



Australian Government

Department of Education, Employment and Workplace Relations

MEM09023A Create 3D code files using computer aided manufacturing system

Release: 1

MEM09023A Create 3D code files using computer aided manufacturing system

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers producing 3D CAM code files, managing files, managing tools and associated customisation of installed software including the use of macros, menus and default settings
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Application of the Unit

Application of the unit	This unit typically applies in a manufacturing setting where components are machined or processed within a CAM environment. Code files would be produced from existing CAD models or from data collected by sample measurement. If 2D drawings or 3D CAD models are produced, Unit MEM09009C (Create 2D drawings using computer aided design system) and Unit MEM09010C (Create 3D models using computer aided design system) should also be selected as required. Where components are machined following development of code files, appropriate CNC machining units should also be selected. Band: B Unit Weight: 6
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM09022A	Create 2D code files using computer aided manufacturing system
	MEM12023A	Perform engineering measurements
	MEM16008A	Interact with computing technology

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare 3D environment	1.1.Coordinate system is established to job requirements. 1.2.Orientation is established to job requirement. 1.3.Views are established to job requirement.
2. Manipulate 3D models	2.1.Models are imported using various file formats. 2.2.Existing 3D models are oriented and manipulated to job requirements. 2.3.Model entities are linked to database attributes to suit job requirements. 2.4.Manufacturing data is developed from the 3D CAM model.
3. Produce output and manage 3D code files	3.1.Files are saved in various formats for retrieval according to standard operating procedures. 3.2.CAM model is verified for logical sequencing and correct manufacturing procedures. 3.3.Code is produced from the 3D CAM model.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- interpreting job instructions, specifications in accordance with workplace procedures
- manipulating entities in 3D space
- producing code files
- creating manufacturing data for various operations and processes
- importing CAD files
- saving and managing CAM files

Required knowledge

Look for evidence that confirms knowledge of:

- coordinate systems
- orientation of the model with respect to the coordinate system

REQUIRED SKILLS AND KNOWLEDGE

- procedures for customising system defaults
- procedures for customising user interface
- entities that can be manipulated in 3D space
- procedures for manipulating entities in 3D space
- procedure for using the post processor
- procedures for saving CAM files
- CAD file conversions
- CAM file formats
- procedures to save and store CAM files

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to create 3D code files using computer aided manufacturing system. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with creating 3D code files or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

Guidance information for

EVIDENCE GUIDE**assessment****Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Entities

Arcs and lines and primitives such as spheres, surfaces or solids, cones, cylinders and boxes

Unit Sector(s)**Unit sector****Co-requisite units**

Co-requisite units		

Competency field**Competency field**

Drawing, drafting and design