

41030 Integrate electrical controls in irrigation system design

Kaupae Level	5
Whiwhinga Credit	10
Whāinga Purpose	<p>This skill standard is for people working in, or intending to gain skills in, integrating electrical control systems into irrigation designs in accordance with operational requirements, safety standards, and regulatory compliance.</p> <p>People credited with this skill standard will be able to ensure irrigation systems are equipped with control systems that are functional, safe, and aligned with current New Zealand industry practices.</p> <p>This skill standard provides a foundation for further training in advanced irrigation system automation, control system integration, and operational optimisation and has been developed to align with the New Zealand Certificate in Irrigation System Design ([Ref: 2557]).</p>

Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

Hua o te ako Learning outcomes	Paearu aromatawai Assessment criteria
1. Describe key electrical components used in irrigation systems and their functions.	a. Describe the physical characteristics and placement of the components within irrigation system design.
	b. Describe the operational function and purpose of each identified component within the irrigation system.
2. Integrate electrical control systems into irrigation design.	a. Design electrical schematics that accurately integrate control systems within irrigation layouts.
	b. Apply safety regulatory requirements for electrical certification at installation phase.
3. Prepare electrical and irrigation system design documentation that meets New Zealand safety and regulatory requirements.	a. Produce design documentation, including irrigation control schematics and component specifications in detail for engagement with a licensed electrician.
	b. Verify and document that the design meets New Zealand electrical safety standards and regulatory requirements.

Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

Assessment specifications:

Akōnga/learners must be assessed in the context of a commercial irrigation system, using naturally occurring evidence.

Activities can be assessed against existing, new or modified irrigation systems.

The irrigation system is for an agricultural or horticultural property, sports turf surface, landscape, golf course, amenities and wastewater.

All activities and evidence must meet the requirements of worksite procedures, accepted industry practice and any subsequent amendments to legislation.

Evidence for all outcomes must be presented in accordance with: New Zealand Piped Irrigation Systems Design Code of Practice; and Irrigation; available from the Irrigation New Zealand website, <http://irrigationnz.co.nz/> and any subsequent amendments.

Providers must give due consideration to embedding ngā kaupapa (principles) o Te Tiriti o Waitangi when designing delivery activities relevant to this standard. These principles are outlined in [Guidelines for Providers: Embedding Tirohanga Māori](#).

Providers must give due consideration to the needs and values of Pacific peoples and other cultural groups when designing delivery activities relevant to this standard, ensuring practices are inclusive and equitable.

Definitions:

Accepted industry practice refers to approved codes of practice and standardised procedures accepted by the wider tree felling industries as examples of best practice.

Worksite procedures refer to documented 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, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

Ngā momo whiwhinga | Grades available

Achieved.

Key Electrical Components in Irrigation Systems

- Timers: Automate irrigation schedules
- Sensors: Monitor soil moisture, rainfall, weather conditions adaptive control
- Valves: Water flow to different zones
- Starters: Activate pumps and motors
- Remote Monitoring devices: Off-site system management and diagnostics.

Electrical Control Systems into Irrigation Layouts

- System Integration: Electrical and hydraulic components
- Safety Compliance: NZ Electrical Code of Practice
- Wiring Specifications: Standards for cable types, conduit use, and earthing
- Load Calculations: Circuit sizes and protection devices
- Circuit Protection: Fuses, breakers, surge protection equipment.

Electrical and System Design Documentation

- Design Documentation: Drawing layouts, Circuit diagrams
- Operation and Maintenance Manuals: Instructions for system use and upkeep
- As-Built Drawings: Installation and future reference
- Compliance Reports: Documentation.

Rauemi | Resources

Legislation relevant to this skill standard includes but is not limited to:

- Irrigation New Zealand website (codes of practice), <http://irrigationnz.co.nz/>;
- Health and Safety at Work Act 2015 [Health and Safety at Work Act 2015 No 70 \(as at 05 April 2025\), Public Act Contents – New Zealand Legislation](#);
- Resource Management Act 1991 [Resource Management Act 1991 No 69 \(as at 05 April 2025\), Public Act Contents – New Zealand Legislation](#);
- National Policy Statement for Freshwater Management 2014 [National Policy Statement for Freshwater Management | Ministry for the Environment](#);
- Public Works Act 1981 [Public Works Act 1981 No 35 \(as at 05 April 2025\), Public Act Contents – New Zealand Legislation](#);
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020 [Resource Management \(National Environmental Standards for Freshwater\) Regulations 2020 \(LI 2020/174\) \(as at 01 January 2025\) Contents – New Zealand Legislation](#);
- National Environmental Monitoring Standards (NEMS) [National Environmental Monitoring Standards » National Environmental Monitoring Standards \(NEMS\)](#);
- Site specific water resource consent or water supply agreement, weather data [Home | NIWA](#);
- Descriptions and soil profile data sheets [S-Map Online | Manaaki Whenua - Landcare Research](#);

and any subsequent amendments or replacements.

Pārongo Whakaū Kounga | Quality assurance information

Ngā rōpū whakatau-paerewa Standard Setting Body	Muka Tangata – People Food and Fibre Workforce Development Council
Whakaritenga Rārangi Paetae Aromatawai DASS classification	Engineering and Technology > Water Industry > Irrigation
Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga CMR	0052

Hātepe Process	Putanga Version	Rā whakaputa Review Date	Rā whakamutunga mō te aromatawai Last date for assessment
Rēhitatanga Registration	1	18 December 2025	N/A
Kōrero whakakapinga Replacement information	N/A		
Rā arotake Planned review date	31 December 2030		

Please contact Muka Tangata – People Food and Fibre Workforce Development Council at qualifications@mukatangata.nz to suggest changes to the content of this skill standard.