

Title	Demonstrate knowledge of computer networking infrastructure principles		
Level	4	Credits	2

Purpose	<p>This unit standard covers the necessary introductory skills required to install, test, and document voice and data cabling in a domestic and commercial environment.</p> <p>People credited with this unit standard are able to:</p> <ul style="list-style-type: none"> – describe basic cabling and related safety issues; – demonstrate knowledge of basic networking principles; and – describe structured cabling installation requirements.
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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 off-job or on-job.
- 2 Definitions

Cable – coaxial, copper, optical fibre.

Coaxial cable – includes 10Mbps baseband coaxial cable (Thinnet) (10Base-2) and 10Mbps baseband coaxial cable (Thicknet) (10Base-5).

Ethernet – a process called Carrier Sense, Multiple Access, Collision Detection (CSMA/CD), which has data collision detection, it is used to pass data across a physical media.

IEEE – Institute of Electrical and Electronic Engineers.

Industry practice – those practices that competent practitioners within the industry recognise as current industry best practice.

LAN – local area network.

MAN – metropolitan area network.

OSI – Open System Interconnect, a model developed by the International Standards Organisation.

Safe and sound practice – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*.

WAN – wide area network.

3 References

AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*;
AS/NZS 3080:2013, *Information technology - Generic cabling for customer premises*;
Electricity (Safety) Regulations 2010;
Electricity Act 1992;
EWRB *Teaching Guidelines* available at [EWRB - Publications](#);
The New Zealand Electrical Codes of Practice (Ministry of Economic Development, ISSN 0114-0663);
and all subsequent amendments and replacements.

4 Range

- a Candidates are expected to express calculated values in the relevant Système International (SI) units, including multiples and sub-multiples (pico, nano, micro, milli, kilo, mega, etc) and be able to convert between them.
- b Candidates may refer to current legislation and Standards during assessment.
- c Demonstration of safe working practices and installation in accordance with *safe and sound practice* are essential components of assessment of this unit standard.
- d All activities and evidence presented for all outcomes and performance criteria in this unit standard must be in accordance with:
 - i legislation;
 - ii policies and procedures;
 - iii ethical codes;
 - iv *Safe and sound practice* – as it relates to the installation of electrical equipment is defined in AS/NZS 3000:2007, *Electrical Installations (known as the Australian/New Zealand Wiring Rules)*;
 - v applicable site, enterprise, and industry practice; and,
 - vi where appropriate, manufacturers' instructions, specifications, and data sheets.

Outcomes and performance criteria

Outcome 1

Describe basic cabling and related safety issues.

Performance criteria

- 1.1 Describe standards and safety practices that apply to telecommunication and data cabling.

Range	may include but is not limited to – AS/NZS 3000, AS/NZS 3080, building codes, TIA/EIA standards, IEEE 802 standards, IEEE 802.3 Ethernet standards.
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Outcome 2

Demonstrate knowledge of basic networking principles.

Performance criteria

- 2.1 Describe types of networks and topologies and their relationship in the OSI model.
- Range may include but is not limited to – LAN, MAN, WAN, bus, star, ring, network interface card (NIC), hubs, switches and routers.
- 2.2 Outline installation and connection requirements of basic network cabling.

Outcome 3

Describe structured cabling installation requirements.

Range may include but is not limited to – rough-in, trim-out, finishing phases; equipment racks; trays and runways; cable reels; testing; documentation.

Performance criteria

- 3.1 Describe the processes, plant, and equipment necessary to complete the installation of a structured cabling system.

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	21 July 2016	31 December 2027
Review	2	24 March 2022	31 December 2027
Rollover and Revision	3	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>.