



Australian Government

MEM30008 Apply basic economic and ergonomic concepts to evaluate engineering applications

Release: 1

MEM30008 Apply basic economic and ergonomic concepts to evaluate engineering applications

Modification History

Release 1. Supersedes and is equivalent to MEM30008A Apply basic economic and ergonomic concepts to evaluate engineering applications.

Application

This unit of competency defines the skills and knowledge required to apply basic concepts of economics and ergonomics to evaluate an engineering application prior to production.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

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

Pre-requisite Unit

Nil

Competency Field

Engineering technician

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. Prepare requirements from information provided	1.1 Follow standard operating procedures (SOPs) and comply with work, health and safety (WHS) requirements 1.2 Obtain criteria for the engineering application
2. Verify that requirements have been met in the engineering application criteria	2.1 Review the engineering application criteria against customer requirement and note deficiencies 2.2 Apply knowledge of engineering parameters to evaluate criteria 2.3 Verify use of appropriate and relevant standards and codes
3. Verify specifications	3.1 Assess the relationships between quality, cost of production and

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
in accordance with economic and ergonomic principles	function 3.2 Check the specifications and verify for health effects of human/machine interaction
4. Develop and seek approval of recommendations	4.1 Develop recommendations based on all data considerations 4.2 Refer all recommendations to a supervisor for approval in accordance with policy and 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.

Engineering application includes:	• assisting in engineering processes and applications requiring ergonomic and economic knowledge • skills including: • design • engineering assessments • supervision of installation and commissioning.
Engineering parameters include:	• consideration of safety of personnel • consequences of failure (human injury) • economic considerations • production cost • quality of product consideration • material reliability and choice • design safety factors • maintenance • energy consumption

	• source of spares or service.
Standards and codes include:	• AS Doc 3000N Notes on Changes in the SAA Wiring Rules • AS 4100 Steel structures • AS 3990 Mechanical equipment - Steelwork • AS/NZS ISO 45001 Occupational health and safety management systems • AS 1100.101 Technical drawing - General principles • International Organization for Standardization (ISO).
Economic principles include:	• production quantities (mass and batch) • cost of manufacture • ease of manufacture • use of standardised components • human capacity (reach, dexterity, strength, repetitiveness and human comfort) • aesthetics • health effects of human/machine interaction • safety.
Ergonomic principles include:	• designing • installing or checking things for effective human use • creating environments that are suitable for human living and work • work methods • equipment • facilities • tools that influence the worker's motivation • fatigue • likelihood of sustaining an occupational injury or illness • productivity.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30008A Apply basic economic and ergonomic concepts to evaluate engineering applications.

Links

Companion Volume Implementation Guides are available on VETNet -

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

Assessment Requirements for MEM30008 Apply basic economic and ergonomic concepts to evaluate engineering applications

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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:

- applying basic economic and ergonomic concepts to evaluate engineering applications on at least two occasions
- preparing requirements from information provided
- verifying that requirements have been met
- verifying specifications in accordance with economic and ergonomic principles
- developing and seeking approval of recommendations.

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:

- engineering applications
- standards and codes
- engineering parameters
- economic considerations
- ergonomic considerations.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying basic economic and ergonomic concepts in evaluating engineering applications 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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