



**Australian Government**

# **ICTGAM302 Design and apply simple textures to digital art**

**Release: 1**

# ICTGAM302 Design and apply simple textures to digital art

## 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 assess, and select, textures and shaders to develop new textures and to apply them to digital art, including 3-D models.

It applies to individuals who support the design, development and programming of basic 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. Clarify the design requirements, and plan the approach | 1.1 Interpret the brief to clarify design, texture generation, and the delivery requirements in consultation with the client<br>1.2 Identify the design and technical constraints<br>1.3 Identify the software, media and file formats for digital imagery, texture production and manipulation<br>1.4 Identify the sequence of digital texturing activities in the production pipeline<br>1.5 Identify production workflow requirements, and develop the production pipeline to meet client requirements |
| 2. Assess the existing textures and shaders for           | 2.1 Establish the underlying surface characteristics of the 3-D model to be textured and shaded                                                                                                                                                                                                                                                                                                                                                                                                           |

| ELEMENT                                                  | PERFORMANCE CRITERIA                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| suitability                                              | 2.2 Identify basic shaders and textures with surface characteristics<br>2.3 Identify suitable textures from the available texture libraries<br>2.4 Select shaders and textures for the assignment to model<br>2.5 Confirm that the selections are consistent with the brief and with client requirements                                                       |
| 3. Determine shader attributes and assign to a 3-D model | 3.1 Identify and select the attributes required to achieve the desired effects on 3-D models<br>3.2 Determine and confirm the requirements related to lighting and rendering<br>3.3 Use the appropriate methods and techniques to achieve the desired shading outcome                                                                                          |
| 4. Acquire new textures                                  | 4.1 Identify the desired resolution for texture, prior to acquisition<br>4.2 Acquire textures from an online library<br>4.3 Capture real-world textures using digital means<br>4.4 Generate the texture, using art media, or digital paint software, and then save<br>4.5 Ensure that the resolution of the acquired texture meets resolution requirements     |
| 5. Generate procedural textures and create a texture map | 5.1 Assess the nature of the surface topology<br>5.2 Identify the suitable types of 3-D projection<br>5.3 Apply geometry where necessary<br>5.4 Use algorithms to simulate natural patterns, where required<br>5.5 Determine the texture-mapping method<br>5.6 Determine the projection-mapping method<br>5.7 Adjust the parameters to achieve desired effects |
| 6. Apply the texture to model                            | 6.1 Apply the texture to the model<br>6.2 Layer and enhance the textures to achieve the desired effects<br>6.3 Apply lighting to test the reaction of the textures<br>6.4 Apply the textures to lights, in order to achieve specified effects<br>6.5 Adjust the textures to achieve the final effects                                                          |

| ELEMENT                | PERFORMANCE CRITERIA                                                                                                                                                                                                                                             |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | 6.6 Complete test renders, and confirm the outcome with the client                                                                                                                                                                                               |
| 7. Finalise the design | 7.1 Present test renders to the client for approval<br>7.2 Make technical or design adjustments consistent with the feedback and with budgetary constraints<br>7.3 Finalise shading and texturing<br>7.4 Save and archive files in agreed formats and repository |

## 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, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.5, 5.1, 5.2 | <ul style="list-style-type: none"> <li>Interprets and comprehends information in diagrams, designs, objects, and images</li> <li>Recognises and comprehends signs, symbols, pictures, jargon, abbreviations, computer generated text, numbers and letters necessary to operate complex digital art software</li> </ul>                                                            |
| Oral Communication | 1.1, 1.2, 1.3, 1.4, 1.5, 2.5, 3.2, 6.6, 7.1                          | <ul style="list-style-type: none"> <li>Uses effective questioning and listening techniques, translating digital art terminology to plain English where necessary, to clarify client requirements and obtain information</li> <li>Listens and responds to instructions and feedback to ensure that the finished result meets client requirements</li> </ul>                        |
| Numeracy           | 3.3, 4.1, 4.5, 5.4, 5.7, 6.2, 6.3, 6.4, 6.5, 6.6, 7.2, 7.3           | <ul style="list-style-type: none"> <li>Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other variables, in the application of texture to digital imagery</li> <li>Adds, subtracts, multiplies and divides whole numbers and decimals to ensure that the project meets budgetary constraints</li> </ul> |
| Get the work done  | 1.1-1.5, 2.1-2.3, 3.1-3.3, 4.1-4.5, 6.1-6.5, 7.2, 7.3                | <ul style="list-style-type: none"> <li>Makes routine decisions and implements standard procedures for routine tasks</li> <li>Uses creativity and initiative in design</li> </ul>                                                                                                                                                                                                  |

|  |  |                                                                                                                                                                                                                                                                           |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | <ul style="list-style-type: none"><li>• Uses key features of digital systems and tools to complete routine tasks</li><li>• Understands the importance of secure information in relation to own work, and takes responsibility for data integrity and management</li></ul> |
|--|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Unit Mapping Information

| Code and title<br>current version                         | Code and title<br>previous version                         | Comments                                        | Equivalence status |
|-----------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------|--------------------|
| ICTGAM302 Design and apply simple textures to digital art | ICAGAM302A Design and apply simple textures to digital art | 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 ICTGAM302 Design and apply simple textures to digital art

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## Performance Evidence

Evidence of the ability to:

- comprehend design requirements
- complete texturing and shading tasks according to brief requirements
- create and apply textures to digital art
- use and optimise software components for best performance
- adhere to system requirements related to file sizes and formats
- store completed file components to software and organisational requirements
- develop textured, shaded and rendered models
- integrate texturing activities into the overall production pipeline.

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 camera textures and filters that can be used to achieve shading and texturing effects
- outline the features of software used for:
  - 3-D modelling
  - appropriate file sizes and formats
  - digital image manipulation
  - lighting
  - rendering
  - scanning
  - the scheduling of production activities
  - shading

- texturing
- describe how to interpret design, texturing, and shading briefs
- discuss digital image capture, using cameras and scanners
- describe shader attributes and their optimisation
- describe shader and texture mapping, and projection
- discuss texturing and shading requirements for games.

## 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:

- the appropriate computer hardware, software and peripheral devices
- models and scenes to be shaded and textured
- style shots
- rendering briefs or specifications
- the schedules.

Assessors must satisfy NVR/AQTF assessor requirements.

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