

## Field      Engineering and Technology

### Registration of skill standards and review of unit standards for *Industrial Measurement and Control*

Subfield	Domain	ID
Industrial Measurement and Control	Industrial Measurement and Control - Installation	9180, 24889
	Industrial Measurement and Control - Maintenance	2631, 2633, 2635, 2637, 2639, 2640, 2642 – 2648, 2657, 2664, 2667, 4356, 4357, 19233 – 19235, 24884
	Industrial Measurement and Control - Theory	2630, 2632, 2634, 2636, 2638, 2649, 2654, 2655, 2662, 19241, 22743 – 22745, 24886 – 24888, 25885 – 25888, 28076 – 28083, 28118

Waihangā Ara Rau Construction and Infrastructure Workforce Development Council has completed the review of the unit standards listed above.

**Date new versions published**

**January 2025**

**Planned review date**

**December 2029**

#### Summary

Industrial Measurement and Control unit standards were overdue for review. In conjunction with industry and provider representatives, Waihangā Ara Rau agreed to develop skill standards, starting with those currently used in the programme for the New Zealand Certificate in Industrial Measurement and Control (Practice) (Level 4) [Ref: 2251].

Providers with consent to assess and companies with industrial measurement and control technicians were emailed an invitation to participate in a working group.

This working group developed 11 skill standards in late 2023 – early 2024. A wider group was emailed for comment and the final set of skill standards was endorsed in July 2024.

#### Main changes

- The standard setting body was changed from The Skills Organisation to Waihangā Ara Rau Construction and Infrastructure Workforce Development Council.
- 11 level 4 skill standards were developed to contribute to the New Zealand Certificate in Industrial Measurement and Control (Practice) (Level 4) [Ref: 2251]. Six of these were to replace six unit standards.
- The skill standards that replaced unit standards 2633, 2637 and 2667 were increased to level 4 to better reflect the level of skills required.
- 17 unit standards from *Industrial Measurement and Control – Installation* and *Industrial Measurement and Control – Maintenance* domains were set to expire without replacement.
- Unit standards in the *Industrial Measurement and Control – Theory* domain are not used in any current programmes and were set to expire without replacement.

**Category C and D unit standards will expire at the end of December 2027**

## Impact on existing organisations with consent to assess

Current consent for			Consent extended to		
Nature of consent	Classification or ID	Level	Nature of consent	Classification or ID	Level
Standard	9180	4	Standard	40234	4

## Detailed list of unit standards – classification, title, level, and credits

All changes are in **bold**.

Key to review category	
<b>A</b>	Dates changed, but no other changes are made - the new version of the standard carries the same ID and a new version number
<b>B</b>	Changes made, but the overall outcome remains the same - the new version of the standard carries the same ID and a new version number
<b>C</b>	Major changes that necessitate the registration of a replacement standard with a new ID
<b>D</b>	Standard will expire and not be replaced

Engineering and Technology > Industrial Measurement and Control > Industrial Measurement and Control - Installation

ID	Title	Level	Credit	Review Category
9180	Install or replace, test, and commission industrial instrumentation	4	10	C
<b>40234</b>	<b>Install and commission measuring instruments in industrial systems</b>	<b>4</b>	<b>10</b>	<b>NEW</b>
24889	Demonstrate and apply knowledge of industrial instrumentation installation	4	8	D

Engineering and Technology > Industrial Measurement and Control > Industrial Measurement and Control - Maintenance

ID	Title	Level	Credit	Review Category
2631	Maintain pressure measurement devices	4	10	C
<b>40238</b>	<b>Maintain pressure measuring instruments</b>	<b>4</b>	<b>8</b>	<b>NEW</b>
2633	Maintain level measurement devices used in industry	3	10	C
<b>40239</b>	<b>Maintain level measuring instruments</b>	<b>4</b>	<b>8</b>	<b>NEW</b>
2635	Maintain temperature measurement devices used in industry	4	10	C
<b>40240</b>	<b>Maintain temperature measuring instruments</b>	<b>4</b>	<b>8</b>	<b>NEW</b>
2637	Maintain flow measurement devices used in industry	3	10	C
<b>40241</b>	<b>Maintain flow measuring instruments</b>	<b>4</b>	<b>8</b>	<b>NEW</b>
2639	Maintain and service control valves in accordance with industry requirements	4	10	D
2640	Maintain control valve actuators and positioners	3	5	D
2642	Maintain a pH measuring system for chemical analysis	4	4	D
2643	Maintain a conductivity measuring system	4	4	D
2644	Maintain a dissolved oxygen measuring system	4	4	D
2645	Maintain a consistency or a viscosity measuring system	4	4	D
2646	Maintain analytical monitoring equipment	4	4	D
2647	Maintain humidity or dewpoint monitoring equipment	4	4	D
2648	Maintain and calibrate density monitoring equipment	4	4	D
2657	Maintain pneumatic controllers	4	5	D

