



**Australian Government**

# **MEM07018 Write basic NC and CNC programs**

**Release: 2**

# MEM07018 Write basic NC and CNC programs

## Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07018 Write basic NC and CNC programs (Release 1).

Release 1. Supersedes and is equivalent to MEM07018C Write basic NC/CNC programs.

## Application

This unit of competency defines the skills and knowledge required to write basic numerically controlled (NC) and computer numerically controlled (CNC) machine programs.

It extends to writing a program to describe simple machine operations, including tool paths, using appropriate software for machines. The program may use common M and G codes but does not include the programming of advanced operations using canned cycles and sub-routines. Technical difficulties are resolved in consultation with appropriate technical advisers.

Where basic programming of computer controlled thermal cutting machines is required unit MEM05054 Write basic NC/CNC programs for thermal cutting machines should also be selected.

Where additional machining skills in excess of unit MEM07005 Perform general machining are required appropriate units should also be selected.

Where programming of advanced operations using canned cycles and sub-routines is required unit MEM07019 Program NC and CNC machining centre should also be selected.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

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

**Band: B**

**Unit Weight: 4**

## Pre-requisite Unit

MEM07015	Set computer controlled machines and processes
MEM07016	Set and edit computer controlled machines and processes
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements

MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools

**Plus, one or more of the following, including their prerequisites:**

MEM07005	Perform general machining
MEM07028	Operate computer controlled machines and processes

## Competency Field

Machine and process operations

## Elements and Performance Criteria

Elements describe the essential outcomes.

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

1	<b>Determine job requirements</b>	1.1	Follow standard operating procedures (SOPs)
		1.2	Comply with work health and safety (WHS) requirements at all times
		1.3	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, drawings, job sheets or work instructions
		1.5	Select appropriate NC and CNC program elements for machine controller
2	<b>Write basic NC and CNC machine program</b>	2.1	Interpret engineering drawings to define basic machines, function and tool path geometry
		2.2	Calculate coordinates for simple tool path or basic machining functions

Elements describe the essential outcomes.

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

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|-----|--|
| 2.3 | Write program in standard code format in accordance with SOPs  |
| 2.4 | Produce operation sheets to specification in accordance with SOPs  |
| 3   | <p><b>Trial program</b></p> <p>3.1 Operate machine in manual mode to test and prove program</p> <p>3.2 Edit program, if necessary, to adjust operation, as required</p> <p>3.3 Check components for conformance to specification</p> |

## 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, accessibility of the item, and local industry and regional contexts) are included.

### Basic machines

incorporate one (1) or more of the following:

- single spindles
- single tools turrets
- B axis angular
- tool changers
- component loaders of a pallet type, but excludes multiple spindles

### Machine operations

include one (1) or more of the following:

- welding
- thermal cutting
- metal cutting
- forming and shaping

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, accessibility of the item, and local industry and regional contexts) are included.

## **Unit Mapping Information**

Release 2. Supersedes and is equivalent to MEM07018 Write basic NC and CNC programs (Release 1).

Release 1. Supersedes and is equivalent to MEM07018C Write basic NC/CNC programs.

## **Links**

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