



Australian Government

MEM09022 Create 2-D code files using computer-aided manufacturing system

Release: 1

MEM09022 Create 2-D code files using computer-aided manufacturing system

Modification History

Release 1. Supersedes and is equivalent to MEM09022A Create 2D code files using computer aided manufacturing system

Application

This unit of competency defines the skills and knowledge required to produce 2-D computer-aided manufacturing (CAM) code files from existing computer-aided design (CAD) model. It includes managing files and tools, and customising installed software.

The unit typically applies in a manufacturing setting where components are machined or processed within a CAM environment.

Where 2-D CAD models are required to be produced unit MEM09009 Create 2-D drawings using computer-aided design system should also be selected.

Where components are machined following development of code files then appropriate computer numerically controlled (CNC) machining units should also be selected.

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

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM09002	Interpret technical drawing
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM16008	Interact with computing technology

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|---|
| 1 | Determine job requirements | 1.1 Follow standard operating procedures (SOPs) |
| | | 1.2 Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 Identify job requirements from specifications, job sheets or associated work instructions |
| 2 | Prepare for computer aided manufacture | 2.1 Customise system variables, user interface and software defaults to suit procedures |
| | | 2.2 Develop manufacturing data according to procedures |
| 3 | Manipulate 2-D models | 3.1 Import models using a variety of file formats |
| | | 3.2 Orient and manipulate models using the full capability of the software system |
| | | 3.3 Link model entities to database attributes to suit job requirements |
| | | 3.4 Apply manufacturing data to detailed models to suit various applications and job requirements |
| 4 | Produce output from 2-D model | 4.1 Save files in a variety of formats according to SOPs |
| | | 4.2 Verify CAM model for logical sequencing and correct manufacturing procedures |
| | | 4.3 Produce code from the 2-D CAM model |

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Customising includes the use of one (1) or more of the following:

- macros
- menus
- default settings

Entities refer to any single item created on the screen and include one (1) or more of the following:

- lines
- arcs
- circles
- text

Attributes are properties associated with an entity and include one (1) or more of the following:

- layer
- level
- line type
- colour
- text

Unit Mapping Information

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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>

Assessment Requirements for MEM09022 Create 2-D code files using computer-aided manufacturing system

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- preparing for computer-aided manufacture (CAM) by customising system variables, user interface and software defaults and developing manufacturing data to suit specifications and procedures
- importing 2-D models using various file formats, orienting and manipulating them and linking model entities to data attributes
- applying manufacturing data to detailed models to suit requirements
- producing and saving files in various formats and verifying CAM model for logical sequencing and correct manufacturing procedures
- producing code from completed 2-D CAM model.

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
- model features of the CAM software system
- operation of the CAM software system
- system variables and procedures for customising user interface and system defaults
- procedures for developing macros
- procedures for linking model entities to database attributes
- CAD file conversion
- CAM file formats
- procedures for saving and managing CAM files.

Assessment Conditions

- Assessors must:

- have vocational competency in creating 2-D code files using computer-aided manufacturing 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. This must 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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