ICAGAM415A Develop simple environments for 3-D games

Release: 1

ICAGAM415A Develop simple environments for 3-D games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to develop simple environments for different genres of games.

Application of the Unit

This unit applies to concept artists, matte painters, game designers, 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
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.*

Innovation and Business Skills Australia

Elements and Performance Criteria

1. Research and analyse brief requirements	1.1 Interpret *brief* and clarify design requirements in consultation with *client*
	1.2 Identify *design and technical constraints* and innovative features of the *environments*
	1.3 Identify *software*, media and file formats for digital imagery
	1.4 Identify production workflow requirements and develop production pipeline to meet client requirements
2. Design and visualise environment	2.1 Develop *concept illustration* for environment consistent with *game genre*
	2.2 Conduct *focus testing* of concept illustration with client and representatives of target market audience
	2.3 Submit to client for approval and feedback
	2.4 Make adjustments to concept illustration based on comment and feedback
3. Verify and validate environment	3.1 Create *environment prototype* according to design brief, guidelines and feedback on concept illustration
	3.2 Conduct focus testing and seek recommendations for the further enhancement of the environment prototype documented
	3.3 Make adjustments to environment prototype based on comment and feedback
	3.4 Submit to client for approval and feedback
4. Develop and evolve environment	4.1 Further enhance environment prototype based on the recommendations generated from focus testing
	4.2 Submit to client for approval and feedback
	4.3 Finalise environment design
	4.4 Save and archive files in agreed formats and repository

Required Skills and Knowledge

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

Required skills

- analytical skills to evaluate technical requirements of environment design against resources and timeframes
- communication skills to liaise with project team and clients
- initiative and enterprise skills to:
    - devise efficient and innovative approaches to texturing and shading
    - provide practical support and give feedback to colleagues and management
- literacy skills to read technical documents and specifications
- planning and organisational skills to manage time and resources
- technical skills to:
    - collect, interpret and communicate focus testing results objectively and effectively
    - create environment artwork within style and quality guidelines
    - design and run focus testing
    - exercise a high level of creative ingenuity in environment design and innovation
    - manage environment evolution and change with effective processes and procedures to mitigate risk and improve environment quality
    - use related computer graphics applications
    - visual research skills to source reference materials for the creation of unique environments.

Required knowledge

- budgeting and scheduling considerations for environment creation in games, with consideration given to human resources
- different environment requirements for different genres of game
- how to interpret environment design briefs
- role and position of interactive environments in commercial game development, game duration and quality
- processes and procedures to facilitate quality and innovation of environment development
- prototyping tools and techniques for commercial environment development in games
- research methods used to stay abreast of the latest developments in game environment 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: • use 2-D and 3-D software applications to develop and realise characters for games • develop environment designs that comply with games design brief and client requirements • develop environment designs that are innovative and competitive with characters in games currently in the marketplace • test responses to environment designs for aesthetic suitability with intended audience and act on feedback.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware and software • input device, such as stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • game design document or specifications • style shots • 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: • discussion and written report of the nominated techniques applied to environment design and realisation • discussion with learner and observation of the integration of environment design and evolution into the overall production pipeline • verbal questioning regarding reasons for use of particular hardware and software options • project or work activities that show research and reference sourcing of material to inform environment design • written and verbal reports or documentation showing research and production plan • review of portfolios of evidence • completed textured, shaded and rendered exemplars.

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.

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.

Brief may include:	- background stories - descriptions of desired look and feel, i.e. aesthetic style - game design document - game overview, including list of special features and selling points - game walkthroughs - illustrations or graphics that enhance the comprehension of the document - intended audience - list of buildings - list of levels or missions - list of non-player and player characters - list of vehicles - references to existing bodies of graphical user interface (GUI) artwork and styles - references to existing game environments - storyboards - verbal instructions - written instructions.
Client may include:	3-D artists - animators - art directors - designers - external clients - modellers - technical directors.
Design and technical constraints may include:	- budget - design specifications - file formats for output and end use - genre and platform - technical requirements - technical specifications.
Environments may include:	- exteriors: - alien

　　　　　　　　Innovation and Business Skills Australia

	- fantasy - historic - natural - underwater - urban - interiors: - building - confined spaces - vehicle.
Software may include:	3-D Studio Max - Animator Pro - AutoCAD - AutoCAD Revit 9 - Blender - Bodypaint - Cinema 4D - Combustion - CorelDraw - Deep paint - Electric Image - Form Z - Houdini - Illustrator - Lightwave - Maya - Photoshop - Pixie - POV-Ray - Renderman - Rhino - Shake - Soft Image or XSI - Z Brush.
Concept illustration may include:	2-D hand rendered drawing 2-D or 3-D digital illustration 2-D sketch - collage or montage - photograph - storyboard.
Game genre may include:	- adventure - alternative reality

Innovation and Business Skills Australia

	- 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.
Focus testing may include:	- documentation of high-level focus test objectives - focus test implementation plan (test plan) document to realise focus test objectives and the procedures and processes to be followed - test group members based on test plan, examples of criteria may include: - age - sex - location - other socioeconomic factors - appropriate environment and facilities for focus testing based on test-plan requirements

	• documentation of focus test results according to test plan.
Environment prototype may include:	• a modelled and textured environment in which characters and objects interact • simulated game play, where the camera follows a game character through the environment demonstrating as many of the environment's features as possible • simulated fly through, where the camera follows a predetermined path through the environment demonstrating as many of the environment's features as possible.

Unit Sector(s)

Game development