



Australian Government

Assessment Requirements for MEM23004 Apply technical mathematics

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23004A Apply technical mathematics

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:

- solving mathematical problems using software
- validating software results of simple examples analytically and/or graphically
- manipulating values using decimal, binary and hexadecimal number systems on at least two occasions
- graphing and analysing exponential, logarithmic and trigonometric functions for solutions on at least two occasions
- using the techniques of sequences and series to solve simple mathematical problems on at least two occasions
- using the techniques of two-dimensional vectors to solve mathematic and applied problems on at least two occasions
- using determinant and matrix analysis to solve algebraic and vectorial problems on at least two occasions
- using probability to assess likely occurrences.

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:

- software for mathematical analysis and graphical representations
- technical mathematical techniques
- engineering applications requiring mathematical techniques:
 - vector analysis of force systems on beams and bodies
 - trigonometric plots related to waveforms for amplitude, frequency and phase shift analysis
 - matrix and determinant solutions of vector systems or simultaneous equations
- number systems:
 - decimal
 - binary
 - hexadecimal

- binomials and polynomials
- exponential and logarithmic functions required for the engineering application
- trigonometric equations
- sequences and series
- two-dimensional vectors
- determinant and matrices
- probability.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying technical mathematics to engineering problems 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.
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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>