



Australian Government

Department of Education, Employment and Workplace Relations

PMBPROD385A Program computer controlled equipment

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor

This unit covers, writing, trialling and editing a simple program for a computer controlled machine/process,

Application of the Unit

Application of this unit

This competency is typically performed by advanced operators applying knowledge of materials, product purpose and processes to writing a program to describe simple machine operations including tool paths using appropriate software for machines.

The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team.

The operator will:

- identify computer controlled machine program elements
- trial programs and edit as necessary to adjust operation of the machine
- resolve technical difficulties in consultation with appropriate technical advisers.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

This unit has **no** prerequisites.

Employability Skills Information

Employability Skills

The required outcomes described in this unit contain applicable Employability Skills. The Employability Skills Summary of the qualification(s) in which this unit is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes of a unit of competency	Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT ELEMENT	PERFORMANCE CRITERIA Performance criteria describe the required performance needed to demonstrate achievement of the element. Assessment of performance is to be consistent with the evidence guide.
1 Write program.	1.1 Select appropriate program elements for machine controller. 1.2 Interpret engineering drawings/product specification and define basic machine function and tool path geometry. 1.3 Calculate coordinates for simple tool path or basic machining functions. 1.4 Write program in standard code format in accordance with standard operating procedures.
2 Check program	2.1 Produce operation sheets to specification in accordance with standard operating procedures. 2.2 Operate machine in manual mode to test and prove program as required. 2.3 Edit program if necessary to adjust operation as required. 2.4 Check components for conformance to specification as required.
3. Anticipate and solve problems	3.1 Recognise a problem or a potential problem. 3.2 Determine problems needing priority action. 3.3 Seek information and assistance as required to solve problems. 3.4 Solve problems within area of responsibility. 3.5 Follow through items initiated until final resolution has occurred.

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Knowledge of computer controlled machines and programming, including:

- the elements of a basic NC/CNC/other program and their function in controlling the operation of computer controlled equipment
- machining operations
- type(s) of computer controlled equipment and their applications
- machining operations controlled by program
- the tool path(s) to be followed when producing a part or product
- the sequence of machining operations
- the reasons for selecting tool path(s) and sequence of operations
- the zero point of the equipment
- standard codes used in the writing of programs
- applications of standard codes in programming
- procedures for writing programs in standard code format
- procedures for completing operation sheets
- the information to be included in operation sheets
- influence of polymer properties on program requirements.

Competence also includes the ability to:

- plan and sequence operations
- check and clarify task related information.

Language, literacy and numeracy requirements

This unit requires the ability to read, interpret and follow information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents

Writing is required to the level of completing workplace forms and operations sheets.

Mathematical techniques are required, eg in calculating coordinates of all relevant points on the part or product to be produced.

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the assessment guidelines for this training package.

Overview of assessment

A holistic approach should be taken to the assessment.

Assessors must be satisfied that the person can consistently perform the unit as a whole, as defined by the Elements, Performance Criteria and skills and knowledge.

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

It is essential that competence is demonstrated in the knowledge and skills defined in this unit. These may include the ability to:

- 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.
- identify and take appropriate action on problems and potential problems.

Consistent performance should be demonstrated. For example, look to see that:

- the process runs consistently and smoothly
- all safety procedures are always followed.

Assessment method and context

Assessment will occur on computer controlled equipment and will be undertaken in a work-like environment.

Competence in this unit may be assessed:

- by direct observation, supervisor's reports, project work, samples and questioning
- in a situation allowing the generation of evidence of the ability to recognise, anticipate and solve problems
- by using a suitable simulation and/or a range of case studies/scenarios
- through a combination of these techniques.

In all cases it is expected that practical assessment will be combined with targeted questioning to assess the underpinning knowledge and theoretical assessment will be combined with appropriate practical/simulation or similar assessment. Assessors need to be aware of any cultural issues that may affect responses to questions.

Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the assessee and the work being performed.

Specific resources for assessment

This section should be read in conjunction with the Range Statement for this unit of competency. Resources required include suitable access to an operating plant or equipment that allows for appropriate and realistic simulation. A bank of case studies/scenarios and questions will also be required to the extent that they form part of the assessment method. Questioning may take place either in the workplace, or in an adjacent, quiet facility such as an office or lunchroom. No other special resources are required.

Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.

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. Add any 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.

Where reference is made to industry codes of practice, and/or Australian/international standards, the latest version must be used.

Context

This competency applies to all work environments and sectors within the industry. It requires an understanding of the operation of all relevant equipment and processes but does not necessarily require them to be used personally.

Procedures

All operations are performed in accordance with procedures.

Procedures include all relevant workplace procedures, work instructions, temporary instructions and relevant industry and government codes and standards.

Tools and equipment

This competency includes use of equipment and tools such as:

- computer controlled machines
- desktop computers.

Hazards

Typical hazards include machine operations hazards (when trialling programs).

Problems

'Anticipate and solve problems' means resolve a wide range of routine and non routine problems, using product and process knowledge to develop solutions to problems which do not have a known solution/s recorded in the procedures.

Typical problems may include:

- machine malfunction
- damage to machine/tools
- machining errors.

Appropriate action for problems outside of area of responsibility may be reporting to an appropriate person.

Appropriate action for solving problems within area of responsibility includes asking questions and seeking assistance from appropriate person/sources

Variables

Key variables to be monitored include:

- speed
- output rate
- product integrity and general conformance to specifications.
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Unit Sector(s)

Not applicable.