Title	**Produce engineering component drawings using CAD software**		
Level	**2**	**Credits**	**6**

Purpose	People credited with this unit standard are able to: prepare CAD environment; create drawing entities; edit entities and attributes; produce CAD engineering component drawing file output; and confirm output compliance.

Classification	Mechanical Engineering > Engineering Drawing and Design

Available grade	Achieved

Explanatory notes

1 Reference
SAA/SNZ HB1:1995 Joint handbook – *Technical drawing for students*. Available from Standards New Zealand.

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.
Attributes refers to properties associated with an entity which may include but are not limited to – line type, line width, colour, visibility, layer or level.
CAD – computer aided design
Entities refers to single items created on screen which may include but are not limited to – lines, arcs, circles, text, hatch, dimensions, polygons.
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.
Simple engineering component drawings refers to coherent set of drawing attributes that resemble typical, basic engineering components or parts such as simple pump, gearbox, hydraulic cylinder, support frame, tool and die, holding device, sheet metal fabrications.
Workplace procedures refers 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
Assessment against this unit standard requires the use of any CAD software for the production of at least three simple engineering component drawings.

Outcomes and evidence requirements

Outcome 1

Prepare CAD environment to meet component drawing requirements.

Evidence requirements

1.1 File is created.

1.2 Attributes are set up and selected.

1.3 Dimensioning style variables are set up.

Range examples of dimensioning style variables - dimension line type, colour, weight, location; extension line type, colour, weight, location; symbol and arrow types, sizes, colours.

Outcome 2

Create a minimum of five different drawing entities.

Evidence requirements

2.1 Entities are created to meet component drawing requirements and job specifications.

2.2 Attributes of entities meet component drawing requirements and job specifications.

2.3 Components are created, saved into a hard drive or on-line library and retrieved into drawing to suit component drawing requirements.

2.4 Component entities are dimensioned in accordance with SAA/SNZ HB1:1995 Joint handbook to aid subsequent manufacture.

Range examples of dimensions – datum, coordinates.

Outcome 3

Edit entities and attributes to meet job specifications.

Evidence requirements

3.1 Entities are modified as part of the component drawing process.

Range examples of modification – moving, copying, scaling, rotating, mirroring, stretching, trimming, extending.

3.2 Attributes of entities are modified as part of the component drawing.

Outcome 4

Produce CAD engineering component drawing file output in accordance with workplace procedures or accepted industry practice.

Evidence requirements

4.1 File is saved for retrieval.

4.2 Hard copy working drawing is produced to meet component construction requirements.

Range size, scale, line width.

Outcome 5

Confirm output compliance.

Evidence requirements

5.1 Output is checked to ensure compliance with job specifications.

5.2 Any non-conformance to job specifications is corrected in accordance with workplace procedures or accepted industry practice.

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	31 October 1994	31 December 2011
Revision	2	14 April 1997	31 December 2011
Revision	3	5 January 1999	31 December 2011
Revision	4	23 May 2001	31 December 2011
Review	5	26 July 2004	31 December 2011
Rollover and Revision	6	20 March 2009	31 December 2016
Review	7	17 November 2011	31 December 2021
Review	8	15 September 2016	N/A

Consent and Moderation Requirements (CMR) reference	0013

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.