



**Australian Government**

# **MEMPE001A Use engineering workshop machines**

**Release 1**

# MEMPE001A Use engineering workshop machines

## Modification History

New unit - Release 1

## Unit Descriptor

This unit of competency involves setting up and machining components using lathes and other machines, such as milling machines, cut off saws, pedestal grinders and fixed position drilling machines. Tooling might need to be re-sharpened but not ground up from a blank.

The settings for the machines will be calculated by the learner from given formulas, surface speeds and feed rates.

## Application of the Unit

This unit is designed for use in a pre-employment skills introduction program and is suitable for use in institutional-based vocational programs. Skills development will take place under direct supervision.

This unit is not to be used in a traineeship or apprenticeship training program or associated qualifications. It is only to be used in pre-employment programs and carries no credit towards apprenticeship/trade and other qualification types in manufacturing and engineering.

This unit should be integrated with the work in the project unit, *MEMPE006A Undertake a basic engineering project*, and skills developed when required by the project.

## Licensing/Regulatory Information

Not applicable.

## Pre-Requisites

Not applicable.

## Employability Skills Information

This unit contains employability skills.

### 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.

### Elements and Performance Criteria

- |   |                       |     |   |
|---|-----------------------|-----|---|
| 1 | Prepare a job plan    | 1.1 | Identify job requirements from drawings or <i>other relevant materials</i> in consultation with an instructor/teacher/trainer |
|   |                       | 1.2 | Identify <i>appropriate machines</i> in accordance with job requirements  |
|   |                       | 1.3 | Identify appropriate tooling in accordance with job requirements  |
|   |                       | 1.4 | Calculate cutting speeds and feeds  |
|   |                       | 1.5 | Prepare a job/project plan showing machines, tooling, cutting speeds and feeds and an appropriate sequence of operations      |
|   |                       | 1.6 | Confirm plan with instructor  |
| 2 | Prepare for machining | 2.1 | Obtain appropriate tooling and materials  |
|   |                       | 2.2 | Set up tools and materials as required  |
|   |                       | 2.3 | Set speeds and feeds  |
| 3 | Perform machining     | 3.1 | Use and wear appropriate personal protective equipment  |
|   |                       | 3.2 | Follow safe machining practices   |

- operations
  - 3.3 Machine materials to job requirements
  - 3.4 Use *measuring equipment* as required
  - 3.5 Store completed work in a manner which will prevent/minimise potential damage
  
- 4 Complete work requirements
  - 4.1 Clear work area of waste and clean according to requirements
  - 4.2 Maintain and/or store machines, tools and equipment according to instructions

## Required Skills and Knowledge

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

### Required skills

Required skills include:

- preparing a job plan
- preparing for machining
- performing machining
- calculating speeds and feeds
- using measuring equipment as required
- appropriately cleaning and storing of equipment
- applying safe working practices
- using and applying personal protective equipment

### Required knowledge

Required knowledge includes:

- safe machine operation procedures
- material and equipment preparation requirements
- basic marking out techniques
- use and care of measuring tools
- types of machines for cutting, grinding, drilling, turning and milling
- work and tool holding methods for each machine
- safe working practices
- use and application of personal protective equipment

## 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.

<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to prepare materials and use engineering workshop machines to produce engineering components.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Assessors must be satisfied that the candidate can:</p> <ul style="list-style-type: none"> <li>• work safely</li> <li>• prepare job plans</li> <li>• prepare for machining</li> <li>• perform machining</li> <li>• calculate speeds and feeds</li> <li>• use measuring equipment as required</li> <li>• clean and store equipment as instructed.</li> </ul>
<p><b>Context of and specific resources for assessment</b></p>	<ul style="list-style-type: none"> <li>• This unit must be assessed in a learning institution.</li> <li>• Assessment must cover the successful use of a lathe and other relevant workshop machines.</li> <li>• The skills covered by this unit would usually be demonstrated by an individual working alone under direct supervision.</li> <li>• The assessment environment should not disadvantage the candidate.</li> <li>• This unit may be assessed in conjunction with any other units addressing the safety, quality, communication, hand tools, machine operation, recording and reporting associated with using workshop machines.</li> </ul>
<p><b>Method of assessment</b></p>	<ul style="list-style-type: none"> <li>• Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package.</li> <li>• Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure correct interpretation and application.</li> <li>• Assessment must confirm a reasonable inference that competency is not only able to be satisfied</li> </ul>

	<p>under the particular circumstance, but is able to be transferred to other circumstances.</p> <ul style="list-style-type: none"><li>• Assessment should be in conjunction with assessment of the project unit and other units integrated into the project.</li></ul>
<b>Guidance information for assessment</b>	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

## 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.

<p><b>Other relevant materials</b></p>	<p>Other relevant materials may include but are not limited to:</p> <ul style="list-style-type: none"> <li>• drawings</li> <li>• sketches</li> <li>• job instructions</li> <li>• schematics</li> <li>• diagrams</li> <li>• technical manuals</li> </ul>
<p><b>Appropriate machines</b></p>	<p>Appropriate machines may include but are not limited to:</p> <ul style="list-style-type: none"> <li>• milling machines</li> <li>• cut off saws</li> <li>• pedestal grinders</li> <li>• fixed position drilling machines</li> <li>• computer controlled machines</li> </ul>
<p><b>Measuring equipment</b></p>	<p>Measuring equipment may include but is not limited to:</p> <ul style="list-style-type: none"> <li>• micrometers</li> <li>• vernier scaled measuring devices</li> <li>• rules</li> <li>• calipers</li> <li>• gauges</li> </ul>

## Unit Sector(s)

**Competency field** Pre-employment



**Unit sector**

**Custom Content Section**

Not applicable.