



Australian Government

Assessment Requirements for MEM29001 Work in Industry 4.0

Release: 1

Assessment Requirements for MEM29001 Work in Industry 4.0

Modification History

Release 1. New unit.

Performance Evidence

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

- review at least two real or simulated workplace operations and identify potential improvements and risk factors using at least two of the following Industry 4.0 technologies:
 - automation including traditional and collaborative robots
 - CAD and CAM networking to and from manufacturing processes including:
 - additive manufacturing
 - CNC machining
 - industrial internet of things (IIoT)
 - cyber-physical systems
 - digital twins
 - cloud based storage and networking
 - virtual and augmented reality
- for the two real or simulated workplace operations used in the above review:
 - map current communication and data flows within and between teams/employees
 - identify opportunities for improved data collection, analysis and management using Industry 4.0
- prepare a self-development plan to maintain own currency with technological advances and their applications within Industry 4.0 environment
- report the potential impact of Industry 4.0 on the future of manufacturing and its relationship with Lean Manufacturing.

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:

- background and concepts of Industry 4.0 and the stages of industrial development
- key aspects of Industry 4.0, including:
 - sensors and other data collection strategies
 - digitilisation of data
 - data classification and analysis
 - robotics and automation and their relationship to data driven manufacturing

- internal and external cloud-based networking including cyber-security
- digital twins
- strategies for merging physical and virtual worlds
- principles of product lifecycle management
- impact of Industry 4.0 on manufacturing and its relationship to Lean Manufacturing
- impact of Industry 4.0 on work organisation including remote work and cross-disciplinary teams
- methods to research the current state of Industry 4.0 technologies
- stages of Industry 4.0 implementation in enterprises including:
 - system design
 - trialling
 - commissioning
 - implementation
 - continuous improvement
- basic cyber-security procedures, guidelines, tools and methods
- the relationship between the following skills and Industry 4.0 systems and technologies including skills in:
 - problem-solving
 - teamwork
 - communication
 - numeracy
 - digital literacy
 - planning and organising.

Assessment Conditions

- Assessors must:
 - have vocational competency in industry 4.0 work 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>