



Australian Government

**MEM234031 Manage installation,
commissioning or modification of machines
and equipment**

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Modification History

Release	Comments
2	Metadata updated.
1	This unit of competency was first released in MEM Manufacturing and Engineering Release 3.0.

Application

This unit of competency defines the skills and knowledge required to provide a high-level technical leadership role in the installation, commissioning or modification of machines and equipment across all forms of manufacturing and engineering. It includes interpreting manufacturer specifications, determining implications of relevant regulation and internal or external client brief, liaison with designers, and ensuring that team members are aware of technical and performance requirements.

The unit complements the more general technical leadership and management skills found in unit MEM234001 Plan and manage engineering-related projects or operations. Informal technical or engineering advice situations are covered by the unit MEM234030 Provide specialised technical and engineering guidance to other technical employees.

This unit does not reflect all technical skills and knowledge required for machine and equipment installation, commissioning or modification tasks. The required technical skills will depend on the particular task and will normally be covered through the selection of relevant technical units as well as the combined skill and knowledge of the team. However, the unit presumes engineering skills and knowledge to at least Advanced Diploma level.

Licensing/Regulatory Information

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

Pre-requisite unit(s)

Nil

Competency field(s)

Engineering science

Unit sector(s)

N/A

Elements and Performance Criteria

Elements	Performance criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify scope of machine installation, commissioning or modification task	1.1 Examine machine and equipment drawings, manufacturer manuals and other technical data 1.2 Determine performance and production requirements expected from machines and equipment after installation, commissioning or modification 1.3 Determine relevant regulatory requirements 1.4 Inspect site and determine appropriateness of structural supports, ventilation, services, security and other critical requirements 1.5 Determine mechanical, electrical, fabrication and machine control skills and task requirements 1.6 Produce or review installation, commissioning or modification schedule and establish work requirements
2. Brief team on requirements	2.1 Distribute and discuss drawings, schedules, and major materials and equipment 2.2 Arrange for request for further information (RFIs) with designers 2.3 Brief team on key compliance and risk factors, including regulatory, WHS and environmental requirements 2.4 Agree with team on critical control points and reporting requirements
3. Commence installation, commissioning or modification task	3.1 Supervise machine and equipment shutdowns required for task 3.2 Supervise unloading of any new machines, equipment and materials for compliance with workplace requirements 3.3 Determine that supply of services to work is adequate for task commencement 3.4 Ensure all tradespersons have correct drawings

4. Monitor progress and deal with contingencies	4.1 Establish procedures to ensure assembly and connections meet design specifications 4.2 Ensure electrical, fluid power and control systems and circuits are consistent with specifications and regulations 4.3 Identify problems and contingencies and establish and rectify root cause
5. Finalise installation, commissioning or modification	5.1 Conduct final check to ensure installation, commissioning or modification is consistent with drawings, manufacturer manuals and any regulatory requirements 5.2 Conduct test run of equipment 5.3 Identify and correct any malfunctions or errors in required output
6. Conduct handover and finalise documentation	6.1 Brief client and operators on machine or equipment operation after completion of work 6.2 Prepare and submit required reports in accordance with organisational procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Installation, commissioning or modification to machinery and equipment projects includes:	• verifying the performance of the whole machine or equipment against drawings, client brief and manufacturer specifications at the conclusion of the project • planning and supervising the installation, commissioning or modification project • conducting work against a formal design.

Appropriate technical personnel and professionals include:	• technical support and advice relating to elements which have intrinsic dangers • professional support for technologies • professional services for: ○ finance, accounts and tax ○ insurance and legal ○ training and human resources (HR).
WHS, regulatory, sustainability and environmental issues include:	• WHS acts, regulations and relevant standards • industry codes of practice • risk assessments • registration requirements • safe work practices • minimising ecological and environmental footprint of process, plant and project • maximising economic benefit of process plant and product to the organisation and the community • minimising the negative WHS impact on employees, community and customer • state and territory regulatory requirements.

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM234031 Manage installation, commissioning or modification of machines and equipment	MEM234031A Manage installation, commissioning or modification of machines and equipment		Equivalent

Assessment Requirements for MEM234031 Manage installation, commissioning or modification of machines and equipment

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Performance Evidence

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

- determining features of machines or equipment and related work health and safety (WHS), regulatory and risk management requirements both before and after installation, commissioning or modification
- leading a multi-disciplinary team on at least two occasions including delegating roles, responsibilities and level of authority, to team members
- measuring, modelling, calculating and analysing using software and validation techniques including 2D and 3D modelling
- analysing drawings and manufacturer specifications to determine machine and equipment systems and components
- determining steps and processes needed for machine and equipment installation, commissioning or modification on at least two occasions
- evaluating solutions for feasibility against the installation, commissioning or modification criteria, including relevant engineering and financial calculations and analysis
- innovating and creating solutions to engineering-related contingencies
- verifying machine and equipment performance against specifications after installation, commissioning or modification on at least two occasions
- communicating, negotiating and reviewing with stakeholders and client throughout installation, commissioning or modification process.

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

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- typical features of, and processes for machine and equipment:
 - installation
 - commissioning
 - modification
- appropriate technical personnel and professionals
- purpose of systems typically found in modern machinery and equipment including:
 - hydraulics
 - pneumatics
 - electrical motors, electrical supply and associated equipment
 - electronics, mechatronics and other control systems
 - mechanical transmissions, including gears, shafts and clutches
- force and stress analysis techniques
- requirements for, and functions of:
 - technical documentation
 - graphics and specifications
 - records of meetings
 - communications, negotiations, decisions and agreements with stakeholders
- WHS requirements, codes of practice, regulations, standards, and regulatory requirements for project or operations
- risk management and reduction, current safe work method statements (SWMS), safety data sheets (SDS) and work permits
- professional and ethical practice
- conflict resolution, problem-solving and decision-making.

Assessment Conditions

- Assessors must:
 - have vocational competency in managing installation, commissioning or modification of machines and equipment or projects 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.
- Conditions for assessment must include 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.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>.