



Australian Government

**Assessment Requirements for MEM09221
Create 3D model assemblies using
computer-aided design (CAD) system**

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09221A Create 3-D model assemblies using computer-aided design (CAD) system.

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
- determining scope for creating model assemblies utilising all available information and consulting appropriate personnel
- selecting a 3D computer-aided design (CAD) software to create solid model assemblies that meet design specifications
- creating 3D model assemblies on at least two occasions, including manipulating the entities in 3D space, and creating intelligent models using parametric modelling to meet design requirements
- producing output from 3D assembly model on at least two occasions including extracting mass and area properties from solid model and applying rendering techniques to meet design specifications
- performing required calculations to complete model to specifications
- confirming model accurately reflects specifications
- producing 2D drawings from the assembly model on at least two occasions
- documenting and saving drawing elements in the appropriate format
- complying with organisational policies and procedures, including quality requirements.

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
- principle tools used in the creation and manipulation of assembly models
- solid modelling rendering task
- appropriate personnel to consult
- resource requirements
- orientation of the model with respect to the plane system

- number of views required to establish the model
- top down and bottom up modelling techniques
- procedures for creating and manipulating entities and components in 3D space
- rendering types, preferences, views and scenes
- procedures for modifying existing 3D assembly models
- procedures for saving drawing files
- various formats in which drawing files can be saved and reasons for using different formats when saving drawing files
- procedures for extracting data with respect to the physical properties of models created in 3D space
- terminology associated with solid assembly modelling.

Assessment Conditions

- Assessors must:
 - have vocational competency to create 3D model assemblies using computer-aided design (CAD) system 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>