



Australian Government

MEM234036 Apply configuration management procedures in engineering project management

Release: 1

MEM234036 Apply configuration management procedures in engineering project management

Modification History

Release 1. Supersedes and is equivalent to MEM234036A Apply configuration management procedures in engineering project management.

Application

This unit of competency defines the skills and knowledge required to apply configuration management (CM) as a formal control mechanism that can be used in conjunction with the systems engineering process during initial design and modification development. The outputs are configuration documentation that can be used to control the design baseline throughout the life of a product or for data input to logistics management plans where integrated logistics support (ILS) is the overarching through-life management system.

This unit applies to engineering or related projects or operations across all forms of manufacturing and engineering and is suitable for people with system design, installation, commissioning and project or operational management responsibilities who are required to apply CM procedures. The procedures are used as the control mechanism during the application of the systems engineering design processes which can be used in the design of complex hardware and software products, both for initial design and then as an iterative process as the need for modifications are identified throughout the product life cycle.

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

Pre-requisite Unit

MEM23003 Operate and program computers and/or controllers in engineering situations

MEM234028 Produce and manage technical documentation

MEM234029 Produce and manage technical publications

Competency Field

Engineering science

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. Plan CM activities	1.1 Identify the context and environment in which CM is to be applied

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	1.2 Identify any contractual requirements and specifications for the application of CM procedures to through-life management of product configuration 1.3 Document the required CM activities
2. Develop CM plan	2.1 Describe how CM is to be accomplished 2.2 Specify how consistency between the product definition, configuration and configuration management records is to be achieved and maintained throughout product's life cycle 2.3 Identify indicators to assess the effectiveness of the plan in terms of implementation and performance of the CM
3. Specify and set up CM documentation	3.1 Identify records required to effectively implement CM within the identified product context, environment and CM plan 3.2 Select documentation media and develop documentation templates in accordance with CM plan 3.3 Specify a document version control system
4. Establish and control CM baseline	4.1 Establish product CM baseline in relation to the systems engineering or other design process 4.2 Revise CM baseline at applicable stages of product development, production and engineering changes in accordance with the CM plan 4.3 Establish and review documentation baselines in line with the requirements of the CM plan and with changes in the product CM baseline
5. Implement CM processes	5.1 Develop and deliver training to responsible individuals covering roles and responsibilities 5.2 Measure performance against the performance indicators in the CM plan and assess measurements and trends to identify possible process improvements
6. Perform configuration status accounting	6.1 Develop and populate a database with information relating to the configuration of products classified as configuration items 6.2 Develop and promulgate procedures to update and validate the database whenever there is a configuration change throughout product life cycle 6.3 Disseminate data in accordance with the CM plan and organisational procedures

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
7. Participate in configuration audits	7.1 Participate in configuration audits where required by the applicable CM standard and the CM plan 7.2 Initiate action to correct deficiencies identified during audits

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.

CM context and environment includes:	• nature of the products including hardware and/or software, complete systems and system components or subsystems • whether or not CM must extend to subcontractors and/or vendors • specific CM value-adding functions and level of emphasis • contractual CM requirements including specification of a CM standard to be applied.
Relationship with logistic management systems include:	• reliability and maintainability engineering • maintenance planning • life cycle costing • spares support requirements • technical data and publications • support and test equipment identification • determining facilities requirements • determining personnel training requirements.
CM plan includes:	• brief description of system or top-level configuration identification (CI) and of the lower-level CIs covered by the plan • list of reference documents including specifications, standards and manuals • CM organisation and responsibilities • CM phasing and milestones

	• data management • configuration identification including selection of CIs baseline establishment, and configuration identifiers for hardware and for software • interface management • performance indicators • configuration control procedures • configuration status accounting procedures • configuration audit procedures • subcontractor and vendor control procedures.
CM standards and references includes one or more of the following:	• EIA-649 National Consensus Standard for Configuration Management • EIA Standard 836 Configuration Management Data Exchange and Interoperability • IEEE Standard 828 Standard for Software Configuration Management Plans • STANAG 4159 NATO Materiel Configuration Management Policy and Procedures for Multinational Joint Projects • STANAG 4427 Configuration Management in Life Cycle Management • IEEE Standard 1042 • IEEE Guide to Software Configuration Management • International Standards Organization (ISO) 10007 Quality management – Guidelines for configuration management • GEIA-HB-649 Implementation Guide for Configuration Management • ANSI/EIA-632 Processes for Engineering a System.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM234036A Apply configuration management procedures in engineering project management.

Links

Companion Volume implementation guides are found in VETNet -

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

Assessment Requirements for MEM234036 Apply configuration management procedures in engineering project management

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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:

- determining the scope of the configuration management (CM) task and identifying CM configuration items.
- compiling CM documentation from systems engineering data
- establishing and reviewing configuration baselines during product development and production
- developing and implementing CM plans on at least two occasions
- training organisational staff in CM plan implementation
- reviewing CM performance
- establishing and maintaining CM status accounting databases and procedures on at least two occasions including maintaining baseline records
- participating in CM audits and managing the remedy of deficiencies.

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:

- CM plan
- use and application of CM in through-life management of product configuration
- CM standards and procedures
- relationship between CM and systems engineering during initial design and production
- iteration of the CM and systems engineering interface throughout the product life cycle and during modification development and configuration baseline revision
- relationship between CM and logistic support requirements including providing data and updates for integrated logistics support (ILS) plans throughout the product life cycle.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying configuration management procedures in engineering project management 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 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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