



Australian Government

Assessment Requirements for MEM09156

Prepare mechatronic models for computer-aided engineering (CAE)

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09156A Prepare mechatronic models for computer-aided engineering (CAE).

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:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- producing mechatronic-related models including virtual computer-generated solid models and physical models developed from the virtual model data, that are consistent with design information and relevant standards and conventions on at least two occasions
- applying modelling techniques
- communicating, participating and negotiating with stakeholders, appropriate licensed technicians and professionals
- reviewing and comparing available software, features, functions and context of mechatronic modelling
- creating and manipulating 3D entities using library files and adaptations and accessing supplier catalogues and data bases on at least two occasions
- creating dimensioned orthographic projections from models on at least two occasions
- extracting dimensional properties from model
- post-processing model for analysis or physical modelling
- commissioning, gaining approval, completing work, documenting, reporting and obtaining sign-off.

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:

- safe work practices and procedures
- advantages and disadvantages of computer-aided manufacturing (CAM) using modelling compared to traditional manufacturing methods
- sustainability implications to be taken into account when modelling
- methods used to produce models of:
 - mechanical products

- maintenance products
- manufactured engineering products
- plant
- systems
- mechatronic components, assemblies and layouts suitable for modelling
- modelling and related software functions and features
- model creation techniques
- modelling processes including computer modelling and post-processing
- virtual modelling options
- stakeholders in the model creation
- job requirements that may create a need for licensed technical and professional services
- comparisons of modelling to traditional representation methods including:
 - pen and pencil graphics compared to wire frame, surface and solid models
 - computer animations compared to transparent overlay models to test clearances and motions
 - solid models compared to isometric projections
 - computer library files compared to the use of reference charts and catalogue information
- where to access Australian and international standards and codes.

Assessment Conditions

- Assessors must:
 - have vocational competency in preparing mechatronic models for computer-aided engineering (CAE) 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.

Links

Companion Volume implementation guides are found in VETNet -

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