Title	**Calibrate engineering measuring devices and equipment**		
Level	**4**	**Credits**	**4**

Purpose	People credited with this unit standard are able to demonstrate knowledge of the principles of calibration, and calibrate engineering measuring devices and equipment.

Classification	Mechanical Engineering > Engineering - Measurement

Available grade	Achieved

Guidance Information

1 References
BS 870:2008, *Specification for external micrometers*.
BS 887:2008, *Precision vernier callipers*. *Requirements and test methods.*
BS 907:2008, *Specification for dial gauges for linear measurement*.
BS 939:2007, *Engineers' squares (including cylindrical and block squares*. *Specification.*
BS 1643:2008, *Specification for precision vernier height gauges*.
BS 5204-1:1975, *Specification for straightedges. Cast iron straightedges (bow shaped and I-section).*
BS 5204-2:1977, *Specification for straightedges. Steel or granite straightedges of rectangular section.*
BS EN ISO 10012:2003, *Measurement management systems. Requirements for measurement processes and measuring equipment.*

2 Definition
Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – 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 Recommended for entry
Unit 4439, *Select, use, and care for complex engineering measuring equipment for precision jobs*.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of the principles of calibration.

Range examples of measuring devices and equipment are – squares, micrometers, vernier callipers, dial gauges, height gauges, straight edges, surface plate; evidence is required for at least three different items of equipment.

Performance criteria

1.1 Purpose of instrument calibration is related to internationally accepted measurement standards such as those listed in the references.

1.2 Traceability chain is related to internationally accepted measurement standards such as those listed in the references.

1.3 Measurement uncertainty factors are explained relative to measurements obtained.

Range standard, workpiece, instrument used for measurement, people, environment (SWIPE).

Outcome 2

Calibrate engineering measuring devices and equipment.

Performance criteria

2.1 Documents relevant to calibration are selected according to the task.

Range includes but is not limited to – internationally accepted measurement standards such as those listed in the references, manufacturer's specifications, client specifications.

2.2 Calibration is carried out in accordance with internationally accepted measurement standards such as those listed in the references.

2.3 Measurement uncertainty is assessed and is applied to results.

2.4 Results are recorded according to workplace procedures, and compliance with internationally accepted measurement standards such as those listed in the references is confirmed.

Planned review date	31 December 2022

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	23 May 1995	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	21 February 2005	31 December 2014
Review	6	17 June 2011	31 December 2022
Review	7	14 December 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013

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.