



Australian Government

UEECS0029 Set up and configure basic local area network (LAN)

Release: 1

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Modification History

Release 1. This is the first release of this unit of competency in the UEE Electrotechnology Training Package.

Application

This unit involves the skills and knowledge required to set up and configure local area network (LAN).

It includes planning, setting up, configuring, maintaining, completing work and documenting activities for LAN of up to 20 connected devices.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

UEECS0003 Assemble, set up and test computing devices

UEECD0007 Apply work health and safety regulations, codes and practices in the workplace

Competency Field

Computer Systems

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to set up and configure LAN

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1** Work health and safety (WHS)/occupational health and safety (OHS) requirements and workplace procedures are identified and applied
- 1.2** Extent of set-up and configuration work is determined from job specifications and consultations with relevant

- person/s
- 1.3** Relevant person/s is consulted to coordinate work effectively with others on work site
 - 1.4** Hardware and software needed for work are obtained in accordance with workplace procedures and checked against job requirements
 - 1.5** Work is checked to ensure damage has not occurred and complies with requirements
- 2 Set up, configure and maintain LAN**
- 2.1** Hazards are identified, risks are assessed and control measures are implemented
 - 2.2** Layout of network hardware cabling and outlets is determined from job specifications and/or consultations with relevant person/s
 - 2.3** Hardware is installed in accordance with workplace procedures
 - 2.4** Network software and protocols are installed and configured in accordance with network requirements
 - 2.5** Network operations are tested and anomalies identified and corrected
 - 2.6** Reported network failures and faults are responded to using appropriate tools and methods
 - 2.7** Identified causes of reported problems are rectified and network is tested in accordance with workplace procedures
 - 2.8** Unplanned situations are responded to in accordance with workplace procedures and approval of authorised person/s
 - 2.9** Set-up, configuration and maintenance are completed without waste of materials, damage apparatus, surrounding environments or services using sustainable energy practices in accordance with workplace procedures
- 3 Complete work and document activities**
- 3.1** WHS/OHS risk control work completion measures and procedures are followed
 - 3.2** Worksite is cleaned and made safe in accordance with workplace procedures

- 3.3 Network configuration and maintenance records are maintained in accordance with workplace procedures
- 3.4 Service report is completed and forwarded to appropriate person/s in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the UEE Electrotechnology Training Package Companion Volume Implementation Guide.

- Setting up and configuring LAN must include at least two the following:
- two personal computers/workstations
 - one server
 - switch or router
 - one input or output device

Unit Mapping Information

This unit replaces and is equivalent to UEENEED146A Set up and configure basic local area network (LAN).

Links

Companion Volume implementation guides are found in VETNet - -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b8a8f136-5421-4ce1-92e0-2b50341431b6>

Assessment Requirements for UEECS0029 Set up and configure basic local area network (LAN)

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and include:

- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements, including implementing risk control measures
- applying sustainable energy principles and practices
- cleaning worksite and making safe
- completing work and documenting activities
- coordinating work with others
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- identifying and correcting anomalies
- identifying the extent of work
- installing and configuring software and installing hardware
- obtaining specified hardware and software and checking against job requirements
- planning and configuring local area network (LAN)
- rectifying network problems and maintaining maintenance records
- setting up, configuring and maintaining LAN.

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all of the requirements of the elements, performance criteria and range of conditions and include knowledge of:

- analogue and digital signals, including:
 - how information is carried
 - signal distortion, including attenuation, reflection, noise, dispersion, jitter, latency and collisions
- the open systems interconnection (OSI) model for computer system interconnect, including:
 - physical layer
 - data link layer

- network layer
- transport layer
- session layer
- presentation layer
- application layer
- purpose of each layer of OSI model
- comparing transmission control protocol (TCP) and internet protocol (IP)
- TCP and user datagram protocol (UDP)
- TCP segment format
- UDP segment format
- TCP connection methods
- types of networks, network components and hardware
- LAN architectures, including:
 - general principle of LAN, including:
 - benefits of a LAN
 - the elements of a LAN
 - the different types of network topology and their applications
 - cabling and termination arrangements for a LAN system
- multiple access units and their function, including switches, access points and routers
- LAN standards, including ethernet (IEEE 802.3) and wireless ethernet (IEEE 802.11)
- basic principle of medium access methods such as polling and CSMA/CD
- current network operating systems available for establishing a LAN, including:
 - network protocols
 - concepts of TCP/IP addressing
 - peer-to-peer and server based
 - establishing workgroups
 - file and device sharing
- network hardware installation methods, including installing network cards, and installing switches and routers
- concepts and the hardware required for internet and world wide web working LANs
- network security
- network device set-up and configuration
- hardware requirements
- network testing and diagnostic tools and methods
- networking protocols
- network security
- network signal propagation
- basics of encoding networking signals
- IP addressing and sub-netting
- cabling layouts
- network protocols and faults

- network software and hardware installation and configuration methods
- relevant manufacturer specifications
- relevant job safety assessments or risk mitigation processes, including risk control measures
- relevant WHS/OHS legislated requirements
- relevant workplace documentation including maintenance records and service records
- relevant workplace policies and procedures
- sustainable energy principles and practices.

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must occur in workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated workplace operational situations that replicate workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment (PPE) currently used in industry
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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