



Australian Government

Department of Education, Employment and Workplace Relations

MEM09021B Interpret and produce curved 3-dimensional shapes

Release: 1

MEM09021B Interpret and produce curved 3-dimensional shapes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers producing and interpreting lines plan drawings manually or using CAD equipment.
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Application of the Unit

Application of the unit	This unit applies to drawing and lofting principles relevant to procedures used to produce lines plan drawings and loftings. Common applications of this unit are in marine vessel construction. In a marine setting, tasks may be related to a variety of hull designs, section development such as curved and raking transom, conical development and camber development methods. General arrangement plans may also be addressed to provide a greater drawing diversity. All drawings/data should comply with industry requirements. Straightforward take-offs from lofted drawings is covered by MEM12007D (Mark off/out structural fabrications and shapes). Also, where transfer of lines to lofting floor or other surface is carried out, Unit MEM12007D (Mark off/out structural fabrications and shapes) should be selected in addition to this unit. Where a CAD system is used for basic drawing, Unit MEM09003B (Prepare basic engineering drawing) should also be selected. Where more extensive CAD system is used for design then Unit MEM09009C (Create 2D drawings using computer aided design system) should also be considered. Band: A Unit Weight: 4
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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. Identify drawing/lofting requirements	1.1. Requirements of lines drawing/lofting are determined. 1.2. Data necessary to produce drawing/lofting is identified.
2. Determine drawing/lofting procedure and equipment	2.1. Lines drawing/lofting procedures are outlined and understood. 2.2. Appropriate drawing equipment/accessories are outlined.
3. Apply drawing/lofting procedures	3.1. Appropriate drawing equipment/accessories are set up to suit requirements. 3.2. Drafting/lofting procedures to suit specified drawing are applied. 3.3. Where applicable, any alterations to offset measurements are recorded. 3.4. Drawings/loftings are consistent with operation procedures and industry requirements.
4. Submit lines plan drawings	4.1. Completed drawings are submitted in accordance with industry standards. 4.2. Where applicable, altered offset measurements and relevant information related to drawing are supplied.

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:

- reading, interpreting and following information on written job instructions, specifications, client briefings, standard operating procedures, charts, lists, drawings and other applicable reference documents
- analysing and organising information and planning and sequencing operations
- checking and clarifying task-related information
- checking for conformance to specifications
- performing computations including geometric and numerical calculations/formulae within the scope of this unit

REQUIRED SKILLS AND KNOWLEDGE

- measuring
- drawing and sketching skills

Required knowledge

Look for evidence that confirms knowledge of:

- hazards and control measures associated with interpreting and producing curved 3-dimensional shapes, including housekeeping
- safe work practices and procedures
- vessel design characteristics, including performance, stability, construction methods, etc.
- spatial concepts

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 interpret and produce curved 3-dimensional shapes.

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 interpreting and producing curved 3-dimensional shapes 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.

Guidance information for

EVIDENCE GUIDE**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.

Requirements

Client brief, industry standards and survey specifications, where applicable

Submitted

Submitted to client, supervisor, boat builder/ship builder, surveying authority, etc.

Industry standards

Those standards accepted by industry (and surveying authority, where appropriate) in terms of accuracy, design, layout, tabulation of offsets, material specification, construction specifications and quality of presentation of drawings

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

Competency field

Competency field	Drawing, drafting and design
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