



Australian Government

MSMOPS601 Design equipment and system modifications

Release: 1

MSMOPS601 Design equipment and system modifications

Modification History

Release 1. Supersedes and is equivalent to MSAPMOPS601A Design equipment and system modifications

Application

This unit of competency covers the skills and knowledge required to design equipment and system modifications in a manufacturing situation. This unit is typically performed by high-level staff working as part of a design, development and implementation team and taking a lead technical role.

It does not include the design of equipment requiring specialist engineering skills or regulatory licensing, although it may include working with a person with this skill/licence.

This unit of competency applies to people who design modifications to equipment or systems, typically used for production. The modification may be to improve productivity, improve reliability, reduce waste (muda), reduce cost or other reasons. The competency can apply to the design of equipment/system modifications associated with product changes or improvements and/or establishment of a new production line/product. Typically it will be to meet a specified end use. This will involve working closely with a range of management and operations personnel and requires balancing the business, operational and technical sides of the modified equipment/system. This unit of competency applies to the technical expert. The competency is applied under limited guidance in line with a broad plan, budget or strategy. It will typically involve capital expenditure.

This unit competency is typically performed by senior technologists working in liaison with other technical experts, operations management, operators and other relevant people with whom they would work as part of a (possibly ad hoc) team.

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

Pre-requisite Unit

Nil

Competency Field

Operations

Unit Sector

Elements and Performance Criteria

Elements describe the Performance criteria describe the performance needed to

essential outcomes		demonstrate achievement of the element	
1	Assess requirements	1.1	Establish modification or design requirement
		1.2	Establish design concepts
		1.3	Establish design limitations
		1.4	Consult with specialists/experts as required
2	Evaluate options	2.1	Define options
		2.2	Determine most appropriate modification
		2.3	Confirm selected option with appropriate personnel in accordance with workplace procedures
3	Design modifications	3.1	Design modification to meet end use specifications/standards and all legislative or regulatory requirements
		3.2	Verify design in accordance with enterprise procedures
		3.3	Check the modifications will not compromise health, safety and environment (HSE) performance
		3.4	Determine required outcome tests and results to establish conformance to requirements
4	Coordinate design implementation and testing in accordance with enterprise requirements	4.1	Initiate implementation of the design/modification
		4.2	Coordinate implementation of the design/modification
		4.3	Assess design outcome test results
		4.4	Assess any required variations to the design
		4.5	Prepare documentation to meet enterprise requirements
5	Maintain records	5.1	Maintain records of design and modification outcomes in accordance with enterprise 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.

Regulatory framework The latest version of all legislation, regulations, industry codes of practice and Australian/international standards, or the version specified by the local regulatory authority, must be used, and include one or more of the following:

- legislative requirements, including work health and safety (WHS)
- industry codes of practice and guidelines
- environmental regulations and guidelines
- Australian and other standards
- licence and certification requirements
- relevant Australian design standards
- workers' compensation legislation and regulation

Procedures

All operations must be performed in accordance with relevant procedures.

Procedures are written, verbal, visual, computer-based or in some other form, and include one or more of the following:

- all work instructions
- standard operating procedures (SOPs)
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the plant
- good operating practice as may be defined by industry codes of practice (e.g. Responsible Care)

Modification/design requirements

Modification/design requirements include consideration of the following factors:

- production requirements
- facility requirements
- HSE requirements
- sustainability requirements
- other factors relevant to the job/work environment

Design concepts

Design concepts include at a minimum:

- process
- material
- quantity
- cost
- outcome

Design limitations

Design limitations will be determined through consideration of:

- codes
- regulations
- technical documentation
- other factors relevant to the job/work environment.

Design

The design is to be for the modification of process plant/equipment.

Design must include:

- design research and consultation with internal or external specialists
- assessment and evaluation of design concepts
- design implementation and testing of modifications

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSAPMOPS601A Design equipment and system modifications

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMOPS601 Design equipment and system modifications

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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 and performance criteria and demonstrate the ability to:

- interpret design requirements
- evaluate design options against modification/design requirements
- assess and evaluate design concepts
- implement and test modifications
- apply technical skills, including performing technical calculations
- conduct tests and prepare drawings/documentation
- communicate effectively within the workplace, including liaising with other departments and consultation with internal or external specialists
- establish or interpret procedures, where required
- determine report requirements and present information in appropriate formats.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- appropriate design techniques
- relevant Australian (or other) design standards
- relevant regulatory requirements and codes of practice
- HSE considerations in relation to equipment/system design
- workplace requirements
- reporting/recording processes
- internal and external stakeholders and sources of expertise
- enterprise production processes, facility and materials and how they relate to equipment/system design.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence based on a holistic assessment of the evidence.
- The collection of performance evidence is best done from a report and/or folio of evidence drawn from:

- a single project which provides sufficient evidence of the requirements of all the elements and performance criteria
- multiple smaller projects which together provide sufficient evidence of the requirements of all the elements and performance criteria.
- It is desirable that this evidence comes from implemented design projects. However, where the project does not receive sanction to be implemented, or is otherwise not implemented, then sufficient evidence may be able to be obtained from a detailed implementation plan and a simulated implementation.
- A third-party report, or similar, may be needed to testify to the work done by the individual, particularly when the project has been done as part of a project team.
- Assessment should use a real project in an operational workplace.
- Knowledge evidence may be collected concurrently with performance evidence or through an independent process, such as workbooks, written assessments or interviews (provided a record is kept).
- 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.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- The regulatory framework will be reflected in workplace policies and procedures and is not required to be independently assessed.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- As a minimum, assessors must satisfy the Standards for Registered Training Organisations 2015 assessor requirements.

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