



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM501A Create design concepts for digital games and 3-D media

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICA11 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create design concepts for digital games and 3-D media.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

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. Identify and analyse commonly used design concepts for games and 3-D media	1.1 Obtain the project brief and other relevant documents 1.2 Research and identify commonly used design concepts used in digital games and interactive 3-D media 1.3 Analyse and interpret chosen common design concepts used in digital games and interactive 3-D media 1.4 Discuss design considerations for designing a digital game or interactive 3-D media concept
2. Identify appropriate software packages used for digital game and 3-D concept design	2.1 Identify and review the appropriate range of industry standard software available to develop with, according to chosen design concepts 2.2 Assess the software related to the concept design process requirements 2.3 Discuss the technical specifications for the development process 2.4 Select the software package
3. Use chosen software package	3.1 Run selected software package and become familiar with the user interface 3.2 Create new files and organise and develop a file structure 3.3 Learn the required tools and components used to create and develop digital game or interactive 3-D media concept
4. Create and develop concept components for a digital game or interactive media	4.1 Design a heads-up display for a digital game or 3-D interactive media 4.2 Consider the specific processes for heads-up display elements 4.3 Document the design and necessary programming process and requirements needed to implement the heads-up display 4.4 Use chosen software package to create and develop visual design elements and components to be used for the heads-up display
5. Implement design concept into a game or 3-D interactive media	5.1 Load in images required and write code to implement the heads-up display into an existing framework 5.2 Write code to demonstrate HUD capabilities with implemented concepts
6. Evaluate implementation	6.1 Demonstrate implementation to relevant personnel 6.2 Accept feedback to incorporate into final design

	6.3 Assess and refine concept with relevant personnel 6.4 Evaluate the usability of concept components 6.5 Reflect on possible changes to improve the visual design and capabilities of components
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Required Skills and Knowledge

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

Required skills

- analytical skills to:
 - analyse documentation and images to inform implementation of game specifications
 - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
 - check and confirm design requirements
 - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
 - communicate complex designs in a structured format drawn from industry standards, styles and techniques
 - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
 - provide practical advice, support and feedback to colleagues and management
 - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in game design and innovation
- literacy and numeracy skills to:
 - develop game design and technical design documents
 - write instructions for the normal and competent operation and testing of game features and permutations
- planning and organisational skills to:
 - refer decisions to a higher project authority for review and endorsement
 - balance talent, experience and budget
 - delegate tasks and responsibility appropriately
 - establish clear roles and goals to achieve required game development outcomes
 - meet project deadlines
 - organise equipment and resources to achieve required outcomes
 - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical and desktop research into concept design for digital games and 3-D media
- technical skills to:
 - use correct file formats and archiving procedures
 - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- basic programming techniques

- capabilities and constraints of game engines
- concept development and visualisation skills
- computer game development, including specific terminology
- current game-play hardware and software products
- human resources required in the process of creating a game and their respective skills and technology requirements
- OHS requirements for:
 - ergonomics
 - electrical safety
- risk and critical path management
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design.

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 ability to: • demonstrate original and innovative approaches to the creative development of a game • implement game development and production strategies • maintain integrity of the design brief • develop concept art and design specifications for heads-up displays, splash screens, start screens and game field screens consistent with an identified game genre • develop technical specifications for game mechanics, artificial intelligence, physics, sound, game play and overall usability • implement a working heads-up display with basic functionalities.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • internet access for research purposes • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
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: • review of work samples or simulated workplace activities • review of reports and logbooks • evaluation of work samples or simulated workplace activities • direct observation of candidate preparing game documentation during development activities.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and

	the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge.
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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>Brief and other relevant documents</i> may include:	• concept drawings • designer's notes • development environment description • game design document • game-play designs • help notes • information design • operating manual • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
<i>Design considerations</i> may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
<i>Industry standard software</i> may include:	• 3-D paint • 3ds Max • Blender • Cinema 4D • Houdini • Illustrator • Lightwave • Maya • Microsoft Visual Studio • Modo • Mudbox • Photoshop • XSI • Z Brush.
<i>Technical</i>	• backup procedures

specifications may include:	• delivery platform • difficulty levels • disk or memory space • format for final product • navigation design • pixel size • polygon count • specifications for phases of game development: • alpha version - pre-production • beta version - playable prototype • gold version - completed game • trialling and testing • systems and workplace standards for documentation, including: • computer file management • job lists • progress reports • source code and game assets archiving • target market.
Heads-up display components may include:	• ammo counter • armour bar or counter • buttons for using magic skills and potions • crosshair • enemy indicators • friendly indicators • health bar • mana or magic bar • mini-map • objective points • speedometer • weapon indicator.
Code may involve:	• basic interaction with screen elements • displaying components on screen • keyboard presses • loading images • mouse movement.
HUD capabilities may involve:	• dynamic changing of components due to conditions (taking damage means reduced health or armour).
Relevant personnel may include:	• animators • concept artists

	• game-play designers • graphic designers • instructional designers • modellers • motion capture technicians • other specialist staff • other technical staff • producers • programmers • project manager • sound engineers • team members • technical director • writers.
Feedback may involve:	• accepting and responding to comment, critique and suggestions from: • clients • colleagues • target audience representatives.

Unit Sector(s)

Game development