

Title	Perform fabrication operations in MaPS environment		
Level	3	Credits	7

Purpose	<p>This unit standard has been designed for secondary school learners in a manufacturing pathway skills (MaPS) programme.</p> <p>People credited with this unit standard are able to: prepare for fabrication of components; fabricate components; apply good work practices to completion activities when fabricating components.</p>
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Classification	Mechanical Engineering > Manufacturing Pathways Skills
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Available grade	Achieved
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Guidance Information

- Legislation and references relevant to this unit standard:
 Health and Safety at Work Act 2015.
Health and Safety note for schools:
Safety in Technology Education: A Guidance Manual for New Zealand Schools 2017 and any subsequent versions of this document, available from Ministry of Education website (<https://education.govt.nz>).

Timings R. (2011) *Fabrication and welding engineering*, Routledge, Abingdon, England, ISBN 978-0-7506-6691-6.
- Definitions

MaPS refers to Manufacturing pathways skills.

MaPS environment refers to any workplace or context where work or activities related to the Manufacturing and Engineering sector take place.

MaPS project refers to a project undertaken in a MaPS environment under general supervision, using a range of tools, equipment and materials, and involving standard processes.

Good work practices – safe, efficient, and effective routine work practices that are generally accepted by an industry sector. These may include standard operating procedures such as: a series of specific steps to complete a job, health and safety practices, care and use of tools and equipment, use of personal protective equipment, communications, and reporting. They may also include compliance with quality standards, manufacturer’s instructions, and workshop policies and procedures covering: housekeeping, personnel hygiene, drug and alcohol use, computer and internet use, and privacy.

Job specifications refers to instructions relevant to the safe completion of the specific task, such as technical specifications, assembly instructions, drawings, parts lists, standards, codes of practice, test and commissioning procedures, and verbal instructions.

Workshop procedures refers to procedures used by the school carrying out the work and applicable to the tasks being carried out. They may include but are not limited to – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.

Workshop recycling procedures – procedures used by the school workshop to recycle materials. Examples are – ferrous-nonferrous metal scrap bins, sorting of recyclable materials.

3 Range

Components – based on conical, or pyramidal shapes; simple transitions;

Materials – aluminium, mild steel, in the range 0.4 mm to 6 mm thickness.

Assembly methods – examples are fasteners, welding.

Fabrication processes – marking out, cutting, forming, assembly, joining.

Evidence of fabrication of two different types of components:

- one transition;
- one conical or pyramidal;
- And using two materials of different thickness and type.

4 Assessment information

All explanations and skills demonstrated must be in accordance with the references and legislations listed above.

Evidence given must be within the context of mechanical engineering or fabrication and meet applicable workshop procedures.

Job specifications for tasks to be assessed should consider the introductory nature of this unit standard, and the materials and machinery used.

There is no expectation of meeting an acceptable industry time in the completion of any work required to meet competency for this unit.

It is recommended that the skills in this unit standard be assessed using a project integrating all the skills contained in the unit.

Outcomes and performance criteria

Outcome 1

Prepare for fabrication of components.

Performance criteria

1.1 Drawings and/or job specifications are interpreted, fabrication processes are determined, and sequence of tasks is planned.

1.2 Machines and tools are selected and their operating procedures and fitness for use is determined.

1.3 Materials are selected in accordance with job specifications.

Outcome 2

Fabricate components.

Performance criteria

- 2.1 Cutting, bending, and joining allowances are calculated and applied.
- 2.2 Components are marked out.
- 2.3 Tools and equipment are set and used safely.
- 2.4 Fabricated components are inspected and measured for compliance with job specifications. Any identified deviations are explained.

Outcome 3

Apply good work practices to completion activities when fabricating components.

Performance criteria

- 3.1 Completion activities specific to the task and work area are carried out.

Range	examples of completion activities – tooling checked, and any defects reported, tooling returned to storage, documentation completed.
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- 3.2 Work area and equipment are cleaned, lubricated where required, and ready for next use.
- 3.3 Any unserviceable equipment is reported.
- 3.4 Waste material is disposed of in accordance with workshop recycling procedures.

Planned review date	31 December 2024
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 April 2020	N/A

Consent and Moderation Requirements (CMR) reference	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.