



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **CUVDSP14B Research and apply techniques for the design of products**

**Release: 1**

## **CUVDSP14B Research and apply techniques for the design of products**

### **Modification History**

Not Applicable

### **Unit Descriptor**

#### **Unit descriptor**

This unit describes the skills and knowledge required to research and apply techniques for the design of products. The nature of the products may vary greatly. As this unit is an introductory one, the outcome of the work could be a completed product, but is more likely to be a prototype or model for the product or an aspect of the product. The focus of the unit is on a general knowledge of the design techniques for products and the practical application of those techniques. This is a specialisation unit and refers to a specific design form. This work requires some guidance.

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

### **Application of the Unit**

Not Applicable

### **Licensing/Regulatory Information**

Refer to Unit Descriptor

## Pre-Requisites

### Prerequisite units

It is highly recommended that this unit be assessed in conjunction with or after the following units:

- CUVDES05B Interpret and respond to a brief
- Core Design Units
- At least one of the drawing units relating to the representation of the concept.

This unit also has strong linkages to units within a range of other manufacturing-related Training Packages, e.g. Furniture and combined assessment and/or training with those units would also be appropriate.

## Employability Skills Information

### Employability skills

This unit contains employability skills.

## 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.

## Elements and Performance Criteria

### ELEMENT

### PERFORMANCE CRITERIA

- |   |  |
|---|--|
| <b>1 Interpret the brief for the design of a product.</b> | <ul style="list-style-type: none"><li>1.1 Correctly interpret the specifications of <i>the brief</i>.</li><li>1.2 Determine the user or client for the proposed <i>product</i> to inform design decisions.</li><li>1.3 Clarify <i>specifications, parameters or constraints</i> of the brief in consultation with relevant colleagues.</li><li>1.4 Source and evaluate <i>information pertinent</i> to the brief.</li></ul>  |
| <b>2 Organise resources for product design.</b>           | <ul style="list-style-type: none"><li>2.1 Correctly identify the resources required for the design of the product, including <i>work space, materials, tools</i> and <i>equipment</i>.</li><li>2.2 Prepare and care for resources in accordance with <i>safety requirements</i> and organisational requirements.</li><li>2.3 Follow storage and inventory procedures in accordance with organisational procedures.</li></ul>   |
| <b>3 Test design approaches for products.</b>             | <ul style="list-style-type: none"><li>3.1 Produce a preliminary visual representation of the brief.</li><li>3.2 Identify possible approaches to the design and establish <i>criteria for the selection</i> of the final <i>approach</i>.</li><li>3.3 Select appropriate materials, tools and equipment for the testing of approaches and <i>techniques</i>.</li><li>3.4 Test and experiment with a range of techniques and materials which might meet the requirements of the brief.</li><li>3.5 Evaluate <i>testing processes</i> against selection criteria and select the preferred approach based on the requirements of the brief.</li><li>3.6 <i>Refine</i> and accurately <i>document</i> the design approach based on testing processes.</li></ul> |
| <b>4 Make the product,</b>                                | <ul style="list-style-type: none"><li>4.1 Evaluate the need for product fabrication and the scope of work required.</li></ul>  |

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
<b>prototype or model.</b>	<p>4.2 Select and organise materials, tools and equipment for fabrication in accordance with the design approach.</p> <p>4.3 Safely make the product, prototype or sample ensuring consistency with the selected approach and the brief.</p> <p>4.4 Present the designed product, prototype or model in accordance with the brief specifications.</p>

## Required Skills and Knowledge

### Required Skills and knowledge

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

#### Required skills:

- literacy skills sufficient to interpret a brief and communicate design ideas
- numeracy skills sufficient to calculate material requirements and cost issues.

#### Required knowledge:

- work and ideas of other product designers
- formal elements and principles of design as they relate to product design in general and the specific product in particular
- techniques materials, tools and equipment and their application to product design and manufacture
- common formats and features of briefs relating to the design of products
- history and theory of design in relation to product design
- copyright, moral rights and intellectual property issues and legislation and their impact on the design industry.

