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* ☐ *Deliver in full, on time and to specifications*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
5 Practise effective communication within a mechanical engineering team and the wider workplace Can you ☐ *Confirm and clarify instructions* ☐ *Explain the importance of 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*	I can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
6 Recognise the limits of own ability and the importance of working with integrity and maintaining currency in the mechanical engineering 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* Although not required you may also: ☐ *Show continual/lifelong learning and knowledge acquisition* ☐ *Show you research new technology, processes, practices, equipment*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
STRANDS – choose one (or more, but see page 2)	
Fitting and Machining Strand	
Build and install complex machines where both precision fitting and machining skills are required Can you: ☐ *Demonstrate precision fitting and machining skills* ☐ *Manufacture and /or assemble components and equipment* ☐ *Align components to close tolerances* Although not required you may also: ☐ *Manufacture/fabricate jigs and fixtures* ☐ *Install Machines* ☐ *Have knowledge of fluid power systems and their applications* ☐ *Maintain and repair machinery and equipment*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*

Outcomes	Your Evidence (your evidence may be used for more than one outcome)
General Engineering Strand	
Build, maintain, and repair a broad range of machinery and equipment using fitting, machining, fabrication, hydraulics, pneumatics, and welding skills and knowledge Can you: ☐ *Have relevant fitting and welding skills* ☐ *Have general machining skills* ☐ *Have general fabrication skills* ☐ *Have knowledge of fluid power systems and their applications* ☐ *Undertake general maintenance and repair of machinery and equipment* ☐ *Align components to close tolerances*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
Machining Strand	
Plan, sequence, and machine complex engineering components to a high degree of tolerance and finish using current and relevant machining technologies and techniques Can you: ☐ *Undertake precision machining and achieve relevant fits, tolerances and finishes* ☐ *Produce finished component(s) to customer requirements, from a CAD model* ☐ *Program, set and operate CNC machines and set and operate other machine tools* ☐ *Plan and sequence for a highly efficient operation (production runs)* ☐ *Use specialized tooling, cutting technology and equipment* Although not required you may also: ☐ *Use 3D modelling technology* ☐ *Use Computer Aided Manufacturing (CAM) software packages*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*
Maintenance Engineering Strand	
Apply knowledge of maintenance engineering strategies and practices to monitor, inspect, maintain and repair facilities or plant and equipment. Can you: ☐ *Read and interpret complex drawings and schematics* ☐ *Show your understanding of, and can select and apply, appropriate current maintenance techniques and strategies for your industry* ☐ *Monitor, inspect and maintain, and repair a range of industrial plant and equipment, ensuring reliability* ☐ *Contribute to the identification of opportunities for continuous improvement*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*

Outcomes	Your Evidence (your evidence may be used for more than one outcome)
Toolmaking Strand	
Apply knowledge of tool design and function to manufacture tooling for relevant industrial processes, using current and relevant manufacturing technologies and techniques Can you: ☐ *Explain relevant precision machining processes* ☐ *Explain 3D modelling technology* ☐ *Apply knowledge of fits and tolerances to the tool and end product* ☐ *Produce a finished tool to customer requirements, from a CAD model* ☐ *Program, set and operate CNC machines and set and operate other machine tools* ☐ *Explain material properties and their treatments (including where you would find this information if you work with a new material)* ☐ *Explain the end use of the tool, including component materials* ☐ *Can program the sequence of mould/tool development and manufacture* ☐ *Explain how objects fit together in 3D* ☐ *Undertake precision fitting (hand skills)* Although not required you may also: ☐ *Use CAM software packages*	i can ☐ *Talk about this with the assessor* ☐ *Provide written or photo evidence* ☐ *Provide proof from an employer* ☐ *Demonstrate this*

How do I apply?

To make a CAPL application, please supply:

Your Checklist

1 A completed **Ara Admission & Enrolment form** (leave Section 2 blank)
(Please note: A student loan via StudyLink is not a payment option for the CAPL process, but please talk to us about our interest-free instalment payment plan*). ☐

2 Your current and detailed **Curriculum Vitae (CV)** which should contain: ☐

- relevant work history including your positions, tasks and responsibilities
- knowledge and skills required for you to carry out your job
- formal qualifications eg school, polytechnic, university, trade certificates
- informal qualifications eg 'in house' workplace training workshops
- relevant life experience eg in-house workplace teams, managing stress etc

Your CV 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 across your specialisation, with emphasis on the critical thinking/research required.

3 A **personal statement** which summarises your experience and learning, and which supports this application. ☐

4 **Examples of your work** (a few only as you are not being assessed at this stage). If sending files electronically, they must be in an easily readable format (pdf, jpg, rep3, etc) and if large, need to be sent by Drop Box, OneDrive, Google Drive or equivalent, or by CD or DVD. ☐

** Conditional on a credit check undertaken by Ara and approved. No results are released until all fees have been paid.*

Please email your application to **capl@ara.ac.nz**

or post it to:

CAPL
Academic Services Division
Ara
PO BOX 540
Christchurch 8140