



Australian Government

UEEIC0005 Configure and maintain industrial control system networks

Release: 1

UEEIC0005 Configure and maintain industrial control system networks

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 configure and maintain communication services on an industrial control system network.

It includes industrial control network topology and protocols, configuring data links, bus monitoring and system management and access, network testing and documenting system settings.

This unit applies to all aspects of electrotechnology – engineering applications only. For general competencies related to information technology (IT) refer to the latest endorsed ICT Information and Communications Technology Training Package.

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

Pre-requisite Unit

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

Competency Field

Instrumentation & Control

Unit Sector

Electrotechnology

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes.

1 Prepare to configure industrial control system

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) processes and workplace procedures for a

networks	given work area are identified, obtained and applied
	1.2 Hazards are identified, WHS/OHS risks assessed, and control measures and workplace procedures are implemented in preparation for work
	1.3 Scope of the industrial control system and network is established from control system specifications and in consultation with relevant person/s
	1.4 Activities are planned to meet scheduled timelines in consultation with others involved in the work
	1.5 Network operating system versions and updates needed to configure and maintain the network are obtained in accordance with workplace procedures and checked against job requirements
2 Configure and maintain industrial control system networks	2.1 WHS/OHS risk control measures and workplace procedures for carrying out work are followed
	2.2 Control application network components are installed, upgraded and configured in accordance with design instructions and network requirements
	2.3 Devices desktop environment, network protocols and services and system security are implemented in accordance with network requirements
	2.4 Access to control data and resources is configured within the limitations specified for each relevant network user
	2.5 Network malfunctions are identified and rectified using logical fault-finding techniques of control devices, storage network protocols, connections and services and system security configuration processes
	2.6 Network performance and reliability is monitored and optimised in accordance with workplace procedures
	2.7 Methods for dealing with unplanned situations are selected on the basis of safety and specified work outcomes
	2.8 Network administration is carried out efficiently, without waste of materials and energy or damage to apparatus, the surrounding environment or other

services

3 Document network configuration and maintenance activities

- 3.1** Written justification is documented detailing network maintenance and upgrade requirements and relevant person/s notified in accordance with workplace procedures
- 3.2** Network maintenance documentation is maintained 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.

Configuring and maintaining an industrial control system network must include the following:

- at least two programable controllers
- at least one human-machine interface (HMI)

Unit Mapping Information

This unit replaces and is equivalent to UEENEEI157A Configure and maintain industrial control system networks.

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 UEEIC0005 Configure and maintain industrial control system networks

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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 sustainable energy principles and practices
- applying relevant work health and safety (WHS)/occupational health and safety (OHS) requirements
- configuring and maintaining industrial control system networks
- configuring access to control data and resources for each user
- dealing with unplanned events/situations in accordance with workplace procedures in a manner that minimises risk to personnel and equipment
- documenting network configuration and maintenance activities
- determining industrial control system and network requirements and operating system versions and updates
- identifying network malfunctions/faults
- installing, upgrading and configuring control application network components correctly
- rectifying network malfunctions/faults in accordance with workplace procedures
- documenting control system network configuration and maintenance requirements
- planning and preparing to configure and maintain industrial control system networks.

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:

- bus monitor, including capturing and filtering
- control system networks interface
- data link layer
- field bus message specification
- high-speed ethernet and protocols
- industrial control systems networks
- network topology, including nodes and connecting lines

- open and common proprietary control system networks models (layers) and protocols
- purpose and application of control system networks systems
- relevant job safety assessments or risk mitigation processes
- relevant industry standards and protocols
- relevant manufacturer specifications
- relevant WHS/OHS legislated requirements
- relevant workplace documentation
- 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 suitable workplace operational situations where it is appropriate to do so; where this is not appropriate, assessment must occur in simulated suitable 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 simulations
- relevant and appropriate materials, tools, facilities and equipment currently used in industry
- resources that reflect current industry practices in relation to configuring and maintaining industrial control system networks
- applicable documentation, including workplace procedures, equipment specifications, regulations, codes of practice and operation manuals.

Links

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