



Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM416A Prepare and complete image rendering processes

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 prepare for and complete simple rendering processes for 3-D modelling, animation and game development.

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. Analyse rendering requirements	1.1 Identify equipment and media required for project 1.2 Identify the features of rendering software packages used in the film and games industries 1.3 Analyse design brief or other reference sources to plan and determine rendering requirements
2. Select a suitable rendering application to achieve desired appearance	2.1 Select rendering software with capability to achieve desired effects within timeframe and budget 2.2 Confirm selection is according to the brief, system limitations and requirements
3. Prepare rendering application for desired outcome	3.1 Select and apply appropriate image resolutions, image aspect ratio and pixel ratio 3.2 Adjust renderer attributes to obtain desired anti-aliasing 3.3 Adjust renderer attributes to obtain other desired visual effects
4. Check render integrity and quality	4.1 Refine render integrity 4.2 Re-link any missing images and textures 4.3 Test render times for optimising process 4.4 Test alpha channels and opacity matts 4.5 Test render layers and passes
5. Optimise images for render processes	5.1 Complete pre-rendering optimisation tasks 5.2 Adjust and refine renderer attributes to optimise render times 5.3 Select appropriate file format for output according to the brief 5.4 Select appropriate filenames and output destinations
6. Render images and save files appropriately	6.1 Undertake final rendering processes 6.2 Store or archive files 6.3 Review completed render to ensure compliance with system and brief 6.4 Confirm rendering with relevant personnel

Required Skills and Knowledge

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

Required skills

- analytical skills to evaluate technical requirements of rendering against resources and timeframes
- communication skills to liaise with project team and clients
- initiative and enterprise skills to:
 - devise efficient and innovative approaches to optimise rendering capacity
 - provide practical support and give feedback to colleagues and management
- literacy skills to read technical documents
- planning and organisational skills to manage time and resources
- technical skills to administer render farm and use related computer graphics applications.

Required knowledge

- features of software used for:
 - 3-D animation
 - 3-D modelling
 - appropriate file sizes and file formats
 - lighting
 - rendering
 - scheduling of production components
 - shading
 - texturing
- interpreting rendering briefs
- rendering optimisation techniques
- rendering requirements for games
- using computer networks for rendering.

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: • adhere to rendering brief requirements • design and comprehend rendering tasks • use and optimise render components for best performance • adhere to system requirements related to file sizes and formats • store rendered components in an organised manner for any further use.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware and software • input device, e.g. stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • models and scenes to be rendered • style shots • rendering briefs or specifications and schedules • 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: • discussion and written report of the nominated techniques applied to rendering • discussion with learner and observation of development of a rendering pipeline • verbal questioning regarding reasons for use of hardware and software to produce optimum render process and product • direct observation of the learner using rendering software • project or work activities that show research and reference sourcing to gain best rendered effects • written and verbal reports or documentation showing research and production plan • review of portfolios of evidence • review of completed and rendered image or sequence.

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>Equipment and media</i> may include:	• 3-D animation software • computer workstation • ergonomic furniture • hubs • input device, e.g. stylist tablet, keyboard and mouse • output device, such as monitor, TV, printer and speakers • render farm • render network distribution software • rendering software • switch.
<i>Software</i> may include:	• 3-D Studio Max • Animator Pro • AutoCAD • AutoCAD Revit 9 • Blender • Cinema 4D • Combustion • CorelDraw • Electric Image • Form Z • Houdini • Illustrator • Lightwave • Maya • Photoshop • Pixie • POV-Ray • Renderman • Rhino • Shake • Soft Image or XSI • Z Brush.
<i>Plan</i> may include:	• lighting • networking

	• production management • production planning • research • shading • team discussions • texturing.
<i>Pre-rendering optimisations tasks</i> may include:	• assessing options with key personnel • deleting unnecessary geometry and components • optimising and refining for best render performance • organisation of output • preparing layer or pass control • preparing opacity mattes and alpha channels • preparing renderer attributes • rendering • selection of most appropriate renderer for specific outcome • testing and diagnosing rendering issues.
<i>Relevant personnel</i> may include:	• animator • designer • modeller • programmer • shading and texture artist • systems support officer • technical director.

Unit Sector(s)

Game development