



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM519A Manage technical art and rigging in 3-D animation

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with <i>ICA11 Information and Communications Technology Training Package version 1.0</i>

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to manage technical art and rigging in 3-D animation.

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.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
<i>Elements describe the essential outcomes of a unit of competency.</i>	<i>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.</i>

Elements and Performance Criteria

1. Use reference or source materials to assess rig requirements	1.1 Use production documentation as developed by learners or trainer to determine model rigging requirements 1.2 Maintain portfolio of reference 1.3 Discuss the range of software features available when using various rigging technologies
2. Plan rig suitable for animation/movement	2.1 Analyse inner workings of object to select appropriate skeletal or structural systems 2.2 Analyse required bones or joints behaviours to select correct orientations 2.3 Examine object geometry topologies to select correct bone and joint placement 2.4 Analyse critical object movement to select FK or IK requirements or a hybrid solution 2.5 Journal results for use at rigging implementation phase
3. Implement character skeleton requirements	3.1 Use 3-D software to place bones and joints according to rigging plan 3.2 Use 3-D software to orientate bones and joints according to rigging plan 3.3 Use 3-D software to construct FK or IK requirements in adherence to rigging plan 3.4 Use 3-D software to construct hierarchies and pivotal sets 3.5 Trial and refine rotations and movement attributes
4. Employ character movement and implement character attributes and control handles	4.1 Use 3-D software to construct specific driven attributes for manipulation purposes 4.2 Use 3-D software to create and place control handles with appropriate attributes 4.3 Use 3-D software to link control handles to improve animation procedures 4.4 Trial and refine controls and attributes 4.5 Negotiate modification where appropriate 4.6 Use 3-D software toolsets to skin/bind object geometry to created skeletal systems or mechanical structures
5. Test and refine rig integrity	5.1 Use 3-D software to test and refine object rig interaction 5.2 Use 3-D software toolsets to test and refine geometry skeleton systems or mechanical structure interaction

	5.3 Negotiate modification where appropriate
6. Produce animated sequences of rigged object	6.1 Create 3-D animations of rigged models using animation and rigged modelling techniques to suit design specifications 6.2 Render completed animated sequences 6.3 Save and store animated sequences using appropriate output file formats, standard naming conventions and version control protocols 6.4 Present 3-D animated sequences of rigged models to relevant personnel for evaluation by agreed deadlines

Required Skills and Knowledge

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

Required skills

- communication skills to liaise with clients
- literacy and numeracy skills to:
 - source and use reference material
 - use a storyboard and script production plan
- planning and organisational skills to schedule production components
- self-management and planning skills to:
 - meet deadlines
 - prioritise work tasks
 - seek expert assistance when problems arise
- technical skills to:
 - manage files and directories using standard naming conventions and version control protocols
 - output 3-D animated sequences in appropriate file formats for a range of delivery platforms
 - use industry-current animation software to develop and manage rigged models in digitally animated sequences.

Required knowledge

- basic 3-D digital animation techniques
- features of a range of delivery platforms
- geometry topology analysis skills
- identification of physical attributes
- OHS standards as they relate to working for periods of time on computers
- rigged 3-D modelling techniques
- theory of anatomy/structural systems.

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: • design, implement and manage rigs for objects • use and refine skeleton/structural and animation controls for best performance • construct hierarchies to formulate specific controls • combine and refine object geometry to skeletal/structural rigs • creation of 3-D digital animated sequences of a rigged model • meet production deadlines.
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 case studies • evaluation of work samples • direct observation of candidate working as part of a production team • verbal or written questioning of theory of anatomy and structural systems and how they relate to 3-D animation techniques.
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.
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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.

<i>Production documentation</i> may include:	• animatics • brief • storyboard • technical specifications.
<i>Portfolio of reference</i> may include:	• mechanical structures • skeletal systems.
<i>Structural systems</i> may include:	• biped • mechanical • quadruped.
<i>3-D software</i> may include:	• 3ds Max • Blender • Cinema 4D • Houdini • Lightwave • Maya • Modo • XSI • Z Brush.
<i>3-D animations</i> may include:	• 3-D elements • 3-D panoramas • basic games • buttons • characters • illustrations • logos • models • morphs and blend shapes • puzzles • simulated sequences • text • titles and credits.
<i>Design specifications</i> may include:	• characters and objects • delivery platform

	• hardware specifications, including memory size (RAM) • key frames • media form • objects • operating system • output file format • output file size • references • samples • script • storyboard • technical specifications, including version control protocols.
Relevant personnel may include:	• 3-D modeller • 3-D producer • animation director • audio-asset creator • director • graphic artist or designer • instructional designer • lead animator • matte painter • system support personnel • other technical and specialist personnel.

Unit Sector(s)

Game development