Australian Government

ICTGAM508 Develop complex 3-D software for games and interactive media

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 employ multiple 3-D frameworks or libraries, and build an appropriate graphical user interface (GUI) to develop complex 3-D applications with documentation generated using appropriate tools.

It applies to individuals working as games programmers who support the design, development and programming of 3-D media and digital games as part of a larger development team.

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
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Build complex 3-D applications using multiple frameworks provided or engines	1.1 Employ integrated development environment facilities to include existing 3-D, audio and physics libraries suitable for games or interactive media production 1.2 Configure a 3-D environment compatible with a specified platform by using existing library facilities and appropriate language 1.3 Instantiate virtual objects in a complex 3-D environment 1.4 Import complex pre-constructed models retrieved from persistent storage into a 3-D environment using scripts or library

ELEMENT	PERFORMANCE CRITERIA
	routines 1.5 Use code to animate 3-D objects required by game play 1.6 Use code to handle collisions between objects in a 3-D environment 1.7 Use code to manipulate the texturing and other attributes of models during run-time execution 1.8 Incorporate environmental elements to enhance user experience 1.9 Select and use appropriate exception handling techniques to ensure program stability in a complex 3-D environment that uses multiple libraries
2. Create a complex graphical user interface (GUI) for a 3-D environment	2.1 Employ integrated development environment facilities to include existing 3-D compatible GUI controls suitable for complex games or interactive media production 2.2 Combine predefined GUI elements to create a complex interface for a 3-D environment 2.3 Modify scripts or code to customise existing GUI elements for a complex interface 2.4 Write code that processes events raised by a complex GUI in a 3-D environment 2.5 Use GUI events to modify the configuration of a complex 3-D environment
3. Debug a complex 3-D application	3.1 Use stand-alone debugging tools or tools provided by an integrated development environment to examine variables and trace running code across multiple libraries 3.2 Employ debugging facilities, such as log windows or files to detect logical and coding errors
4. Use documentation tools	4.1 Identify and choose suitable integrated or third-party documentation tools 4.2 Create and maintain code documentation for a complex 3-D project using selected integrated or third-party tools

Foundation Skills

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

Skill	Performance Criteria	Description
Reading	1.1, 1.4	• Interprets and comprehends instructions, briefs, technical and conceptual information, to inform job requirements
Writing	1.2, 1.5, 1.6, 1.7, 2.3, 2.4, 4.2	• Writes and customises precise code using specialised language, industry-approved coding techniques, and programming practices
Numeracy	1.5-1.7, 2.3, 2.4	• Uses whole numbers, decimals, and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other variables
Get the work done	1.1-1.9, 2.1-2.5, 3.1, 3.2, 4.1, 4.2	• Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions, and sequencing tasks to achieve efficient outcomes • Actively sources, analyses and evaluates applications, or tools, with the potential to meet development and coding requirements • Understands the purposes and uses key features of specific digital systems and tools, and operates them effectively to complete complex development tasks • Takes responsibility for data integrity and management

Range of Conditions

This section specifies different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Configure a 3-D environment must include:	• device selection • game resolution • screen colour depth • output performance including: • anti-aliasing • level of detail • filtering • caustics and refraction.
Virtual objects must include:	• audio managers • cameras • lights • physics managers • viewports.

Animate must include:	• animation selection/playback for pre-constructed models • based on user input • driven by code • dynamic camera movement as required by game play.

Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTGAM508 Develop complex 3-D software for games and interactive media	ICAGAM508A Develop complex 3-D software for games and interactive media	Updated to meet Standards for Training Packages	Equivalent unit

Links

Companion Volume implementation guides are found in VETNet - https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2