



Australian Government

MEM30032 Produce basic engineering drawings

Release: 1

MEM30032 Produce basic engineering drawings

Modification History

Release 1. Supersedes and is equivalent to MEM30032A Produce basic engineering drawings.

Application

This unit of competency defines the skills and knowledge required to produce drawings or similar graphical representations where the critical dimensions and associated tolerances and design specifications are predetermined.

This unit applies to any engineering discipline. The unit covers application of introductory drafting skills to select and apply drawing protocols. Drawings are completed to Australian Standard (AS) 1100.101 Technical drawing – General principles.

Manual drafting or computer-aided design (CAD) drawing equipment may be used.

When CAD skills are required, unit MEM30031 Operate computer-aided design (CAD) system to produce basic drawing elements should also be selected.

The unit applies to engineering or related activities and is suitable for people giving technical support in manufacturing or engineering operations and those pursuing technical qualifications and careers at paraprofessional or technician level. All work is carried out under supervision.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Drawing, drafting and design

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Identify drawing requirements	1.1 Follow standard operating procedures (SOPs) and comply with work health and safety (WHS) requirements at all times 1.2 Identify information requirements for work and obtain all relevant job requirements and design specifications

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	1.3 Identify, interpret and analyse drawing requirements from specifications 1.4 Interpret and apply industry terminology for drawing work 1.5 Confirm communication practices required during drawing work 1.6 Establish time requirements for completing work
2. Select drawing features	2.1 Set up drawing list or register based on drawing requirements 2.2 Determine level of detail and numbers of drawings required for work 2.3 Plan presentation and layout, and determine drawing sheets and appropriate scales and text style and size 2.4 Identify features and applications of line types and thicknesses and select for drawing work 2.5 Establish datums and dimensions
3. Prepare and detail drawings	3.1 Prepare drawings in plane orthogonal, isometric projection or equivalent 3.2 Detail drawings in third angle projection, including auxiliary views, sections and assemblies 3.3 Draw sections through engineering components incorporating correct use of cutting plane symbols and conventions 3.4 Include appropriate symbols for limits and fits, surface texture and geometric tolerances 3.5 Resolve problems in consultation with a supervisor 3.6 Check drawing compliance with work instructions and specifications
4. Select physical dimensions and produce engineering parts list	4.1 Select components and/or materials from supplier or manufacturer catalogues using predetermined design specifications according to work requirements 4.2 Produce an engineering parts list in accordance with SOPs
5. Complete drawing documentation	5.1 Obtain approval for drawings and/or parts list 5.2 Store approved drawings and/or parts lists 5.3 Catalogue and issue drawing and documentation in accordance with SOPs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Specifications can be obtained from one or more of the following:	• design information • customer • sketches • preliminary layouts.
Drawings include one or more of the following:	• plans • diagrams • charts.
Consultation includes one or more of the following:	• reference to appropriate personnel • including technical supervisors • manufacturers • suppliers • contractors • customers.
Engineering parts list includes one or more of the following:	• part name • description of part • material specification or part number • quantities.
Issued drawings include one or more of the following:	• hard copy • photographic, slide or transparency form, including presentation as a single drawing and/or with other drawings • support documentation as a package.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM30032A Produce basic engineering drawings.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM30032 Produce basic engineering drawings

Modification History

Release 1. Supersedes and is equivalent to MEM30032A Produce basic engineering drawings.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- producing basic engineering drawings to AS 1100.101 Technical drawing – General principles on at least two occasions
- producing drawings in orthogonal and isometric projection to AS 1100.101 Technical drawing - General principles, on at least two occasions
- producing drawings in third angle projection, including auxiliary views, sections and assemblies on at least two occasions including all details, symbols and notations on drawings.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- layout conventions
- effective use of blank space, location of notes and symbols
- sectioning
- graphical techniques at an overview level
- assembly and explosion drawings
- schematics/line drawings, graphs and pictorials
- standard engineering drawing symbols, references and terminology
- application of surface finish symbols to drawings
- uses of scales
- uses and types of line weights
- uses and types of drawing sheets
- type of information provided with drawings.

Assessment Conditions

- Assessors must:

- have vocational competency in producing basic engineering drawings at least to the level being assessed with relevant industry knowledge and experience
- satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>