



Australian Government

Department of Education, Employment and Workplace Relations

MEM12023A Perform engineering measurements

Release: 1

MEM12023A Perform engineering measurements

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers performing measurement skills requiring straightforward use of mechanical measuring devices and associated calculations.
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Application of the Unit

Application of the unit	<p>This unit covers straightforward measurement using devices which incorporate visual indications representing units of measurement.</p> <p>It applies to the use of measuring devices in a range of manufacturing, engineering and related environments. It includes, where required, adjustment of measuring devices through simple means and typically includes zeroing or scale adjustment.</p> <p>Measurements may be expressed in metric or imperial units. All measurements are undertaken to standard operating procedures. Electrical/electronic devices used are those not requiring the connection or disconnection of circuitry.</p> <p>Work is undertaken autonomously or part of team environment, in the field, work station or workshops.</p> <p>For straightforward use of comparison or pre-set measuring devices, Unit MEM12001B (Use comparison and basic measuring devices) should be accessed.</p> <p>Band: A</p> <p>Unit Weight: 5</p>
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	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. Select appropriate device or equipment	1.1.Measurement requirements are determined from specifications. 1.2.Appropriate device or equipment is selected according to standard operating procedures, to achieve required outcome.
2. Obtain measurements using a range of measuring devices	2.1. Correct and appropriate measuring technique is used. 2.2. Measurements are accurately obtained . 2.3. Dimensions are determined or verified using basic calculations, where required.
3. Maintain measuring devices	3.1. Routine care and storage of devices is undertaken to manufacturers' specifications or standard operating procedures. 3.2. Routine adjustments to devices are made and checked.
4. Communicate measurements as required	4.1. Measurements are accurately recorded, where required. 4.2. Freehand sketch which depicts required information is prepared, as required.

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:

- selecting the appropriate measuring device for given measuring tasks
- using appropriate measuring technique
- reading all measurements taken accurately to the finest graduation of the selected measuring device
- handling and storing measuring devices in accordance with manufacturers' specifications or standard operating procedures
- verifying all measuring devices before use
- making, where appropriate, routine adjustments to measuring devices
- reading, interpreting and following information on written job instructions,

REQUIRED SKILLS AND KNOWLEDGE

specifications, standard operating procedures, charts, lists, drawings and other applicable reference documents

- planning and sequencing operations
- checking and clarifying task related information
- checking for conformance to specifications
- undertaking numerical operations involving addition, subtraction, multiplication, division, fractions and decimals within the scope of this unit
- preparing drawings as required

Required knowledge

Look for evidence that confirms knowledge of:

- correct application of a range of measuring devices
- correct and appropriate measuring technique for a range of measuring devices
- addition, subtraction, multiplication, division, fractions, decimals to the scope required by this unit
- procedures for handling and storing a range of measuring devices
- procedures for adjusting and zeroing a range of measuring devices
- methods of communicating measurements by drawings, as required
- 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 perform engineering measurements.
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	<p>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.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing engineering measurements or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
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.
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.

Specifications	Drawings, sketches, job instructions, schematics, diagrams, technical manuals
Range of measuring devices	Protractors, combination squares, set squares, dial indicators, thermometers, tapes, rules, micrometers, vernier-scaled measuring equipment
Basic calculations	Calculations needed to assist in determining measurements where a reading of the graduated device is not sufficient, for example subtracting one measurement from another to give a third measurement. Examples of calculations needed are addition, subtraction, multiplication, division, fractions and decimals. Calculations may be made using a calculator
Routine adjustments	Validating the device using simple zeroing or scale adjustment
Measurements	Measuring length, squareness, flatness, angle, roundness, clearances or any other measurements that can be read off analog, digital or other measuring device
Information	Dimensions, instructions, base line or datum points

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units		

Competency field

Competency field	Measurement
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