



Australian Government

ICTGAM506 Create complex code for mobile game devices

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 create complex code for mobile game devices.

It applies to individuals working as programmers who support the design, development and programming of interactive 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
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Research and identify appropriate implementations for complex code for mobile game devices	1.1 Obtain, or create, a mobile game device framework 1.2 Identify the tools and technology for creating applications for mobile game devices 1.3 Research and identify the appropriate game physics implementation, for a mobile game device 1.4 Research and identify the appropriate artificial intelligence (AI) implementation, for a mobile game device 1.5 Research and identify the appropriate shaders, for a mobile game device 1.6 Identify the technical limitations and constraints of the mobile

ELEMENT	PERFORMANCE CRITERIA
	device within the game
2. Implement physics code for mobile game devices	2.1 Develop the code for simulating velocity and momentum 2.2 Develop the code for simulating acceleration and gravity 2.3 Develop the code for simulating frictional effects 2.4 Develop the code for simulating collisions and collision detection 2.5 Implement the code for game physics in the mobile game device
3. Develop and implement AI for mobile game devices	3.1 Use finite state machines to model behaviour 3.2 Develop path-finding algorithms 3.3 Develop code based on a genetic algorithm 3.4 Implement the code for AI in the mobile game device
4. Develop and implement the shader for mobile game devices	4.1 Develop code based on the shading algorithm 4.2 Implement the shading algorithm code in the mobile game device

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	1.4	Interprets and comprehends instructions, briefs, technical and conceptual information to inform job requirements
Numeracy	1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.2, 3.3, 3.4, 4.1, 4.2	Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading, and other variables
Get the work done	1.1-1.6, 2.1-2.5, 3.1-3.4, 4.1, 4.2	- Plans, organises and completes work according to defined requirements and schedules, taking responsibility for decisions, and scheduling tasks to achieve efficient outcomes - Uses a high level of creativity and initiative in coding - Actively sources, analyses and evaluates tools and technologies with the potential to meet requirements

		Understands the purposes and uses key features of specific digital systems and tools, and operates them effectively to complete coding tasks
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Unit Mapping Information

Code and title current version	Code and title previous version	Comments	Equivalence status
ICTGAM506 Create complex code for mobile game devices	ICAGAM506A Create complex code for mobile game devices	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 ICTGAM506 Create complex code for mobile game devices

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Performance Evidence

Evidence of the ability to:

- use research to determine appropriate implementations for mobile game devices
- develop and implement the code for game physics in a mobile device
- develop and implement the artificial intelligence for a mobile device
- develop and implement shading algorithms for a mobile device.

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:

- discuss relevant programming techniques
- outline the budgeting and scheduling considerations for game design
- outline the capabilities and constraints of game engines
- discuss computer game development, including specific terminology
- outline the concept development
- describe the concept visualisation
- provide a detailed summary of current game-play hardware and software products
- outline environmental impact and sustainability considerations
- discuss the human resources required in the process of creating a game, and describe the team's respective skills and technology requirements
- explain risk and critical path management
- provide a detailed explanation of the technical constraints that hardware imposes on:
 - software development
 - graphics requirements
 - code development
 - creative visual design.

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