



Australian Government

MEM23003 Operate and program computers and/or controllers in engineering situations

Release: 1

MEM23003 Operate and program computers and/or controllers in engineering situations

Modification History

Release 1. Supersedes and is equivalent to MEM23003A Operate and program computers and/or controllers in engineering situations.

Application

This unit of competency defines the skills and knowledge required to operate and program computers and/or controllers in industrial situations and to prepare and maintain programs including operating computer and/or controller hardware and software for engineering tasks. It also includes developing or customising computer and/or controller systems or programs.

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.

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

Pre-requisite Unit

MEM16008 Interact with computing technology

MEM16006 Organise and communicate information

Competency Field

Engineering science

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Operate a computer and/or controller system	1.1 Operate hardware to complete engineering tasks 1.2 Use appropriate software to produce required outcomes 1.3 Identify and use available sources of help to overcome basic difficulties with applications 1.4 Ensure technical instructions are followed and inconsistencies and technical difficulties investigated and resolved

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.5 Adhere to work health and safety (WHS) regulations and guidelines
2. Develop and customise computer and controller systems or programs	2.1 Prepare work plan for the programming or customising task in accordance with organisational guidelines 2.2 Write, alter and customise programs in the required format and computer language 2.3 Maintain client engagement with project or task 2.4 Maintain program or system records and make available to all interested parties following organisational procedures

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.

Hardware includes one or more of the following:	- personal computers - networked systems - personal organisers - communications equipment - programmable logic controller (PLC) and microprocessor controllers - computer controlled machinery and systems.
Computer controller equipment includes:	- central processing unit (CPU) - input/output (I/O) - peripherals - interfaces - actuators.
Software includes one or	commercial software applications

more of the following:	• computer-aided design (CAD) software • computer-aided manufacturing (CAM) software • organisation specific software • PLC or microprocessor controller software • word processing • spreadsheet • database • graphic • communication packages • presentation packages.
Programming includes one or more of the following:	• Visual Basic • ladder logic • flow chart • program customising • spreadsheet programming • writing macros • setting up/varying databases.
Organisational guidelines include one or more of the following:	• security procedures • WHS procedures • maintenance procedures.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23003A Operate and program computers and/or controllers in engineering situations.

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 MEM23003 Operate and program computers and/or controllers in engineering situations

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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 and include:

- using selected hardware to complete tasks in accordance with manufacturer instructions and workplace procedures under appropriate supervision following predetermined standards of safety, computer application and technical analysis
- using computer and/or controller equipment on at least two occasions
- accessing and using appropriate software in accordance with manufacturer instructions
- saving and storing documents and other computer and/or controller files in an appropriate directory in accordance with manufacturer instructions and workplace procedures
- identifying and analysing difficulties using appropriate help sources
- preparing work plans for programming or customising task
- writing, testing and amending programs to suit requirements on at least two occasions
- maintaining client engagement with project or task
- maintaining program or system records in accordance with procedures.

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:

- functions and operating procedures of computer and/or controller equipment
- applications of available hardware and criteria for selecting the hardware for particular tasks
- procedures for operating hardware
- procedures for checking and replacing hardware consumables
- available software and their applications
- procedures and commands for the use of identified software
- procedures and related requirements for saving and storing documents and computer and/or controller files
- techniques for accessing, transferring, printing computer files or using computer files to control plant and equipment
- techniques for accessing and using manuals and training booklets to solve minor problems

- procedures for accessing sources of help
- techniques for accessing help with typical difficulties with selected applications
- typical programming or customising sequencing and related issues
- techniques and procedures for preparing a work plan for a programming or customising task
- techniques and procedures for writing or customising programs in specified formats and computer language
- techniques and procedures for testing and amending programs
- procedures for checking program alteration with users
- procedures for maintaining records and reports on program or system development or enhancement
- procedures for disseminating information on program or system development
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Assessment Conditions

- Assessors must:
 - have vocational competency in operating and programming computers and/or controllers in engineering situations 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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