



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM19042A Render images using computer graphics software**

**Release: 1**

## **MEM19042A Render images using computer graphics software**

### **Modification History**

Not applicable.

### **Unit Descriptor**

This unit of competency covers the skills and knowledge required to render 3D images using computer-based software.

### **Application of the Unit**

This unit applies to designers who use computer-based software to produce rendered images of their design to facilitate construction or for promotional purposes.

### **Licensing/Regulatory Information**

Not applicable.

### **Pre-Requisites**

MEM19024A Use CAD to create and display 3D jewellery and object models

### **Employability Skills Information**

This unit contains employability skills.

### **Elements and Performance Criteria Pre-Content**

Not applicable.

### **Elements and Performance Criteria**

- |                                  |   |
|----------------------------------|---|
| 1 Analyse rendering requirements | 1.1 Explain the features of rendering software packages used in the design industry     |
|                                  | 1.2 Analyse the 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 the desired effects within timeframe and budget
  - 2.2 Confirm selection is in accordance with design brief, system limitations and requirements
- 3 Prepare rendering application for desired outcome
  - 3.1 Select and apply appropriate image resolutions
  - 3.2 Select and apply appropriate image aspect ratio
  - 3.3 Select and apply appropriate pixel ratio
  - 3.4 Adjust renderer attributes to obtain desired anti-aliasing
  - 3.5 Adjust renderer attributes to obtain other desired visual effects
- 4 Check render integrity and quality
  - 4.1 Test and refine render integrity
  - 4.2 Test and re-link any missing images and textures
  - 4.3 Test render times for optimising process
  - 4.3 Test alpha channels and opacity matts
  - 4.4 Test render layers and passes
- 5 Optimise images for render processes
  - 5.1 Complete all relevant pre-rendering optimisations tasks
  - 5.2 Adjust and refine renderer attributes to optimise render times
  - 5.3 Select appropriate file format for output in accordance with the brief
  - 5.4 Select appropriate file names and output destinations
- 6 Render images and save files appropriately
  - 6.1 Undertake final rendering processes
  - 6.2 Store/archive files
  - 6.3 Review completed render to ensure compliance with system and brief

## Required Skills and Knowledge

Required knowledge includes:

- 3D modelling
- 3D animation
- lighting
- shading
- texturing
- rendering principles
- appropriate file sizes and file formats

Required skills include:

- using advanced computer graphics applications
- managing time and resources
- producing original and brief responsive renderings
- communicating effectively with colleagues and clients
- scheduling of production components
- using computer networks for rendering
- interpreting design briefs

## Evidence Guide

<b>Overview of assessment</b>	A person who demonstrates competency in this unit must be able to produce rendered images which illustrate features of designs.
<b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b>	<p>Assessors must be satisfied that the candidate can competently and consistently:</p> <ul style="list-style-type: none"> <li>• adhere to design brief requirements</li> <li>• design and comprehend rendering tasks</li> <li>• use and refine render components for best performance</li> <li>• adhere to systems requirements in relation to file sizes and formats</li> <li>• store rendered components in an organised manner for any further use.</li> </ul>
<b>Context of and specific resources for assessment</b>	<ul style="list-style-type: none"> <li>• Assessment may occur on the job or in an appropriately simulated environment. Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.</li> <li>• Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.</li> <li>• Access must be provided to appropriate learning and/or assessment support when required. Where applicable, physical resources should include equipment modified for people with disabilities.</li> <li>• Assessment requires access to relevant computer hardware and 3D software, as well as models and/or scenes to be rendered. These may include: <ul style="list-style-type: none"> <li>• computer workstation</li> <li>• 3D animation software</li> <li>• storyboard/script</li> <li>• rendering software</li> <li>• input device (e.g. stylist tablet, keyboard and mouse)</li> <li>• output device (e.g. monitor, TV, printer and speakers)</li> <li>• style shots</li> <li>• rendering briefs/specifications and schedules.</li> </ul> </li> </ul>
<b>Method of assessment</b>	<ul style="list-style-type: none"> <li>• Assessment must satisfy the endorsed Assessment</li> </ul>

	<p>Guidelines of the MEM05 Metal and Engineering Training Package.</p> <ul style="list-style-type: none"> <li>• Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge.</li> <li>• Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure its correct interpretation and application.</li> <li>• Assessment may be applied under project-related conditions (real or simulated) and require evidence of process.</li> <li>• Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.</li> <li>• Assessment may be in conjunction with assessment of other units of competency where required.</li> </ul>
<p><b>Guidance information for assessment</b></p>	<p>Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.</p>

## Range Statement

<p><b>Planning tasks</b></p>	<p>Planning tasks may include:</p> <ul style="list-style-type: none"> <li>• research</li> <li>• production planning</li> <li>• production management</li> <li>• team discussions</li> <li>• lighting</li> <li>• texturing</li> <li>• shading</li> <li>• networking</li> </ul>
<p><b>Pre-rendering optimisation tasks</b></p>	<p>Pre-rendering optimisation tasks may include:</p> <ul style="list-style-type: none"> <li>• selection of most appropriate renderers for specific outcomes</li> <li>• assessing options with key personnel</li> <li>• deleting any unnecessary geometry and components</li> <li>• preparing renderers attributes</li> <li>• preparing layer/pass control</li> <li>• preparing opacity mattes and alpha channels</li> <li>• testing and diagnosing rendering issues</li> <li>• optimising and refining for best render performance</li> <li>• rendering</li> <li>• organisation of output</li> </ul>
<p><b>Equipment and media</b></p>	<p>Equipment and media may include:</p> <ul style="list-style-type: none"> <li>• computer workstation</li> <li>• ergonomic furniture</li> <li>• 3D animation software</li> <li>• rendering software</li> <li>• render network distribution software</li> <li>• hub/s</li> <li>• switches</li> <li>• input device (e.g. stylist tablet, keyboard and mouse)</li> <li>• output device (e.g. monitor, TV, printer and speakers)</li> <li>• render farm</li> </ul>
<p><b>Relevant personnel</b></p>	<p>Relevant personnel may include:</p> <ul style="list-style-type: none"> <li>• designer</li> <li>• modeller</li> <li>• texturer</li> <li>• animator</li> </ul>

	<ul style="list-style-type: none"> <li>• programmer</li> <li>• technical director</li> <li>• systems support officer</li> </ul>
<b>Software</b>	<p>Software may include, but is not limited to:</p> <ul style="list-style-type: none"> <li>• 3D Studio Max</li> <li>• Animator Pro</li> <li>• AutoCAD</li> <li>• AutoCAD Revit 9</li> <li>• Blender</li> <li>• Cinema 4D</li> <li>• Combustion</li> <li>• CorelDraw</li> <li>• Electric Image</li> <li>• Form Z</li> <li>• Houdini</li> <li>• Illustrator</li> <li>• Lightwave</li> <li>• Maya</li> <li>• Pixie</li> <li>• POV-Ray</li> <li>• Renderman</li> <li>• Rhino</li> <li>• Photoshop</li> <li>• Shake</li> <li>• Soft Image/XSI</li> <li>• Z Brush</li> </ul>

## Unit Sector(s)

Jewellery and horological

## Custom Content Section

Not applicable.