



Australian Government

Assessment Requirements for MEM09220 Apply surface modelling techniques to 3D drawings

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM09220A Apply surface modelling techniques to 3-D drawings.

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
- consulting appropriate personnel
- determining purpose and scope for surface modelling requirements relevant to the project utilising all available information
- performing wire frame modelling
- performing surface modelling on at least two occasions by selecting and using 3D computer-aided design (CAD) software, creating and manipulating surfaces in 3D space and applying rendering techniques
- applying rendering lighting techniques to views and scenes on at least two occasions to meet design specifications
- preparing views and annotations on at least two occasions, extracting the physical properties of shapes and surfaces created in 3D space
- performing required calculations to complete drawing to specifications
- confirming drawing accurately reflects specifications
- documenting and saving drawing files 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
- purpose for which the model is to be used
- appropriate personnel to consult
- resource requirements
- principle tools used in the creation and manipulation of model surfaces

- terminology associated with surface modelling
- features and uses of geometric, freeform and derived surfaces
- features and uses of wire frame and surface modelling techniques
- wire frame modelling techniques
- surface modelling techniques
- surface types and surface normal and reversing
- features and uses of rendering techniques
- features and uses of materials and surface finishing options
- number of views required
- CAD software features
- applications of ruled and revolved surfaces and procedures for creating them
- rendering types and preferences, render lighting techniques, views and scenes
- 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 shapes and surfaces created in 3D space
- terminology associated with surface modelling.

Assessment Conditions

- Assessors must:
 - have vocational competency in applying surface modelling techniques to 3D drawings 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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Links

Companion Volume implementation guides are found in VETNet -

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