ID	Title	Level	Credit	Review Category
2664	Maintain hydraulic or electro-hydraulic equipment	3	3	D
2667	Install and service pneumatic or electro-pneumatic equipment	3	5	C
<b>40235</b>	<b>Install, test, and service pneumatic or electro-pneumatic equipment</b>	<b>4</b>	<b>5</b>	<b>NEW</b>
4356	Maintain chromatographs	4	4	D
4357	Tune or adjust a plant control loop	4	2	D
19233	Demonstrate knowledge of the operation, measurement, and control of an industrial process	5	10	D
19234	Diagnose and correct faults in industrial measurement and control systems	5	10	D
19235	Maintain and manage specialist analytical equipment used in industrial processes	5	10	D
24884	Maintain conditioning modules and electronic or microprocessor based controllers	4	6	D
<b>40236</b>	<b>Diagnose and correct faults in industrial systems</b>	<b>4</b>	<b>20</b>	<b>NEW</b>
<b>40237</b>	<b>Test a PID controller and analyse control loops</b>	<b>4</b>	<b>5</b>	<b>NEW</b>
<b>40242</b>	<b>Maintain actuators and positioners in an industrial context</b>	<b>4</b>	<b>4</b>	<b>NEW</b>
<b>40243</b>	<b>Maintain analytical measuring equipment in an industrial context</b>	<b>4</b>	<b>8</b>	<b>NEW</b>
<b>40244</b>	<b>Maintain final controlling elements in an industrial context</b>	<b>4</b>	<b>4</b>	<b>NEW</b>

Engineering and Technology > Industrial Measurement and Control > Industrial Measurement and Control - Theory

ID	Title	Level	Credit	Review Category
2630	Demonstrate knowledge of pressure measurement systems used in industry	3	4	D
2632	Demonstrate knowledge of level measurement systems used in industry	3	3	D
2634	Demonstrate knowledge of temperature measurement systems used in industry	3	5	D
2636	Demonstrate knowledge of flow measurement systems used in industry	3	4	D
2638	Demonstrate knowledge of control valves, actuators, and positioners	3	4	D
2649	Demonstrate knowledge of signal conditioners, trending recorders, and alarm systems	4	3	D
2654	Demonstrate knowledge of on/off and proportional integral derivative mode control theory and controllers	4	8	D
2655	Tune control loops	4	6	D
2662	Demonstrate knowledge of distributed control systems	4	2	D
19241	Demonstrate knowledge of safety and compliance for industrial measurement and control systems	5	10	D
22743	Demonstrate and apply intermediate knowledge of instrumentation and control system engineering	5	15	D
22744	Demonstrate and apply knowledge of industrial automation engineering	6	15	D
22745	Demonstrate and apply advanced knowledge of instrumentation and control principles	6	15	D

ID	Title	Level	Credit	Review Category
24886	Demonstrate and apply knowledge of electronic configurable instruments and loops used in industry	4	3	D
24887	Demonstrate knowledge of electronic variable speed drives	4	3	D
24888	Prepare and interpret diagrams for instrumentation and control systems	3	3	D
25885	Demonstrate knowledge of the selection and specification of equipment for industrial measurement and control systems	5	15	D
25886	Demonstrate knowledge of control system hardware and interfaces for industrial measurement and control systems	5	15	D
25887	Demonstrate knowledge of process theory for industrial measurement and control processes and applications	5	15	D
25888	Demonstrate knowledge of process theory for industrial measurement and control systems	5	5	D
28076	Demonstrate and apply knowledge of advanced control loop methods	4	7	D
28077	Demonstrate knowledge of the physical principles of instrumentation systems	3	5	D
28078	Demonstrate knowledge of industrial measurement processes, standards, and calibration	3	4	D
28079	Demonstrate and apply fundamental knowledge of digital and analogue electronics for IMC technicians	3	12	D
28080	Demonstrate knowledge of liquid analytical measurement systems	4	3	D
28081	Demonstrate knowledge of gas analytical measurement and flame, gas, smoke, and heat detection	4	5	D
28082	Demonstrate knowledge of transducers and strain gauges and their applications in industrial measurement	3	7	D
28083	Demonstrate knowledge of hydraulic and pneumatic control equipment used in industrial process control applications	3	6	D
28118	Develop user and functional requirement specifications for automated industrial processes	5	5	D