



Australian Government

MEM19042 Render images using computer graphics software

Release: 1

MEM19042 Render images using computer graphics software

Modification History

Release 1. Supersedes and is equivalent to MEM19042A Render images using computer graphics software.

Application

This unit of competency defines the skills and knowledge required to use computer-based software to render 3D images of designs. It involves the addition of shading, colour, texture and lamination to 2D and 3D images to create life-like images.

This unit applies to designers and to situations where the design has been finalised. The drawings and renderings would typically be used by the designer to develop production concepts, for marketing, or to record details necessary for construction by self or others.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM19024 Use computer-aided design (CAD) to create and display 3D jewellery or object models

Competency Field

Jewellery

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Analyse the design brief or similar sources to plan and determine rendering requirements
2. Select a suitable	2.1 Select rendering software with capability to achieve the desired

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<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
rendering application	effects within timeframe and budget 2.2 Confirm selection is in accordance with design brief, system limitations and requirements
3. Prepare rendering application	3.1 Select and apply appropriate image resolutions, aspect and pixel ratios to achieve desired outcome 3.2 Adjust renderer attributes to obtain desired anti-aliasing and other visual effects
4. Check render integrity and quality	4.1 Test and refine render integrity, re-linking any missing images and textures 4.2 Test render times for optimising process 4.3 Test alpha channels and opacity matts against requirements 4.4 Test render layers and passes against requirements
5. Optimise images for render processes	5.1 Complete relevant pre-rendering optimisation tasks 5.2 Adjust and refine renderer attributes to optimise render times 5.3 Select file names, formats and output destination in accordance with the brief
6. Render images and save files appropriately	6.1 Undertake final rendering processes to meet design requirements 6.2 Store files in accordance with SOPs 6.3 Review completed render to ensure compliance with system and brief

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the

candidate, accessibility of the item, and local industry and regional contexts) are included.	
Equipment and media include one or more of the following:	• computer workstation • ergonomic furniture • 3D animation software • rendering software • render network distribution software • hub/s • switches • input device including one or more of the following: • stylist tablet • keyboard • mouse • output device including one or more of the following: • monitor • TV • printer • speakers • render farm.
Planning tasks include one or more of the following:	• research • production planning • production management • team discussions • lighting • texturing • shading • networking.
Pre-rendering optimisation tasks include one or more of the following:	• selecting most appropriate renderers for specific outcomes • assessing options with key personnel • deleting any unnecessary geometry and components • preparing renderers attributes • preparing layer or pass control • preparing opacity mattes and alpha channels • testing and diagnosing rendering issues • optimising and refining for best render performance • rendering • organising output.
Relevant personnel include one or more of the following:	• designer • modeller • texture artists • animator

	• programmer • technical director • systems support officer.
Software includes one or more of the following:	• 3D Studio Max • Animator Pro • AutoCAD • AutoCAD Revit 9 • Blender • Cinema 4D • Combustion • CorelDraw • Electric Image • Form Z • Houdini • Illustrator • Lightwave • Maya • Pixie • POV-Ray • Renderman • Rhino • Photoshop • Shake • Soft Image/XSI • Z Brush.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19042A Render images using computer graphics software.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM19042 Render images using computer graphics software

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- planning the task requirements from the design brief or similar sources
- selecting and confirming appropriate rendering software with relevant personnel
- producing brief responsive renderings
- scheduling of production components
- storing rendered components in an organised manner for any further use.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe work practices and procedures
- features of rendering software packages used in the design industry
- equipment and media options
- planning tasks
- pre-rendering optimisation tasks
- industry software programs and their features and applications
- personnel to consult for advice and confirmation of the rendering application
- techniques, including the following:
 - 3D modelling
 - 3D animation
 - lighting
 - shading
 - texturing
- purpose of rendering
- appropriate file sizes and file formats.

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Assessment Conditions

- Assessors must:
 - have vocational competency in rendering images using computer graphics software at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate
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