

<b>Title</b>	<b>Operate and maintain basic equipment in a civil engineering laboratory</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	People credited with this unit standard are able to operate and maintain basic equipment in a civil engineering laboratory.
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<b>Classification</b>	Infrastructure Civil Engineering > Infrastructure Laboratory
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Evidence presented for assessment against this unit standard must be consistent with safe working practices and be in accordance with applicable organisational and legislative requirements.
- 2 Applicable legislation, regulations, rules, standards and codes include but are not limited to the: Health and Safety at Work Act 2015; Hazardous Substances and New Organisms Act 1996 and their associated regulations and subsequent amendments; ISO/IEC 17025:2018 *General requirements for the competence of testing and calibration laboratories*, available from <https://www.iso.org/store.html>; NZS 4402:1986 *Methods of testing soils for civil engineering purposes - Preliminary and general*, available from <https://www.standards.govt.nz/>; NZS 4407:2015 *Methods of sampling and testing road aggregates*, available from <https://standards.govt.nz>; AS TG1 *Simple Linear Measurement Instruments*; AS TG2 *Laboratory Balances – Calibration Requirements*; AS TG3 *Working Thermometers – Calibration Requirements*; available from <http://www.ianz.govt.nz/>.
- 3 Definitions  
*Organisational requirements* refer to instructions to staff on policy and procedures which are formally documented or generally accepted at the worksite. This may include legislation; industry standards and methods; national and international standards and methods; standard operating procedures; specifications; manuals; and manufacturer's information.  
*Samples* may include but are not limited to – prepared materials and test materials such as standards and reagents.
- 4 Examples of equipment  
 Mass: ultra-micro, micro, analytical, precision;  
 Temperature: thermocouples, infrared, thermistor, liquid capillary;  
 Length: callipers, micrometers, rulers, tape measures, dial gauges, linear variable displacement transducers (LVDT);

Volume: volumetric container, pressure burette, volume change indicator;  
 Temperature-controlled cabinet: oven, freezer, incubator, bath.

## Outcomes and performance criteria

### Outcome 1

Operate and maintain basic equipment in a civil engineering laboratory.

Range equipment to measure mass, volume, temperature, length;  
 temperature-controlled cabinet;  
 evidence is required for two types of equipment from each category.

### Performance criteria

1.1 Equipment is selected in accordance with sample requirements and method.

Range selection criteria include but are not limited to – capacity or range, precision, units, type.

1.2 Equipment is checked before use.

Range may include but is not limited to – environmental conditions, safety equipment, calibration status, electrical certification.

1.3 Sample requirements are assessed.

Range includes but is not limited to – environmental conditions, placement.

1.4 Equipment is used.

1.5 Results are recorded.

1.6 Equipment is cleaned and maintained.

<b>Planned review date</b>	31 December 2025
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### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	21 January 2011	31 December 2021
Review	2	23 January 2020	N/A
Rollover and Revision	3	24 October 2024	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0101
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

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**Comments on this unit standard**

Please contact Waihangara Rau Construction and Infrastructure Workforce Development Council at [qualifications@waihangaraarau.nz](mailto:qualifications@waihangaraarau.nz) if you wish to suggest changes to the content of this unit standard.