



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM403A Create design documents for interactive games

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 basic design documents for games.

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. Research, create and document game concept	1.1 Research, identify and describe the target market for the game 1.2 Research, identify and describe game genre and working title 1.3 Identify a suitable game platform 1.4 Identify a suitable game engine 1.5 Prepare initial concept art to establish look and feel of characters, environment and game play
2. Create and document specifications for game design	2.1 Develop storylines and levels 2.2 Develop artwork for characters and environment 2.3 Describe game-play elements 2.4 Develop graphical user interface (GUI) 2.5 Identify suitable sounds and music for game
3. Create and document technical specifications for game	3.1 Determine game mechanics 3.2 Finalise platform, game engine and operating system 3.3 Describe the source and purpose of the code to be used, including level-specific code 3.4 Determine game physics and artificial intelligence 3.5 Determine sound engineering requirements 3.6 Determine procedures to test game prototype
4. Collate game design document	4.1 Explain proposed game features in comparison to existing games 4.2 List estimated resources required to develop game 4.3 Prepare estimated schedule for game development 4.4 Collate design information, estimates and proposals into comprehensive game design document

Required Skills and Knowledge

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

Required skills

- analytical skills to interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
 - check and confirm design requirements
 - provide practical advice, support and feedback to colleagues and management
 - translate design requirements into specifications
- literacy and numeracy skills to:
 - develop game design and technical design documents
 - write instructions for the normal and competent operation and testing of all game features and permutations
- planning and organisational skills to:
 - 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
- teamwork skills to contribute to and work in a collaborative team
- technology skills to use correct file formats and archiving procedures.

Required knowledge

- computer game development, including specific terminology
- current game-play hardware and software products
- technical constraints that hardware imposes on software development, graphics requirements, code development and creative visual design
- techniques for applying concept development skills
- techniques for applying concept visualisation skills.

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: - develop concept art and design specifications for characters, environments, 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 - develop game design documents to required industry standard, consistent with client brief and specifications.
Context of and specific resources for assessment	Assessment must ensure access to: - internet for research purposes - computer hardware, software, games engines and file storage - 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: - work samples or simulated workplace activities - observation of game document development activities - verbal questioning concerning aspects of game document development, including: - industry standards for concept art - design and technical specification development - game testing and trialling procedures - resources required for game development.
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.

Research techniques may include:	• conducting surveys and interviews to collect primary data • conducting technical experiments and tests • developing concept sketches • playing games • reviewing literature for suitable storylines • reviewing secondary sources of information in books, journals, newspapers and on the internet • viewing film and performance.
Target market for the game may include:	• age-specific consumer segments: • children • adolescents • adults • educational market segments • gender-specific consumer segments.
Game genre may include:	• adventure • alternative reality • ancient • casino • cyberpunk • educational • edutainment • fantasy • first person shooter • flight shooter • flight simulation • futuristic • god simulation • massively multi-player online game • massively multi-player online role-playing game • medieval • modern • multi-player • post-apocalyptic • puzzle

	• racing shooter • racing simulation • real-time strategy • role-playing game • science fiction • side-scrolling shooter • single player • sports • strategy, including: • action strategy • turn-based strategy • tactical combat.
Game platform may include:	• arcade • console platforms: • Microsoft Xbox 360 • Nintendo DS (hand-held) • Nintendo Wii • Sony PlayStation • hand-held digital device platforms: • Apple IIe, C, C+ • Apple IIGS • Blackberry • BREW • Flashlite • J2ME • Java • Palm OS • Sidekick • Symbian • WAP • Windows Mobile • PC • web.
Game engine may include:	• BigWorld • Blender3D • Dunia • Half Life • Jade • Quake • Riot

	• Scimitar • Second Life • Unreal.
Concept art may include:	• illustrations • models • settings • sketches • storyboards.
Storylines may involve:	• adventure • back-story • cinematics (cut scenes) • heroes journey • key features (edge) • level diagrams • missions • narrative • scripted dialogue • scripts • storyboards.
Characters and environment may include:	• backgrounds • environments • lighting • main characters • scenery • secondary characters • terrain • textures.
Game-play elements may include:	• buildings • command • cooperation • core game play • damage states • edge • enemies • fight • game flow • player activity • shoot • special talents: • magic • power

	• steer • switches • terrain objects • transformations • transportation • traps • weapons.
Graphical user interface elements may include:	• buttons and button clicks • command acknowledgements • edit boxes • file saving and loading • icons • list boxes • markers • menus • options and settings • picture boxes • pointers • radio buttons • scroll bars • shell • splash screens • text boxes • window opening • Windows.
Sounds and music may include:	• ambient sounds • cinematic soundtracks • event jingles • intellectual property protection • level themes • musical compositions • radio chatter • situational music • sound effects • voice • wind, rain and storms.
Operating system may include:	• Linux • Macintosh • PC • Unix.
Code may include:	• code libraries

	• code objects • control loop • operating system code.
Game physics may include:	• collision • combat: • blood spots • debris • explosions • footprints • salvo • smoke and fire • sparks • water • wreckage • movement: • creaking floors • footfalls • puddle stepping • wading • wind.
Artificial intelligence may include:	• decisions • movement • pathfinding • reactions • simulated intelligence • situations • statistics • target selection • tests and events for reactionary behaviour.
Sound engineering requirements may include:	• data path • direct memory access (DMA) • file requirements • mixing • multiple channels • sample lengths • sample rates • sound definitions • third-party drivers.
Testing game prototype may involve play test	• determining criteria for measurement of success with a given audience

procedures, such as:	• monitoring player frustration, progress and enjoyment • selecting test subjects • testing game with target market and other diverse populations.
Game features may include:	• edge • fun • originality • playability.
Resources may include:	• game assets (collateral) • hardware • money • personnel • software • time.
Schedule may include:	• allocating work tasks in consultation with other team members • analysing key requirements of the brief • assessing concept viability against resource availability • conducting risk assessment regarding possible issues and constraints and potential solutions • creating an overall project plan and schedule • determining workflow with consideration to available resources • identifying key milestones and associated deliverables: • alpha version - pre-production • beta version - playable prototype • gold version - completed game • trialling and testing • identifying stakeholders and devising strategies to meet stakeholder needs • identifying the critical path • researching background information • setting project objectives against achievable timeframes.

Unit Sector(s)

Game development