

Title	Install, commission, and maintain an uninterruptible power supply (UPS) system		
Level	4	Credits	4

Purpose	People credited with this unit standard are able to: <ul style="list-style-type: none"> – demonstrate knowledge of Uninterruptible Power Supply (UPS) systems; – install a UPS system; – commission a UPS system; and – maintain a UPS system.
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Classification	Electrical Engineering > Electrical Installation and Maintenance
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Available grade	Achieved
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Guidance Information

- 1 This unit standard has been developed for learning and assessment on-job.
- 2 Achievement of this unit standard does not by itself imply that trainees may legally perform prescribed electrical work in their own right. Until they are registered and licensed under the Electricity Act 1992, trainees are assisting, and must work under the supervision of a Supervisor of Electrical Work when carrying out prescribed electrical work. If the prescribed electrical work in question is carried out for reward the Supervisor of Electrical Work must hold a valid practising licence.
- 3 References
 Electricity Act 1992;
 Electricity (Safety) Regulations 2010;
 Health and Safety at Work Act 2015;
 AS/NZS 3000:2018, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*, including Amendment 1;
 and all subsequent amendments and replacements.
- 4 Definitions
 The term *current regulations and standards* is used in this unit standard to refer to the requirements of the above references.
 The term *safe and sound practice* relating to the installation of electrical equipment is defined in AS/NZS 3000:2018.
- 5 Range
 - a Demonstration of *safe working practices*, and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
 - b *UPS* – static, proprietary-type, uninterruptible power supply system of up to 200 kVA.

Outcomes and performance criteria

Outcome 1

Demonstrate knowledge of Uninterruptible Power Supply (UPS) systems.

Performance criteria

- 1.1 The purpose of a UPS system is described in terms of protection against power failure.
- Range voltage sags and surges, transient under-voltage and over-voltage, electrical noise.
- 1.2 Applications for a UPS system are identified.
- Range should include but are not limited to – computer systems, process control, communications, testing, medical installations.
- 1.3 The functions of UPS components are described and identified from a physical or pictorial display.
- Range filters, line-conditioners, constant-voltage transformers, rectifiers, batteries, inverters, by-pass.
- 1.4 A simple block diagram is produced, showing interconnection of the components.
- Range filters, line-conditioners, constant-voltage transformers, rectifiers, batteries, inverters, by-pass.
- 1.5 Safety requirements and rules applicable to UPS systems are identified from reference material.

Outcome 2

Install a UPS system.

Performance criteria

- 2.1 UPS system is verified as meeting the load requirements using manufacturer's specifications and/or job specification.
- 2.2 UPS component locations and interconnections are determined from job specification and/or manufacturer's instructions.
- Range battery bank, charging units, distribution and control systems, cable routes, earthing.
- 2.3 Installation is carried out in accordance with current regulations and standards, and job specification and/or manufacturer's instructions.

Outcome 3

Commission a UPS system.

Performance criteria

- 3.1 Tests and certification are completed in accordance with current regulations and standards.
- 3.2 System is adjusted and tested according to job specification and/or manufacturer's instructions.
- Range tests should include but are not limited to – monitoring, control and protection circuitry, test switches, charging circuitry, operation during supply failure or fluctuation.
- 3.3 Documentation is completed according to job specification and/or company requirements.
- Range drawings, test results, commissioning log.

Outcome 4

Maintain a UPS system.

Performance criteria

- 4.1 UPS system and components are tested for operation according to manufacturer's specifications.
- 4.2 Results of all tests are compared with manufacturer's specifications.
- 4.3 Faulty systems and devices are logged and repaired, or returned for repair with fault data attached, according to company requirements.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 April 1997	31 December 2013
Revision	2	3 April 2001	31 December 2013
Review	3	26 May 2005	31 December 2027
Rollover and Revision	4	15 March 2012	31 December 2027
Revision	5	15 January 2014	31 December 2027
Rollover and Revision	6	28 January 2021	31 December 2027
Review	7	25 May 2023	31 December 2027

Consent and Moderation Requirements (CMR) reference

0003

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.