## 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.

### **Critical aspects for assessment and evidence required to demonstrate competency in this unit**

The following evidence is critical to the judgement of competence in this unit:

- testing and use of a range of approaches and techniques for the design of a product which are suited to the requirements of the brief
- knowledge of the processes and techniques used for the design of products.

### **Context of and specific resources for assessment**

The assessment context must provide for:

- practical demonstration of skills through the design of a product to meet a brief.

### **Method of assessment**

Assessment may incorporate a range of methods to assess performance and the application of essential underpinning knowledge, and might include:

- evaluation of items designed by the candidate
- questioning and discussion
- review of visual documentation for the product
- review of portfolios of evidence
- third party workplace reports of performance by the candidate.

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).

Assessment of this unit requires access to the materials, resources and equipment needed to design and make products.

## 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.

***The brief:***

- describes and specifies the work to be completed
- is prepared by commissioning body or organisation, e.g. supervisor, client, community organisation
- may be written, diagrammatic, visual, verbal.

The ***product*** to be designed and made may be the whole product, part of the product, a prototype or model and may include but is not limited to:

- architectural fixtures and fittings
- furnishings
- furniture
- hardware
- household, garden products
- kitchenware
- tableware
- toys.

***Specifications*** would be articulated in the brief and may refer:

- audience
- medium
- purpose
- style.

***Parameters or constraints*** may refer to:

- budgeting and financing requirements
- conditions of use of the product
- cost of production
- number of items
- setting
- time frames.

## RANGE STATEMENT

***Information pertinent*** to the brief may be about:

- design standards
- health and safety
- industry standards
- legal, contractual, ethical and copyright considerations
- material characteristics and capabilities
- stylistic considerations
- technological considerations.

***Work space*** needs may include:

- dry areas
- dust extraction
- lighting
- process specific space needs
- ventilation
- wet areas.

***Materials*** may include:

- clay, glass, plaster, sand, stone
- fabric, fibre, spun fibre,
- leather
- metal, sheet metal, wire, nails, screws
- paints, inks, binders, extenders, stains, lacquers, resins, glazes, oxides
- paper, cardboard, pulp
- plastics, latex, acrylic, rubber
- wood and wood based products.

***Tools and equipment*** may include:

- brushes
- ceramics equipment
- computer and software.
- hand printing equipment and digital printers
- hand tools
- kiln and kiln furniture
- loom, needles, hooks, bobbins, pins
- measuring tools
- moulds and casting equipment
- power tools
- receptacles
- sewing machine



## RANGE STATEMENT

- soldering iron, smithing equipment, welding equipment
  - spatulas
- Safety requirements* are in accordance with:
- Federal, State and Territory legislation, regulation and standards.
- Preliminary visual representation* may involve:
- computer-aided drawing
  - mock-up
  - sketching
  - technical drawing.
- Criteria for the selection* of the approach may include:
- access to materials, tools and equipment required for the making of the product
  - access to specialist fabricators
  - consistency with the brief for the product
  - ease of manufacture
  - personal affinity with medium and materials.
- The *approach* may encompass:
- aesthetic and stylistic considerations
  - choice of medium and materials
  - design solutions
  - the parameters of the brief.
- Techniques* may include:
- binding, fusing
  - carpentry, cabinet making
  - casting, moulding
  - ceramics and glass forming
  - digital imaging
  - leather work
  - metal work, smithing
  - printing, photography
  - sewing, knotting, weaving.
- Testing processes* may
- exploring techniques by making practice pieces, test pieces, mock-ups or samples

**RANGE STATEMENT**

involve:

- testing materials by applying stress tests, colour tests.

*Refining* the approach may include:

- adjustment to design considerations
- adjustment to design solution
- adjustment to utilise the capabilities of the techniques
- no change.

*Documenting* the approach may involve:

- final drawings, plans,
- illustrations, photographs
- material samples
- models
- specifications for fabrication
- written rationale or description.

**Unit Sector(s)**

Not Applicable