



Australian Government

Assessment Requirements for MSS405052

Design an experiment

Release: 2

Assessment Requirements for MSS405052 Design an experiment

Modification History

Release 2. Updated pre-requisite code

Release 1. Supersedes and is equivalent to MSS405052A Design an experiment

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 to design one (1) or more experiments and to:

- choose an improvement project
- design and conduct the experiment
- analyse and confirm the results.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to design an experiment, including knowledge of:

- charting, such as Pareto charts, main effects plots, scatter plots, interaction plots, contour plots, response surface plots
- statistical principles and analysis, such as analysis of means (ANOM), prediction equations, analysis of variance (ANOVA)/one-way ANOVA, desirability function, hit a target, advanced graphical data analysis, multi-variate planning, variation trees and funnelling, hypothesis testing, central limit theorem, statistical analysis roadmap, analysis for means and t-test, correlation and regression
- factorial analysis principles and methods, such as multi-variate analysis, Taguchi S/N ratios, 2/3 level factorial, Taguchi L8, 2/4-1 half fraction, Plackett-Burman 8-run, full factorial
- acceptance criteria/confidence levels
- appropriate statistics packs, which to choose and how to use.

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 experiment design project 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.

Links

Companion Volume implementation guides are found in VETNet -

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