



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM523A Collaborate in the design of 3-D game levels and environments

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 work collaboratively with a production team in the design of interactive 3-D environments.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working as part of a team 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 and plan the design process	1.1 Select a project planning methodology 1.2 Identify design practices and design considerations in collaboration with other team members 1.3 State the stages of the design process using project brief and documents 1.4 Identify team roles that relate to level creation and design 1.5 Plan and implement a design process using time-management principles
2. Conceptualise a 3-D environment design in collaboration with team	2.1 Identify key level specifications and purpose for the 3-D environment 2.2 Gather and analyse reference materials in collaboration to help with visualisation of 3-D environment, including environment profiles, game genre, game design and game-play elements 2.3 Catalogue required objects of the level environment 2.4 Identify appropriate 3-D modelling and animation software and painting, shading and texturing software that can be used to create the 3-D environment 2.5 Document design decisions that are made before and during the design conceptualisation 2.6 Produce concept art of the designed environment
3. Present the conceptualised environment to peers	3.1 Present the conceptualised environment to peers and receive feedback 3.2 State how the design decisions have met the requirements for game-play elements 3.3 Justify why certain design decisions were made 3.4 Accept peer feedback
4. Refine the design	4.1 Implement quality assurance principles 4.2 Incorporate user feedback to modify the design 4.3 Finalise the design decision documents in readiness for creating the 3-D environment

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
 - analyse documentation and images to inform design of environment specifications
- enterprise and initiative skills to visualise and develop the concept
- 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
 - contribute to and work in a collaborative team
 - give and receive constructive feedback
 - provide practical advice, support and feedback to colleagues and management
 - realise a unified game-play vision
 - translate design requirements into specifications
- planning and organisational skills to:
 - appropriately refer decisions to a higher project authority for review and endorsement
 - 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
 - prioritise work and meet critical milestones and deadlines
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- research skills to undertake practical, technical or desktop research into design requirements and software tools
- learning skills to accept peer feedback and make improvements
- technology skills to:
 - use correct file formats and archiving procedures
 - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- 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
- 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: • plan, collaborate and manage the design process for creating an interactive 3-D environment • incorporate design specifications into actual deliverable • produce and deliver design documents for the production of an interactive 3-D environment.
Context of and specific resources for assessment	Assessment must ensure access to: • 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: • evaluation of candidate's work samples, such as 3-D models • observation of candidate working as part of a team • written or verbal questioning to assess candidate's knowledge of interactive 3-D environments • review of: • 3-D design documents • concept art • logbooks • presentations • storyboards • textures.
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>Design considerations</i> may include:	• aesthetics • cultural context • genre • resource limitations and constraints • target market.
<i>Project brief and documents</i> may include:	• concept drawings • designer's notes • development environment description • level design document • storyboard • style and design principles • style and medium • target market information • technical design document • technical design review process.
<i>Level specifications</i> may include:	• level-specific components: • allies • base building and location • cinematic (cut scenes) • colours • enemies • graphics • health • lighting • non-player characters • resources and their harvesting • sounds and music • weapons • location • stages • transportation devices: • buttons • doors

	• keys • teleporters • tunnels and passageways.
Environment profiles may include:	• alien • fantasy • foreign • historical • naturalistic, for example: • arctic • desert • jungle • mountainous • post-apocalyptic • urban.
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 design may include:	• concept illustrations or graphics that enhance the comprehension of the document • design for all level missions • game mechanics that affect level design decisions • illustrations of level with all significant points of interest • introduction and overview (one page synopsis) • key selling points, including intended audience, genre and platforms • production details • scripts required for level • synopsis and scripts for each level • title and cover art (art must be colour and of a reasonable resolution for high quality printing) • walk through for at least one mission or level.
Game-play elements may include:	• buildings • game flow • switches • terrain objects • transportation • transformations • traps.
3-D modelling and animation software may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
Painting, shading and texturing software may include:	• 3-D paint • Illustrator • Mudbox • Photoshop • Z Brush.
Concept art may	• illustrations

include:	• models • settings • sketches • storyboards.
Feedback may involve:	• accepting and responding to comment, critique and suggestions from: • clients • colleagues • target audience representatives.

Unit Sector(s)

Game development