



Australian Government

**Assessment Requirements for MEM234012
Design integrated maintenance
management systems**

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM234012A Design integrated maintenance management systems.

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:

- designing a maintenance system proposal integrated with engineering and business objectives
- interpreting maintainable features of plant and equipment and parameters of the brief or contract on at least two occasions
- advising client on maintenance system options
- researching current maintenance management techniques and systems
- establishing maintenance management system options that address plant and plant support services, facilities, service maintenance response system options, data collection, storage, analysis, system feedback, and personnel requirements on at least two occasions
- investigating faults in existing designs and propose solutions
- categorising maintainable assets
- determining sustainability and work health and safety (WHS), regulatory and risk management requirements
- modelling and calculating using appropriate software and validation techniques
- generating and evaluating solutions for feasibility against design criteria
- planning staff requirements and training to operate maintenance management system
- communicating, negotiating and reviewing with stakeholders and client throughout the process to obtain agreement on proposal and sign-off on design
- documenting design with drawings, specifications and instructions.

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:

- integrated maintenance management systems
- current maintenance management techniques and systems
- options and trends in performance analysis, modelling and simulation software

- design techniques for reliability, maintainability and life cycle costing
- maintenance system options including corrective, preventative, predictive (condition monitoring), precision, reliability centred maintenance (RCM) and proactive or total productive maintenance (TPM)
- economic, social and environmental implications of maintenance management systems
- WHS and regulatory requirements, codes of practice, standards, risk management and registration requirements
- technical and professional support services required to comply with licensing, legal and indemnity requirements
- processes for investigation including developing options, modelling and calculating, generating solutions, completing feasibility and evaluation studies, and preparing proposals
- maintainable features of assets
- asset importance including risk to operations, critical plant, semi-critical and remainder of plant
- strategies for critical assets to maintain reliability including back-up assets, storing spares and use of redundant monitoring
- maintenance activities, online and break-down including manual and instrumented monitoring, adjustments, lubrications, lubricant testing, alignments, balancing, machining, fabricating, assembling and mounting, and reporting results
- management of spares inventory recognising cost and criticality of assets
- techniques for:
 - continuous improvement
 - problem-solving and decision-making
 - root cause analysis (RCA) or failure mode and effects analysis (FMEA) or design review based on failure mode (DRBFM), and Pareto analysis
 - theory of constraints (TOC)
- integrated maintenance data systems including analysis, collection, handling, storage, scheduling, recording and reporting
- maintenance and operational system control documents including flowcharts, schedule and report templates, network specifications, data analysis and feedback procedures
- monitoring options including manual and sensor/transducer options.

Assessment Conditions

- Assessors must:
 - have vocational competency in designing integrated maintenance management systems 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.

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- 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.

Links

Companion Volume Implementation Guides are available on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>