



Australian Government

Department of Education, Employment and Workplace Relations

CUVACD511A Make moulds and casts

Release: 1

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Modification History

Version	Comments
CUVACD511A	This version first released with <i>CUV11 Visual Arts, Craft and Design Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create moulds and casts for a range of artistic and other purposes. Sound technical skills are a key requirement.

Application of the Unit

People working in industrial and creative contexts use technical casting and moulding skills in their work. In the creative industries this includes ceramic artists, glass artists, sculptors and prop makers, but the unit could also be relevant to others working with the design and production of any three-dimensional object.

At this level the individual has a well-developed command of technical skills for the chosen methods of casting or moulding.

Work is undertaken independently with some guidance or mentoring available as required.

Licensing/Regulatory Information

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

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Evaluate mould-making and casting approaches	<p>1.1 Research the <i>theory and practice of mould making and casting</i> in the context of own work</p> <p>1.2 Evaluate the ways in which casting and moulding may be used in different contexts and for different <i>purposes</i></p> <p>1.3 Investigate current materials, technologies and options for mould making and casting</p>
2. Design and make models for the mould-making and casting process	<p>2.1 Evaluate the <i>design and production limitations</i> of a variety of models</p> <p>2.2 <i>Design</i> a variety of forms suitable for the mould-making and casting process</p> <p>2.3 Make a variety of <i>forms</i> based on own designs</p> <p>2.4 <i>Evaluate</i> forms to assess aesthetic, functional and technical issues</p> <p>2.5 Make patterns or models suitable for reproduction by mould making and casting</p> <p>2.6 <i>Prepare patterns or models</i> for mould making and casting</p>
3. Select mould-making and casting resources	<p>3.1 Establish the mould-making and casting needs of specific work projects, including <i>technical specifications</i>, in consultation with <i>relevant people</i></p> <p>3.2 Select appropriate materials, <i>tools and equipment</i> for the project</p> <p>3.3 Consider the particular <i>safety issues</i> that affect mould-making and casting work</p> <p>3.4 Calculate correct quantities of materials, avoiding wastage where possible</p>
4. Complete construction process	<p>4.1 Use <i>mould-making and casting materials</i> to meet specific work needs</p> <p>4.2 Select and use different <i>techniques</i> and equipment to achieve desired outcomes</p> <p>4.3 Fabricate one-piece and multi-piece moulds that meet technical specifications</p> <p>4.4 Achieve different outcomes and effects through experimentation with various materials</p> <p>4.5 Determine and allow required curing and drying time</p> <p>4.6 Recognise and resolve <i>technical and design issues</i> in the mould-making and casting process</p>

	4.7 Apply safe strategies for the use, maintenance and storage of mould-making and casting materials, tools and equipment
5. Evaluate work	5.1 Review items produced in terms of durability and quality of finish 5.2 Assess the work in terms of its creative and aesthetic objectives 5.3 Identify and act on the potential for adjustment and refinement in future work

Required Skills and Knowledge

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

Required skills

- communication skills to liaise with others about work requirements
- critical thinking and analytical skills to:
 - evaluate ways of achieving required effects and results
 - experiment with different media and materials
- literacy skills to:
 - interpret technical data and instructions about use of materials and equipment, such as product labels
 - interpret information from a variety of sources about the history and theory of casting and moulding
- numeracy skills to calculate:
 - volume of geometric and non-geometric forms
 - quantities of required materials
- planning and organising skills to:
 - select and organise materials, tools and equipment
 - plan work tasks in a logical sequence
- problem-solving skills to identify and resolve technical issues in mould making and casting
- self-management skills to evaluate the quality of own work and identify opportunities for improvement
- technical skills to safely use materials, tools and equipment for mould-making and casting processes
- technology skills to use the internet as a research tool.

Required knowledge

- theory and practice of mould making and casting in historical and contemporary contexts
- how mould making and casting are used in own area of work
- current technologies and equipment used for mould making and casting and their application to different purposes
- properties and applications of materials commonly used for mould making and casting in the relevant work context
- reasons for the use of particular materials and techniques to achieve particular effects
- common technical problems that arise in the creation of moulds and casts
- intellectual property issues and legislation in creative practice
- sustainability considerations that apply to moulding and casting work
- OHS considerations for the making of moulds or casts in the relevant work context.

