



Australian Government

ICTGAM540 Design and create models for 3-D and digital effects environments

Release: 1

ICTGAM540 Design and create models for 3-D and digital effects environments

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to design and create models for a 3-D and digital effects environment using complex topology, specified geometry surfaces and advanced model builds.

It applies to those 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. Prepare and plan 3-D modelling process	1.1 Obtain project brief and identify 3-D model requirements and user needs according to organisational procedures 1.2 Research and collect portfolio of reference material according to organisational procedures 1.3 Present portfolio of collected reference material to required personnel 1.4 Evaluate industry standard 3-D modelling and animation software and select according to model requirements 1.5 Develop and design a modelling plan using reference material 1.6 Seek feedback on modelling plan from required personnel and

ELEMENT	PERFORMANCE CRITERIA
	amend as required
2. Analyse resources and design 3-D model	2.1 Research different types of geometry and select most applicable according to 3-D model requirements 2.2 Document selected geometry choice and explain rationale according to organisational procedures 2.3 Evaluate industry standard concept development software and select software according to model requirements 2.4 Construct and test topology plan using chosen concept development software 2.5 Document and explain reasoning for choosing a particular modelling method 2.6 Assess and refine topology plan with required personnel
3. Construct 3-D model	3.1 Build 3-D model in chosen 3-D modelling and animation software according to modelling plan and specifications 3.2 Apply selected geometry choice to 3-D model 3.3 Make changes to geometry selection as required 3.4 Present near-finished product to required personnel and seek feedback 3.5 Evaluate feedback and incorporate into final design 3.6 Assess and refine model with required personnel and confirm model meets task requirements
4. Test and finalise 3-D model	4.1 Test and confirm final model functionality in 3-D and digital effects environments, according to organisational procedures 4.2 Obtain final sign-off on 3-D model from required personnel 4.3 Compose report on experience of working on a 3-D model and share findings

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	- Interprets, analyses, and comprehends conceptual and specification information to inform job requirements - Organises, evaluates and critiques ideas and information from a range of complex texts to determine which geometry and topology will suit 3-D model
Writing	Prepares documents detailing advantages and limitations of different

Skill	Description
	technologies using appropriate layout and required descriptive language in a cohesive and well-structured manner • Develops material about the advantages and limitations of different technologies, using clear language to convey information and requirements
Oral Communication	• Uses listening and open questioning techniques to obtain required information using appropriate industry language for intended audience
Numeracy	• Develops mathematical representations of three-dimensional surface of objects using whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other 3-D modelling elements • Interprets numerical data and deciphers technical charts, diagrams and other specifications
Planning and organising	• Sequences and schedules complex activities, monitors implementation and manages communication
Problem solving	• Makes a range of critical and non-critical decisions in relatively complex situations, taking a range of factors into account
Self-management	• Implements actions as per plan, making slight adjustments if necessary, and addressing some unexpected issues • Uses feedback and evaluation of results to inform decisions about future improvement
Technology	• Uses a broad range of features in digital applications for specific purposes

Unit Mapping Information

Supersedes and is equivalent to ICTGAM514 Design and create models for a 3-D and digital effects environment.

Links

Companion Volume Implementation Guide is found on VETNet -

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

Assessment Requirements for ICTGAM540 Design and create models for 3-D and digital effects environments

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- use software and construct an advanced 3-D model according to plan, on at least one occasion.

In the course of the above, the candidate must:

- prepare a topology plan for 3-D model design using:
 - applicable industry terminology
 - applicable geometry surfaces
 - concept development software
 - feedback from others to refine plan
- seek feedback from required personnel and refine model
- render designs on at least one small device and one large device and confirm pixels are optimised
- confirm functionality of model on at least two different browsers and at least two different devices
- document work performed in designing and creating models.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- methods of sourcing reference material
- key aspects of modelling plans
- features and capabilities of different geometry surfaces, including:
 - NURBS
 - Sub-D

- Polygon
- T-splines
- digital model development and testing process
- technology requirements and human resources required to create 3-D models, and their respective skills
- features and functions of box, edge-loop and patch modelling
- capabilities and constraints of 3-D modelling and animation packages and software and concept development software
- different types of geometry surfaces for models and their features
- purposes of scheduling production components in model development process
- features of topology plans and topology plan testing methods
- uses of storyboards and scripts
- organisational procedures applicable to creating 3-D models.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- hardware and software applicable to designing and creating 3-D models
- games engine
- file storage
- project brief
- the internet
- browsers and devices
- organisational procedures applicable to creating 3-D models.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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