

Title	Make patterns and/or tooling under supervision for use in industry		
Level	3	Credits	20

Purpose	People credited with this unit standard are, under supervision, able to prepare for patterns and/or tooling manufacture, and make patterns and/or tooling.
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Classification	Mechanical Engineering > Engineering Patternmaking
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Available grade	Achieved
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Entry information	
Recommended skills and knowledge	Unit 21911, <i>Demonstrate knowledge of safety on engineering worksites</i> ; and Unit 21912, <i>Apply safe working practices on an engineering worksite</i> ; or demonstrate equivalent knowledge and skills.

Explanatory notes

1 References

Health and Safety at Work Act 2015.

Resource Management Act 1991.

Hazardous Substances and New Organisms Act 1996.

WorkSafe New Zealand. *Health and Safety Guidelines on the Management of Hazards in the Metal Casting Industry*. Available at:

<http://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/metal-casting-industry-health-and-safety-guidelines-for-the-management-of-hazards-in/metal-casting-hs-guidelines.pdf>.

WorkSafe New Zealand. *Code of Practice for Health and Safety in the Manufacture of Composites Based on Synthetic Resins (Fibreglass)*. Available at:

<https://www.business.govt.nz/worksafe/information-guidance/all-guidance-items/composites-based-on-synthetic-resins-fibreglass-code-of-practice-for-health-and-safety-in-the-manufacture-of/compositescode.pdf>.

2 Definition

Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.

Workplace procedures refer to procedures used by the organisation 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.

- 3 Range
Evidence must be demonstrated in one industry accepted test piece involving hand and machine operations, and one of the three material types:
- Wood.
 - Metal.
 - Composite.
- 4 Assessment Information
- All activities must comply with relevant legislative and/or regulatory requirements, which include, but are not limited to those listed in the references.
 - All activities must comply with applicable workplace procedures and must be consistent with accepted industry practice.
 - Wood* includes solid timber substitutes for use in the industry.

Outcomes and evidence requirements

Outcome 1

Prepare patterns and/or tooling manufacture.

Evidence requirements

- 1.1 Patterns and/or tooling specifications are established in accordance with job sheet, drawings, sample, and/or specification, and are verified with supervisor.
- 1.2 Patterns and/or tooling layout drawings are completed to meet manufacturing requirements, and are verified with supervisor.
- 1.3 Material for patterns and/or tooling is selected to meet specification and process.

Outcome 2

Make patterns and/or tooling.

Evidence requirements

- 2.1 Patterns and/or tooling are formed using hand, power, and machine tools, and equipment appropriate to the job and material being used.
- 2.2 Patterns and/or tooling are measured and are within tolerance in specification, and are verified with supervisor.
- 2.3 Patterns and/or tooling surface are finished to job requirements in accordance with workplace procedures.
- 2.4 Patterns and/or tooling are confirmed as functionally meeting the requirements of specification, and are verified with supervisor.
- 2.5 Patterns and/or tooling are customer-identified in accordance with specification, and are verified with supervisor.

Replacement information	This unit standard replaced unit standards 2364, 2365, and 2366
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Planned review date	31 December 2021
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	18 August 2016	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>.

Please note

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

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.