



Australian Government

MSS015004 Design sustainable product or process

Release: 1

MSS015004 Design sustainable product or process

Modification History

Release 1. Supersedes and is equivalent to MSS015004A Design sustainable product or process.

Application

This unit of competency covers the ability to redesign an existing, or design a new, product or process to achieve optimal sustainability outcomes.

This unit does not supply the technical competence for design of a particular product or process. It is anticipated that this unit would be undertaken in conjunction with appropriate technical design and technical supporting units which, because of the variety of manufactured products and the varying technical skill required for their design, are unable to be specified.

This unit applies inside organisations and their value chains. The unit has been developed with manufacturing operations as a focus. However, because of the range of organisations in a typical manufacturing value chain it may also be applied to other types of organisations. A manager or technical specialist who has a major responsibility for sustainability as part of a broader work role would typically undertake this unit, or sustainability may be their primary work responsibility. The manager or technical specialist may undertake this alone or as part of a team.

The technical measurement of operational performance or measurement of emissions or other environmental impact is not covered by this unit.

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

Pre-requisite Unit

Nil

Competency Field

Sustainable operations

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|--|--|
| 1 | Define parameters of new/improved product | <div>1.1 Consult with relevant stakeholders to determine required function, performance and aesthetics of new product.</div> <div>1.2 Identify market, expected time to market and cost constraints of product and production process.</div> <div>1.3 Identify requirements with possible high sustainability impacts.</div> <div>1.4 Negotiate requirements to achieve desired sustainability impacts.</div> <div>1.5 Develop agreed definition of product requirements.</div> |
| 2 | Develop alternative product and process designs | <div>2.1 Identify alternative resource requirements.</div> <div>2.2 Identify alternative processes.</div> <div>2.3 Determine the possible sustainability impacts of different combinations of resources and processes.</div> <div>2.4 Test alternative product and process designs against original product requirement definitions.</div> <div>2.5 Identify product requirements which may be causing significant sustainability impacts.</div> <div>2.6 Renegotiate, where possible, product requirements to lessen sustainability impacts.</div> <div>2.7 Short-list preferred resources and processes.</div> |
| 3 | Evaluate life cycle impacts | <div>3.1 Estimate life cycle sustainability impacts for each short-listed alternative.</div> <div>3.2 Identify process steps with greatest sustainability impact.</div> <div>3.3 Evaluate process steps for alternatives/modifications with lower impact.</div> <div>3.4 Select alternative which best meets requirements and has the lowest sustainability impact.</div> |
| 4 | Confirm design | <div>4.1 Develop selected design as required.</div> |

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|---|-----------------------------------|--|
| | 4.2 | Confirm life cycle sustainability impacts. |
| | 4.3 | Review design against product requirements. |
| | 4.4 | Obtain required authorisations. |
| | 4.5 | Document design in the required form. |
| 5 | Prepare for implementation | 5.1 Consult with key stakeholders. |
| | | 5.2 Identify key measures for monitoring implementation of design. |
| | | 5.3 Identify data sources required by key measures. |
| | | 5.4 Organise for data to be captured and manipulated, as required. |

Foundation Skills

This section describes those required skills (language, literacy and numeracy) 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.

- Parameters of new product include one or more of**
- function
 - form
 - market
 - desired sustainability performance
 - cost.

- Sustainability impact includes one or more of**
- resource footprint (e.g. carbon and water) of product and process
 - current and future availability of raw materials
 - current and future availability of energy
 - waste generation and disposal

- efficiency of process
- the extent to which the production process and product affects the environment (e.g. climate, quality of local air and water, ecology, noise)
- relationship with the local and broader community, (e.g. effect of operations on aesthetic appearance, preservation of heritage, and proximity to schools and religious facilities)
- extent of regulatory oversight and cost of compliance.

**Review design
includes all of**

- ensuring product and process meets requirements
- analysis to identify further improvements.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS015004A Design sustainable product or process.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS015004 Design sustainable product or process

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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 the ability, for one or more product or process, to:

- identify design parameters of new/improved product/process
- develop and test alternative designs
- estimate life cycle sustainability aspects
- confirm design with relevant personnel
- document design and prepare for implementation.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to redesign an existing, or design a new, product or process to achieve optimal sustainability outcomes, including knowledge of:

- sustainability impacts from using different materials and different processes and to produce products of different specifications and life cycle outcomes
- alternative sources of materials and components and the sustainability differences of each
- alternative processes and the sustainability differences of each, including expression in terms of carbon equivalence
- product and process design
- design documentation
- methods of monitoring of product development and manufacture.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be 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.

- 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 where the design/redesign of processes and their associated products to achieve optimal sustainability outcomes occurs for 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.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

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