MEM30033 Use computer-aided design (CAD) to create and display 3D models

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM30033A Use computer-aided design (CAD) to create and display 3-D models.

Application

This unit of competency defines the skills and knowledge required to use a computer-aided design (CAD) program to produce and print basic 3D view drawings.

This unit applies to the production of 3D models using CAD software and associated equipment, including the use of region and solid modelling techniques, section views and pre-drawn library files. Work also includes extraction of properties and application of basic rendering techniques.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

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

Pre-requisite Unit

MEM30031 Operate computer-aided design (CAD) system to produce basic drawing elements

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements	Performance Criteria
Elements describe the essential *outcomes.*	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Confirm drawing requirements	1.1 Follow standard operating procedures (SOPs) and comply with work health and safety (WHS) requirements at all times
	1.2 Confirm purpose, scope and information and presentation requirements for drawing
	1.3 Identify, interpret and analyse available information relevant to

Elements	Performance Criteria
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	work requirements, and identify and address further information needs 1.4 Identify computing equipment and software used in the organisation 1.5 Identify workflow and procedures for work supervision and confirm communication requirements for the job 1.6 Examine requirements for presentation of drawings
2. Create and display 3D views	2.1 Set up a 3D environment on the screen to allow multiple viewing 2.2 Create 3D views on the screen by manipulation of drawing planes and creation of 3D geometric shapes 2.3 Draw on any plane of the 3D view 2.4 Use editing functions to modify 3D geometric shapes in creating 3D views 2.5 Produce 3D model displays in isometric, perspective and orthographic projections
3. Detail 3D model	3.1 Extract the mass and surface area of a given solid model made from specified material 3.2 Apply basic rendering techniques to render solid model to required criteria
4. Save completed drawing file	4.1 Save file in an appropriate format to enable retrieval and use in a CAD system 4.2 Save file in other formats to enable retrieval in other software applications

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.	
Multiple viewing includes one or more of the following:	• top views • front and side views • general 3D view.
3D geometric shapes include one or more of the following:	• arcs and lines • spheres • cones • cylinders • boxes.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30033A Use computer-aided design (CAD) to create and display 3-D models.

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2