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	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	<p>Evidence of the ability to:</p> <ul style="list-style-type: none"> • produce multiple technically sound items using mould-making and casting techniques • apply safe work practices with moulding and casting equipment and materials • apply knowledge of the properties of materials used in mould making and casting.
Context of and specific resources for assessment	<p>Assessment must ensure:</p> <ul style="list-style-type: none"> • access to casting and mould-making materials, tools and equipment • a work space in which items can be made safely.
Method of assessment	<p>A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:</p> <ul style="list-style-type: none"> • direct observation of the candidate making moulds and using them to take casts • questioning and discussion about candidate's work processes • review of portfolios of evidence • review of third-party reports from experienced practitioners. <p>Assessment methods should closely reflect workplace demands (e.g. literacy) and the needs of particular groups (e.g. people with disabilities, and people who may have literacy or numeracy difficulties, such as speakers of languages other than English, remote communities and those with interrupted schooling).</p>
Guidance information for assessment	<p>Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example:</p> <ul style="list-style-type: none"> • CUV CER501A Refine ceramics techniques • CUV CER502A Investigate ceramic materials and processes • CUV GLA501A Refine glassworking techniques • CUV GLA502A Investigate glassworking materials and processes • CUV SCU501A Refine sculptural techniques • CUV SCU502A Investigate sculptural materials and processes.

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.

<i>Theory and practice of mould making and casting</i> may relate to:	<ul style="list-style-type: none"> • emerging trends • innovative use • production capabilities and economics • work of other artists or designers.
<i>Purposes</i> may be to create:	<ul style="list-style-type: none"> • architectural items • art objects • block and case moulds for casting production • cast items, such as: <ul style="list-style-type: none"> • cast metal • cast plastic • hot cast glass • kiln cast glass • press moulded items • slipcast ceramics • slumped glass • functional items (one-offs or multiples) • models • sculptures • patterns • props • prototypes • samples • templates.
<i>Design and production limitations</i> may include:	<ul style="list-style-type: none"> • availability of materials, tools and equipment • availability of suitable work space • skill level.
<i>Designs</i> may include:	<ul style="list-style-type: none"> • computer-aided design (CAD) drawings • hand drawings • maquettes.
<i>Forms</i> may include:	<ul style="list-style-type: none"> • full scale handmade models • maquettes • rapid prototyped models.
<i>Evaluation</i> may include	<ul style="list-style-type: none"> • aesthetic requirements

<p>consideration of:</p>	<ul style="list-style-type: none"> • functional requirements • marketability of end product • mould-making and casting limitations.
<p><i>Preparing patterns or models</i> may include:</p>	<ul style="list-style-type: none"> • exposure and containment of each section when required • identifying and marking parting lines • isolating individual mould sections • using release agents.
<p><i>Technical specifications</i> may relate to:</p>	<ul style="list-style-type: none"> • cost of production • durability and strength • how and where the item is to be viewed or placed • number and size of items to be produced • shelf life of selected materials • suitability of selected materials • types of materials to be used.
<p><i>Relevant people</i> may include:</p>	<ul style="list-style-type: none"> • artists • designers • mentors • production personnel • supervisors • teachers.
<p><i>Tools and equipment</i> may include:</p>	<ul style="list-style-type: none"> • casting frames • casting table • centrifugal casting machine • cottles • die casting machine • drawing and design tools, including: <ul style="list-style-type: none"> • carving and modelling tools • computers and design software • rapid prototyping equipment • measuring tools and equipment, including: <ul style="list-style-type: none"> • accurate scales • electronic balance • measuring instruments for volume and length • mould boards and clamps • protective clothing and equipment • ram press • vacuum former.
<p><i>Safety issues</i> may relate to:</p>	<ul style="list-style-type: none"> • ergonomic issues, such as: <ul style="list-style-type: none"> • ability to pour moulds • size and weight of moulds

	<ul style="list-style-type: none"> • personal protective equipment (PPE) • use of chemicals • use of hot materials • use of safe casting techniques and materials when life casting • ventilation • work environment.
<p>Mould-making and casting materials may include:</p>	<ul style="list-style-type: none"> • clays: <ul style="list-style-type: none"> • oil or polymer-based modelling clays • pottery clay bodies • latex • found objects • metal • manufactured plastics, such as: <ul style="list-style-type: none"> • fibreglass • polyurethane and polyester resins • sheet plastics • silicones, including condensation cure and addition cure • thermoset and thermoplastic elastomers • other casting materials, such as alginate • plaster products: <ul style="list-style-type: none"> • Forton MG • gypsum cement • pottery plaster and dental plaster • refractory materials, such as: <ul style="list-style-type: none"> • alumina • clay products, such as kaolin, bentonite and grog • investment plaster • silica • vermiculite • washed sand and furnace sand • release agents, such as: <ul style="list-style-type: none"> • petroleum-based products mixtures • shellac • soft soap • waxes: <ul style="list-style-type: none"> • jewellery wax • microcrystalline wax • wood.

<p>Techniques may include:</p>	<ul style="list-style-type: none"> • blow moulding • carving • draping and slumping • handbuilding • investing • life casting • modelling • pouring • pressing • using release agents • vacuum forming.
<p>Technical and design issues may relate to:</p>	<ul style="list-style-type: none"> • aesthetic appeal • applications of alternative modelling and mould-making materials • availability of materials • durability • functionality • marketability • skills required for production • time required for production.

Unit Sector(s)

Visual communication – art, craft and design

Custom Content Section

Not applicable.