



Australian Government

ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects

Release: 1

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Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 1.0.

Application

This unit describes the skills and knowledge required to design and create, advanced simulated effects in a 3-D and digital effects environment.

It applies to individuals with high-level mathematical, technical and communication skills working as concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Game development

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Analyse approaches to design requirements	1.1 Analyse the design requirements for particle systems, fluids and bodies outlined in the brief and organisational documents 1.2 Identify where the advanced simulated effects will fit into the production pipeline 1.3 Identify the factors that may influence the design approach to creating advanced simulated effects
2. Demonstrate the application of advanced simulated effects	2.1 Review the media and techniques that may inspire ideas for simulated effects 2.2 Respond to the brief and documents, and provide solutions to

ELEMENT	PERFORMANCE CRITERIA
	the creation of advanced simulated effects for 3-D environments 2.3 Present design ideas and design considerations, with justification of the choice of advanced simulated effects to the relevant personnel
3. Plan approach to simulated effects	3.1 Adapt and finalise the design according to feedback from the relevant personnel 3.2 Identify skills and processes required for creating advanced simulated effects systems 3.3 Source and gather reference materials, and maintain a portfolio of these references 3.4 Plan a time line to create the advanced simulated effects
4. Produce particles, fluids and bodies for review	4.1 Use programming languages to create code to assist, or produce, the advanced simulated effects 4.2 Using toolsets, create prototype of advanced simulated effects based on finalised design 4.3 Implement physics and forces to the advanced simulated effects, to produce the desired outcome 4.4 Conduct testing 4.5 Review the results, and present the created effects, to the relevant personnel for feedback and discussion about the implementation of the effects, in accordance to the requirements of the design
5. Finalise advanced simulated effects	5.1 Adapt the advanced simulated effects and design if necessary, according to feedback 5.2 Refine the advanced simulated effects 5.3 Present the finalised advanced simulation effects in the requested form, including the pre-production portfolio, demonstrating project research and development for evaluation, and review, by the relevant personnel

Foundation Skills

This section describes language, literacy, numeracy and employment skills incorporated in the performance criteria that are required for competent performance.

Skill	Performance	Description
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	Criteria	
Reading	1.1, 2.1, 2.2	Interprets, analyses and comprehends briefs, documents, and conceptual information, to inform job requirements
Writing	2.3, 3.1, 4.1, 4.5, 5.1, 5.3	- Develops readily understood design and instructional documentation - Transforms creative ideas into documents for specific audiences
Oral Communication	2.3, 3.1, 4.5, 5.1, 5.3	- Speaks clearly and concisely, converting highly technical language and terminology to plain English, when providing information - Elicits information using effective listening and open-questioning techniques - Provides practical advice, support and feedback to colleagues and management
Numeracy	2.2, 3.1, 4.3	Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other elements of radical 3-D effects
Get the work done	All	- Takes responsibility for own workload, negotiating some key aspects with others - Sequences and schedules complex activities, monitors implementation, and manages relevant communication - Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues - Uses systematic, analytical processes in complex, non-routine situations, setting goals, gathering relevant information, and identifying and evaluating options, against the agreed criteria - When dealing with complex issues, may use intuition to identify the general problem area, switching to analytical processes to clarify goals and key issues, and using lateral thinking processes to generate possible solutions - Develops and shapes several options before making a final choice, using a combination of lateral and analytical thinking to tailor and strengthen ideas to suit needs, resources and constraints - Recognises the value of continuous improvement within own work context - Utilises a broad range of features within applications to improve personal productivity, optimising software functions for specific purposes - Manages and maintains files securely, in a variety of

		storage media and formats, and is beginning to actively establish, maintain and monitor electronic paper trails
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects	ICAGAM515A Design and create advanced particles, fluids and bodies for 3-D digital effects	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTGAM515 Design and create advanced particles, fluids and bodies for 3-D digital effects

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Performance Evidence

Evidence of the ability to:

- analyse design requirements and develop design documents
- develop advanced simulation effects according to requirements
- use appropriate effects, such as particles, fluids and rigid or soft bodies
- use programming languages to assist the creation of advanced simulation effects
- adapt design according to feedback
- produce a refined and finalised deliverable
- maintain a portfolio of reference materials.

Note: If a specific volume or frequency is not stated, then evidence must be provided at least once.

Knowledge Evidence

To complete the unit requirements safely and effectively, the individual must:

- explain the programming techniques required for creation of 3-D digital effects
- discuss computer game development, including specific terminology
- summarise the current game-play hardware and software products
- summarise the technology requirements and human resources required in the process of creating digital effects and each team member's respective skills
- explain risk and critical path management
- provide a detailed summary of the technical constraints that hardware imposes on:
 - software development
 - graphics requirements
 - code development
 - creative visual design
- explain the techniques for applying concept development skills
- explain the techniques for applying concept visualisation skills.

Assessment Conditions

Gather evidence to demonstrate consistent performance in conditions that are safe and replicate the workplace. Noise levels, production flow, interruptions and time variances must be typical of those experienced in the game development field of work, and include access to:

- computer hardware and software
- games engines
- file storage
- the internet for research purposes.

Assessors must satisfy NVR/AQTF assessor requirements.

Links

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