



Australian Government

Department of Education, Employment and Workplace Relations

BSBDES401A Generate design solutions

Revision Number: 1

BSBDES401A Generate design solutions

Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to generate design solutions in response to a particular design need. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.
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Application of the Unit

Application of the unit	This unit applies to individuals who generate concepts and solutions in response to a design challenge in any industry context. The starting point may be an open or closed brief; a spontaneous idea; modification of an existing product, service, process or system; or a point in an ongoing design process. This unit builds on BSBDES201A Follow a design process, and places greater focus on research, concept generation and collaboration with others as key aspects of the design process.
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

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. Define the design challenge	1.1. Determine and evaluate user/client needs 1.2. Clarify specifications, parameters and constraints of the design challenge in consultation with relevant stakeholders 1.3. Articulate the essence of the design challenge in an appropriate format
2. Undertake research to inform the design solution	2.1. Source, evaluate and acknowledge information that may assist in responding to the design challenge 2.2. Consider historical, current and future perspectives and trends that might inform design solutions 2.3. Consider relevant social, economic, environmental, ethical and cultural issues that may impact on design solutions 2.4. Analyse, distil and collate information to inform the development of the design solution
3. Communicate and collaborate with others	3.1. Establish and develop working relationships with key stakeholders 3.2. Seek and integrate input and ideas from others during the design process 3.3. Inform key stakeholders about progress of the design and related implications 3.4. Negotiate and agree on any changed requirements or modifications
4. Generate ideas and responses to the design challenge	4.1. Reflect on and integrate ideas generated from research and consultation 4.2. Use a range of creative thinking techniques to generate different options and ideas 4.3. Apply relevant principles of functionality, ergonomics, aesthetics and sustainability to the development of different options
5. Select a design solution	5.1. Develop and use a range of criteria against which to evaluate different options and ideas 5.2. Select a preferred solution against agreed criteria and in consultation with relevant key stakeholders 5.3. Adjust and refine proposed design solution based on research, testing and reflection 5.4. Present proposed design solution with appropriate supporting documentation according to project

ELEMENT	PERFORMANCE CRITERIA
	requirements

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication skills to liaise, consult and negotiate with others on potentially complex issues
- creative, critical thinking and problem-solving skills to generate a range of ideas and solutions to a particular design challenge
- research skills to interpret and develop a wide range of visual and written information sources
- planning and organisational skills to collate information, and to coordinate liaison and consultation with others during the design process.

Required knowledge

- copyright, moral rights and intellectual property issues and legislation that impact on design in the relevant context
- elements and principles of design and their application in the relevant design context
- features of the wider industry, economic, social and historical context in which design solutions are being generated
- other designs and the work of other design practitioners in the relevant context
- sources of information that support the development of technical and other knowledge
- technical knowledge of the area for which design solutions are being generated - in terms of materials, tools, equipment, techniques and industry processes and procedures.

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

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

Evidence of the following is essential:

- development of a design solution through research, reflection and the generation and refinement of ideas
- effective collaboration with others in the design process
- knowledge of design trends and technologies in the relevant industry context.

Context of and specific resources for assessment

Assessment must ensure:

- interaction with others to reflect the collaborative nature of the design process
- access to sources of information on design in the relevant industry context.

Method of assessment

A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

- direct questioning combined with review of portfolios of evidence and third party workplace reports of on-the-job performance by the candidate
- evaluation of a design solution generated by the candidate against an original brief, set of criteria or guiding objectives
- evaluation of the process used to reach a design solution in terms of research and ideas generation/refinement
- oral or written questioning to assess knowledge of technical and context issues that impact on design in a given industry context.

Guidance information for assessment

The design process does not occur in isolation. Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.

Combined assessment with the following unit is appropriate:

- BSBCRT301A Develop and extend critical and

EVIDENCE GUIDE

creative thinking skills.

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.

User/client needs may be:

- expressed in a brief:
 - diagrammatic
 - verbal
 - visual
 - written
- expressed in other documentation such as research papers or workplace plans
- informally articulated
- in need of further research

Specifications, parameters and constraints may relate to:

- audience
- budgeting and financing
- cost of production
- medium
- purpose
- technical issues
- timeframes

Appropriate format may include:

- drawings or sketches - manual or computer aided design and drafting (CADD)
- electronic presentation
- verbal presentation
- written notes with rationale or description

Information may include:

- codes of practice
- contractual obligations
- historical data
- industry standards
- legal requirements
- specialist information
- technological trends and developments

Historical, current and future perspectives and trends may relate to:

- industry context
- materials
- social or ethical issues
- sustainability

RANGE STATEMENT	
	technologies
<i>Social, economic, ethical and cultural issues</i> may include:	- availability of materials, tools or equipment - budgetary issues - community impact - cost of production - customer relationships - government policies - sponsorship opportunities - triple bottom line (people, planet, profit) - workforce relationships
<i>Environmental issues</i> may include:	- conservation of resources - energy efficiency - environmental consciousness/green design - recycling - use of renewable resources - waste/by products/emissions
<i>Key stakeholders</i> may include:	- client - employer - end user - peers - supervisor - technical experts - work colleagues
<i>Creative thinking techniques</i> may include:	- brainstorming: - bulletin board - buzz session - computer-aided - sequencing - stop and go - daydreaming and mental wandering - Edward de Bono's six thinking hats - ego alter or heroes - graphic organisers: - concept fans - visual maps - webbing - lateral thinking games - making associations - mind mapping

RANGE STATEMENT	
	• morphological analysis • storytelling • sub-culture surfing • trigger words • use of metaphors and analogies • vision circles • visualisation • wishful thinking • word salads
Functionality, ergonomics, aesthetics and sustainability may be related to:	• end use and users • production processes
Criteria against which to evaluate different options and ideas may relate to:	• access to resources - physical, human or financial • aesthetic appeal • consistency with original brief • desired level of originality and innovation • ease of manufacture or further development • environmental sustainability • ethical issues • health and safety requirements • impact upon client and community • industry standards and practice • legal issues • level of risk • personal affinity with medium and materials • technological considerations
Supporting documentation may include:	• drawings or plans • illustrations • material samples • models • photographs • specifications for production

Unit Sector(s)

Unit sector	
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Competency field

Competency field	Design - Design Process
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Co-requisite units

Co-requisite units		