



Australian Government

MSMPCII298 Make an object from metal

Release: 1

MSMPCII298 Make an object from metal

Modification History

Release 1. Supersedes and is equivalent to MSAPCII298A Make an object from metal

Application

This unit of competency covers the skills and knowledge required to make an object from metal in accordance with the requirements of an established design in a simulated or trial manufacturing environment where there is a high degree of direct supervision.

This unit applies to learners seeking practical skills that are relevant and useful to the area in which the learner hopes to gain employment, is currently working, and/or as a pathway to further study.

This unit applies to a learning and assessment environment where access to normal production operations is not available. Typically this will be a VET in Schools delivery environment but it may be another simulated or trial manufacturing environment where a high degree of supervision exists. Students may be on work placement.

The unit must be applied to a specific 'project' or task which has a defined beginning, middle and end, occurs over an extended period of time, and is relevant to the manufacturing industry.

When delivered/assessed as part of a qualification the unit must be customised to ensure its relevance to real or simulated work activities and related workplaces.

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

Pre-requisite Unit

Nil

Competency Field

Manufacturing pathways

Unit Sector

Elements and Performance Criteria

Elements describe the essential outcomes

Performance criteria describe the performance needed to demonstrate achievement of the element

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|---|---------------------------|-----|---|
| 1 | Identify job requirements | 1.1 | Identify specifications for metal item from work instructions |
| | | 1.2 | Interpret design to determine the process, tools, equipment and materials required |
| | | 1.3 | Consider and apply work health and safety (WHS) requirements for the job |
| | | | |
| 2 | Prepare for work | 2.1 | Select a suitable work area for the task |
| | | 2.2 | Prepare the work area according to WHS and ergonomic requirements |
| | | 2.3 | Select appropriate tools, equipment and materials, including personal protective equipment (PPE), in accordance with specifications |
| | | 2.4 | Clean, check and prepare equipment and machinery for operation in accordance with WHS requirements and workplace procedures |
| | | 2.5 | Identify potential hazards associated with the use of tools, equipment and materials, and take appropriate safety precautions and/or report to supervisor |
| | | 2.6 | Keep records in accordance with workplace requirements |
| | | | |
| 3 | Produce work | 3.1 | Transfer dimensions from job specifications and/or drawings or sketches and mark out material to conform to specifications and templates using appropriate machinery or tools |
| | | 3.2 | Prepare edges and surfaces according to specifications |
| | | 3.3 | Join components according to project requirements |
| | | 3.4 | Check work for conformance with specifications |
| | | 3.5 | Rectify non-conformity with specifications or quality standards |
| | | 3.6 | Finish work according to specifications and quality |

standards

- | | | | |
|---|---------------|-----|---|
| 4 | Complete work | 4.1 | Check completed work against required quality standards |
| | | 4.2 | Return unused materials to storage and deal with waste and scrap following workplace procedures |
| | | 4.3 | Clean work area and return tools and equipment to storage |
| | | 4.4 | Complete documentation and records and maintain them following workplace procedures |

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.

Metal

Metal includes one or more of the following:

- mild steel
- galvanised steel
- stainless steel
- aluminium
- brass

Metal object

A metal object includes one or more of the following:

- a small decorative box, with or without a lid
- desk pencil holder
- metallic photo album
- cabinet
- shelving

- CD rack
- metallic picture frame

Work instructions

Work instructions include one or more of the following:

- job sheets
- patterns
- plans
- drawings and sketches
- verbal or illustrated directions from supervisor
- number and type of objects to be produced
- quality requirements
- WHS requirements
- environmental requirements

WHS requirements

WHS requirements include one or more of the following:

- legislative requirements
- hazardous and dangerous goods codes
- safe operating procedures
- specific workplace rules regarding PPE, such as disposable overalls, dust mask, eye and ear protection, and gloves

Suitable work area

A suitable work area includes one or more of the following:

- workbench
- desk or table
- workshop
- shed
- durable space

Appropriate tools, equipment and materials

Appropriate tools, equipment and materials include one or more of the following:

- measuring tapes or rulers
- hammers
- mallets
- squares
- bevels
- chisels
- files

