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| **Title** | **Apply sketching techniques and produce drawings for mechanical engineering** | | |
| **Level** | **4** | **Credits** | **11** |

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| **Purpose** | People credited with this unit standard are able to describe and apply sketching techniques for mechanical engineering, and produce drawings in CAD for mechanical engineering. |

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| **Classification** | Mechanical Engineering > Applied Principles of Mechanical Engineering |

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| **Available grade** | Achieved |

| **Entry information** | |
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| **Recommended skills and knowledge** | Unit 2430, *Draw and interpret engineering sketches under supervision*. |

**Explanatory notes**

1 References
Health and Safety at Work Act 2015 and supporting Regulations.
SAA/SNZ HB 1:1994: *Technical drawing for students.* An abridgement of NZS/AS 1100.101 with additional material from NZS/AS 1100.201 and NZS/AS 1101.3*.*

2 Definitions
*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.
*Computer aided design (CAD)* refers to software that is two-dimensional (2D), three-dimensional (3D), or is a combination of these features.
*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 Assessment information
- a All activities must comply with applicable workplace procedures and must be consistent with accepted industry practice.
- b Drawings produced for this unit standard must be in accordance with SAA/SNZ HB 1:1994: *Technical drawing for students.*

## Outcomes and evidence requirements

### Outcome 1

Describe and apply sketching techniques for mechanical engineering.

Range projections – axonometric (isometric, diametric, and trimetric), oblique, orthographic, auxiliary, sectional views.

### Evidence requirements

1.1 Sketching techniques are described in terms of their application.

1.2 Sketching techniques are applied to meet task requirements.

### Outcome 2

Produce drawings in CAD for mechanical engineering.

Range detail (orthographic) drawings, assembly drawings.

### Evidence requirements

2.1 Drawings are produced that demonstrate an accuracy and clarity which meets task requirements.

Range detail drawings – dimensioning, limits and fits, surface finish, geometric tolerancing, keyways, fastenings, conventional representations of common features, welding and fabrication symbols, standard abbreviations;
assembly drawings – dimensioning, limits and fits, surface finish, geometric tolerancing, keyways, fastenings, conventional representations of common features, welding and fabrication symbols, standard abbreviations, materials list, numbering and/or filing system, Bill of Materials, change notices, drawing change notation, document control.

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| **Planned review date** | 31 December 2021 |

**Status information and last date for assessment for superseded versions**

| Process | Version | Date | Last Date for Assessment |
|---|---|---|---|
| Registration | 1 | 27 October 2005 | 31 December 2016 |
| Rollover and Revision | 2 | 19 March 2010 | 31 December 2021 |
| Review | 3 | 20 October 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 (CMRs). 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.