



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM12025A Use graphical techniques and perform simple statistical computations**

**Release: 1**

## MEM12025A Use graphical techniques and perform simple statistical computations

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers interpreting and constructing graphs and charts from given or determined data, and performing basic statistical calculations.
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### Application of the Unit

<b>Application of the unit</b>	<p>Graphs and charts may be applied to information from various work contexts, quality processes, production and market trends and other engineering applications. A range of devices may be used to assist with calculations.</p> <p>This unit has dual status and is to be regarded as both a Specialisation band A unit and Specialisation band B unit for progression to C5 (AQF level V).</p> <p><b>Band:</b> <b>Unit Weight: 2</b></p>
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>		
<b>Path 1</b>	MEM12024A	Perform computations

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## 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.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Read and construct graphs from given or determined data	<ul style="list-style-type: none"><li>1.1. Complex information is extracted from graphical representation.</li><li>1.2. Data is analysed with respect to emerging trends.</li><li>1.3. Graphs are constructed as required from data and drawn with respect to scale and accepted method.</li><li>1.4. Significant features of graphical representation are understood such as limit lines, gradients (straight line graphs), intercepts, maximum and minimum values.</li><li>1.5. A wide variety of graphs are constructed as required including histograms, control charts, straight line graphs and parabolic graphs.</li></ul>
2. Perform basic statistical calculations	<ul style="list-style-type: none"><li>2.1. Mean, median and mode are calculated from given data.</li><li>2.2. Standard deviation is calculated.</li><li>2.3. Application of standard deviation and limits to process improvement techniques is understood.</li></ul>

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

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

#### Required skills

Look for evidence that confirms skills in:

- obtaining required information by interpreting data presented in graphical form
- determining the trend(s) indicated by the data presented in graphical form
- constructing graphs to scale
- labelling the axes appropriately
- selecting scales appropriate to the purpose for which the graph is intended
- constructing histograms, control charts, straight line and parabolic graphs
- determining for a given set of data the mean, median and mode
- determining for a given set of data the standard deviation
- reading, interpreting and following information on written job instructions, specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents
- planning and sequencing operations
- checking and clarifying task related information

**REQUIRED SKILLS AND KNOWLEDGE**

- checking for conformance to specifications
- undertaking numerical operations, geometry and calculations/formulae within the scope of this unit

**Required knowledge**

Look for evidence that confirms knowledge of:

- characteristics of straight line, parabolic and hyperbolic curves
- procedures for determining the slope/rate of change of a curve
- the trend(s) indicated by changes in gradient of a graph
- procedures for drawing the line of best fit for the coordinates plotted
- standard form of equations relating to straight lines and parabolic curves
- gradient, intercepts, maximum and minimum values and limit lines for straight line and parabolic curves
- function of control charts
- the meaning of the terms mean, median and mode
- the meaning of the term standard deviation
- the significance of 1, 2 and 3 sigma limits
- safe work practices and procedures

## Evidence Guide

### 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.

**Overview of assessment**

A person who demonstrates competency in this unit must be able to use graphical techniques and perform simple statistical computations. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

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

Assessors must be satisfied that the candidate can 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.

**Context of and specific resources for assessment**

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with using graphical techniques and performing simple statistical computations or other units requiring the exercise of the skills and knowledge covered by this unit.

**Method of assessment**

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

**EVIDENCE GUIDE****Guidance information for assessment****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. 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.

**Process improvement techniques**

Techniques in which error rates are mathematically calculated and recorded such as three sigma and six sigma  
**NOTE:** This unit gives the underpinning calculation skill for these techniques and does not cover the implementation or use of three or six sigma systems

**Unit Sector(s)****Unit sector****Co-requisite units**

Co-requisite units		

## Competency field

Competency field	Measurement
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