- planes
- hand saws
- cordless drills/screwdrivers
- fixing and joining devices
- jigs
- clamping devices
- pincers
- power saws
- power drills
- band saws
- vertical drill presses
- PPE
- metal
- adhesives
- screws
- nuts
- bolts
- hinges and metal fasteners
- pencils and markers
- paints

Potential hazards

Potential hazards include one or more of the following:

- broken or faulty equipment
- unnoticed sharp objects
- poor lighting
- inadequate ventilation
- inadequate attention to the activities of others
- electrical shortages and power overload
- disorganised or cluttered workspace (poor housekeeping)
- poor attention when dealing with tools and equipment
- environmental chemicals, heat, dust, noise, gas and oil

Workplace records

Workplace records include one or more of the following:

- plant and maintenance records
- job cards
- check sheets
- reporting requirements
- documenting equipment and/or material defects
- workplace procedures relating to the use of tools and

equipment

Specifications

Specifications include one or more of the following:

- measurements and dimensions
- joining methods
- quality standards
- materials to be used

Preparing edges and surfaces

Preparing edges and surfaces includes one or more of the following:

- filing
- sanding
- cleaning
- grinding
- polishing

Joining metal pieces

Joining metal pieces includes one or more of the following

- screws, rivets, nuts and bolts
- hinging
- soldering

Rectifying non-conformities

Rectifying non-conformities includes one or more of the following:

- deconstructing the assembled pieces
- reshaping, resizing or re-cutting elements
- reassembling elements

Finishing work

Finishing work includes one or more of the following:

- filing
- polishing
- grinding
- painting and decorating

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=d1287d36-dff4-4e9f-ad2c-9d6270054027>

Assessment Requirements for MSMPCII298 Make an object from metal

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Performance Evidence

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

- construct, assemble and finish at least one (1) basic object from metal
- follow work instructions, operating procedures and inspection practices to:
 - minimise the risk of injury to self or others
 - prevent damage to goods, equipment or products
 - achieve required production output and product quality
 - modify activities to cater for variations in workplace contexts and environment
- use routine workplace tools, equipment, materials and measuring devices correctly and safely
- apply pre-checking and quality techniques to anticipate construction problems, avoid reworking and avoid wastage
- perform normal operator maintenance of work area to enable work to be conducted safely and efficiently
- communicate and work effectively and safely with others
- comply with work health and safety (WHS) requirements and safety instructions
- apply safe handling requirements for equipment, products and materials, including the use of personal protective equipment (PPE)
- collect, organise and understand information related to basic plans
- use mathematical ideas and techniques for measuring and calculating areas and estimating materials requirements
- follow instructions and specifications and ask for help where needed.

Knowledge Evidence

Must provide evidence that demonstrates knowledge of:

- the concept of work flow and its relation to manufacture of objects
- WHS standards and requirements
- relevant statutory requirements and codes of practice
- hand and portable power tools and their application
- mechanical cutting techniques
- fabrication and shaping techniques
- types of paints, sealants and glues

- types of jigs and templates
- workshop plant and equipment
- manufacture and assembly techniques
- common materials used in the manufacture of metal objects.

Assessment Conditions

- Assessment should occur on the job or in a workplace simulated facility with relevant equipment, materials, work instructions and deadlines.
- This unit must always be assessed in holistically in conjunction with other units of competency that form part of a specified job function.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Performance must be demonstrated consistently over a period of time.
- Workplace for this unit means a manufacturing environment specifically established for learning introductory manufacturing skills. It may be:
 - a school classroom or workshop equipped to teach manufacturing principles and practices
 - RTO premises equipped to teach manufacturing principles and practices
 - an enterprise environment where above average supervision exists and training is occurring. The normal production imperatives have been modified to take into account the training being delivered.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including work instructions, specifications, hand and/or power tools, metal working machinery, workplace records and a suitable work area.
- Assessors must:
 - as a minimum, satisfy the Standards for Registered Training Organisations 2015 assessor requirements
 - have vocational competency in the manufacturing industry at least to the level being assessed, with broad industry knowledge and experience, usually combined with a relevant industry qualification
 - be familiar with the current skills and knowledge used and have relevant, current experience in the manufacturing industry.

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