Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM516A Animate a 3-D character for digital games

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

ICAGAM516A Animate a 3-D character for digital games

Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to animate a 3-D character for digital games.

Application of the Unit

This unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Innovation and Business Skills Australia

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
Elements describe the essential outcomes of a unit of competency.	*Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.*

Elements and Performance Criteria

1. Determine 3-D character model animation requirements	1.1 Study production documentation animation requirements for 3-D character
	1.2 Determine the *target environments* for 3-D digital character animation
	1.3 Establish required level of detail for 3-D character model animation
	1.4 Determine work flow sequences to ensure that production schedule deadlines are met
	1.5 Select *software tools* that best suit the production pipeline and the target *game engine* and *platform* for final export of 3-D digital character modelling and animations
2. Create required animations using a variety of animated tools	2.1 Determine the most efficient animation methodology
	2.2 Animate first pass, applying animation principles and experimenting with techniques to produce the required movements
	2.3 Submit first pass for approval to *relevant personnel*
	2.4 Make adjustments as required and refine animation in passes until storyboard requirements are achieved
	2.5 Animate facial features with lip-syncing to match audio and design requirements of approved storyboard
	2.6 Create *primary animations* as required
3. Finalise animations	3.1 Submit character animations for final check to relevant personnel
	3.2 Finalise projects according to production procedure
4. Export animations	4.1 Export animation and 3-D character model to required game engine
	4.2 Test character animations in game engine
	4.3 Submit final character animations to relevant personnel

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

- analytical skills to:
    - analyse documentation and images to inform implementation of game specifications
    - interpret briefs, work instructions, and technical and conceptual information
- communication skills to:
    - check and confirm design requirements
    - collect, interpret and communicate in visual and written forms effectively for various audiences, including engineers and artists
    - communicate clearly using speech and text
    - communicate complex designs in a structured format drawn from industry standards, styles and techniques
    - communicate technical requirements related to software development, graphics requirements and code development to supervisors and other team members
    - provide practical advice, support and feedback to colleagues and management
    - translate design requirements into specifications
- initiative and enterprise skills to exercise a high level of creative ingenuity in 3-D design and innovation
- literacy and numeracy skills to develop 3-D design and technical design documents
- planning and organisational skills to:
    - refer decisions to a higher project authority for review and endorsement
    - balance talent, experience and budget
    - delegate tasks and responsibility appropriately
    - establish clear roles and goals to achieve required game development outcomes
    - meet project deadlines
    - organise equipment and resources to achieve required outcomes
    - organise own time to meet milestones
- problem-solving skills to recognise and address potential quality issues and problems at design development stage
- technical skills to:
    - use correct file formats and archiving procedures
    - resolve basic hardware, software and other technical issues associated with game production.

Required knowledge

- 3-D animation
- 3-D modelling
- anatomy and physical movement
- budgeting and scheduling considerations for game design
- capabilities and constraints of game engines
- client communication

- computer game development, including specific terminology
- current game-play hardware and software products
- environmental impact and sustainability considerations
- graph curve editor
- human resources required in the process of creating a game, and their respective skills and technology requirements
- methods for using reference material
- OHS requirements for:
  - ergonomics
  - electrical safety
- physical attributes to create effects, such as weight and anticipation
- risk and critical path management
- scheduling production components
- shading and texturing
- techniques for applying concept development skills
- techniques for applying concept visualisation skills
- techniques for using storyboard and script production
- time management
- transfer methodology, including rotoscope, hand key and motion capture.

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Evidence of the ability to: • select correct tools to work with target game engine and platform • apply animation principles • develop an animated character model • export animated character model to game engine • test character animations in game engine.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • review of nominated techniques applied to selected subject matter • direct observation of the learner using 3-D animation software • review of work activities that show research and reference sourcing to gain best modelling effect • written and verbal reports or documentation showing modelling plan • evaluation of functional animated 3-D character in game engine.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking

| | background may need additional support. |
| | In cases where practical assessment is used it should be combined with targeted questioning to assess required knowledge. |

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Target environments may include:	- alien environments - fantasy environments - foreign environments - historical environments - natural environments, for example: - mountainous - jungle - desert - arctic - post-apocalyptic environments - urban environments.
Software tools may include:	3ds Max - Blender - Cinema 4D - Houdini - Lightwave - Maya - Modo - XSI - ZBrush.
Game engine may include:	- BigWorld - Blender3D - game engine custom-built with rendering engine, such as: - OGRE - Irrlicht - Dunia - Half Life - Jade - Quake - Riot - Scimitar - Second Life - Unreal.

Platform may include:	- arcade - console platforms: - Microsoft Xbox 360 - Nintendo DS (hand-held) - Nintendo Wii - Sony PlayStation - hand-held digital device platforms: - Apple IIe/c/c+ - Apple IIGS - Blackberry - BREW - Flashlite - Google Android - Java - J2ME - Palm OS - Sidekick - Symbian - WAP - Windows Mobile - personal computer (PC) - web.
Relevant personnel may include:	- animators - concept artists - game-play designers - graphic designers - instructional designers - modellers - motion capture technicians - other specialist staff - other technical staff - producers - programmers - project manager - sound engineers - team members - technical director - writers.
Primary animations may include:	- attacking - crouching

	• defending
	• dying
	• idle
	• jumping
	• running
	• shooting
	• standing
	• throwing
	• walking.

Unit Sector(s)

Game development