



Australian Government

**Assessment Requirements for MEM29006
Use a SCADA system to assist Industry 4.0
operations in manufacturing and
engineering**

Assessment Requirements for MEM29006 Use a SCADA system to assist Industry 4.0 operations in manufacturing and engineering

Modification History

Release 1. New unit.

Performance Evidence

There must be evidence the candidate has demonstrated the ability to:

- source technical information on using SCADA for monitoring and controlling for at least two industrial processes including from:
 - manufacturer's manuals, documentation, and web sites
 - work orders
 - standard operating procedures (SOPs)
 - discussion with relevant experts
- interpret SCADA symbols, diagrams and the structure of alarms
- record at least two changes and adjustments to SCADA system hardware and software on a graphical user interface using standard SCADA objects, templates and drawing protocols. The changes must involve changes to monitoring and controlling multiple machines or workstations and include change at PLC and master controller level.
- acquire and analyse at least two sets of machine or process data from a SCADA system including:
 - conversion of raw data
 - manipulation of complex data within the SCADA software
 - trending
 - graphical representation
- analyse data fields for reports
- identify and rectify inefficient uses of SCADA system.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- the different applications and systems that are generally associated with Industry 4.0
- advantages and disadvantages of SCADA as a system for control system for the supervision and acquisition of data from local and remote industrial processes:
- analog and digital data conversion and transmission to suit the requirements of different SCADA, systems, equipment and stakeholders
- applications of SCADA systems within an industrial process environment including:

- limitations of SCADA systems (i.e. physical and environmental limitations)
- major proprietary SCADA systems and protocols used in industry including applications and key differences
- SCADA system networking in a factory environment including
 - local area network (LAN)
 - WiFi
 - internet
 - advantages and disadvantages of different networking systems
- SCADA data acquisition including:
 - hardware requirements
 - serial port: RS232, RS422, RS485
 - USB
 - commercial systems
 - software requirements
 - drivers
 - specialist programs
- SCADA cyber security protocols
- PLC interface requirements for SCADA systems including configuring and testing data connection between SCADA system and PLCs
- test procedures to determine the accuracy of data collected by a SCADA system
- connection and configuration of voice diallers and alarm callout systems
- SCADA-related drawing protocols, objects and templates.
-

Assessment Conditions

- Assessors must:
 - have vocational competency in the use of SCADA systems in an industry 4.0 context to at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- There must be access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- 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.

-

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>