Australian Government

Department of Education, Employment and Workplace Relations

CUFANM502A Create 3D digital environments

Revision Number: 1

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Modification History

Not applicable.

Unit Descriptor

Unit descriptor	This unit describes the performance outcomes, skills and knowledge required to create 3D digital environments. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement.

Application of the Unit

Application of the unit	3D environment artists working in 3D animation, games and graphics studios apply the skills and knowledge described in this unit. From reference material and established designs, they create 3D environments using the software application most appropriate to the production. 3D environments need to meet technical and design specifications, as well as being efficient, reliable and to scale. Environment artists need to appreciate what will be required of their environments in later stages of production because this can affect the work they produce. Even though environment artists at this level work with a fair degree of autonomy, they are members of a production team and must be able to take direction and communicate clearly with colleagues. 3D environments are created using a range of industry-current software that is constantly evolving, so it is essential that people working in this area keep up to date with the latest software.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisite units		

Employability Skills Information

Employability skills	This unit contains employability skills.

Elements and Performance Criteria Pre-Content

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

ELEMENT	PERFORMANCE CRITERIA
Clarify work requirements	1. With reference to ***production documentation***, determine ***requirements*** and ***purpose*** for 3D digital environments 2. In consultation with ***relevant personnel***, determine work flow sequences to ensure that production schedule deadlines are met 3. Select ***software*** that best suits the type of production and ***delivery platform*** for which 3D digital environments are being created 4. Gather and analyse ***reference materials*** to help with visualisation of 3D environments
Create 3D digital environments	5. Use software features to build a previsualisation of environments in relation to reference materials and submit to relevant personnel for approval 6. Build environment models and ***progressively refine*** models until they meet design requirements 7. Check ***integrity*** of models and ensure ***spatial relationship*** meets design requirements 8. Apply texture coordinates as required 9. Create and incorporate matte paintings as required 10. Manipulate software features to apply lighting and shaders as required 11. Experiment with different ***lighting rigs*** and select a rig that meets design requirements 12. Continuously refine all aspects of 3D digital environments until the required creative effect is achieved 13. Submit environments to relevant personnel for comment on whether production requirements have been met and make final adjustments as required
Finalise projects	14. Render and output environments in required ***format*** and submit to relevant personnel by agreed deadlines 15. Finalise projects according to enterprise procedures, such as making back-up copies of files and completing workplace documentation 16. Participate in project evaluations and contribute ideas and suggestions about ways to improve future projects

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication, teamwork and literacy skills sufficient to:
  - interpret creative concepts and briefs
  - interpret information in software user manuals and help features
  - work as a member of a production team, both independently on assignment and under direction
  - respond positively to constructive feedback from other team members
- initiative and enterprise in the context of:
  - visualising and accurately creating 3D digital environments
  - finding creative solutions to problems identified during the process of creating 3D digital environments
  - locating and using resources to broaden own creative experience
- technical skills sufficient to:
  - use appropriate software to develop 3D digital environments
  - create 3D digital environments in appropriate formats for required delivery platforms
  - manage files and directories using standard naming conventions and version control protocols
- self-management and planning skills sufficient to:
  - prioritise work tasks
  - plan the creation of 3D digital environments in a logical and cohesive way
  - meet deadlines
  - seek expert assistance as required
- learning in the context of improving performance/product through self-reflection and reworking after feedback

Required knowledge

- industry knowledge, including:
  - roles and responsibilities of project team members in the relevant industry sector
  - sound understanding of the relationship between the technical and creative aspects and requirements of productions for which 3D digital environments are being created
  - understanding of the stages in the production process from initial design through to the finished product
  - issues and challenges that arise in the context of creating 3D digital

REQUIRED SKILLS AND KNOWLEDGE
environments • the features of a range of delivery platforms • digital modelling techniques appropriate to the development of 3D environments • demonstrated use of scale, form, weight and volume • geometry as it applies to the creation of realistic 3D digital environments • OHS standards as they relate to working for periods of time on computers

Evidence Guide

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 following is essential:
	• creation of 3D digital environments that:
	  • demonstrate efficient use of geometry and attention to detail
	  • meet design requirements
	• collaborative approach to work
	• ability to meet deadlines.

Context of and specific resources for assessment	Assessment must ensure: • access to a selection of industry-current software as listed in the range statement • access to simulated or real production situations that require the creation of 3D digital environments • access to appropriate learning and assessment support when required • use of culturally appropriate processes and techniques appropriate to the language and literacy capacity of learners and the work being performed.
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: • direct questioning combined with review of portfolios of evidence and third-party workplace reports of on-the-job performance • evaluation of a range of 3D digital environments created by the candidate to determine ability to create different kinds of environments • written or verbal questioning to test knowledge as listed in the required skills and knowledge section of this unit.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, for example: • BSBCRT402A Collaborate in a creative process

EVIDENCE GUIDE	
	• CUFANM401A Prepare 3D digital models for production • CUVDSP11A Research and apply techniques for illustrative work • CUVVSP16A Research and experiment with techniques to produce drawings.

Range Statement

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.	
Production documentation may include:	• storyboard • animatics • technical specifications • creative documentation • top-down drawings/maps • concept drawings • architectural drawings.
Requirements may include:	• technical specifications • design specifications • creative expectations • output format • assets for integration • timelines • collaboration with other team members.

Purpose of 3D digital environments may be for:	• animations
	• digital simulations, e.g.:
	  • architectural models
	  • e-learning resource
	  • demonstration of processes and procedures
	• games
	• film/television productions.

Relevant personnel may include:	• 3D modeller • matte painter • 3D designer or concept artist • art director • project manager • director • producer • supervisor • technical director • head of department • storyboard artist

RANGE STATEMENT	
	• other technical/specialist personnel.

Software may include:	• graphics, e.g.:
	  • Photoshop
	  • Illustrator
	• 3D, e.g.:
	  • 3D Studio Max
	  • Maya
	  • Softimage.

Delivery platforms may include:	• feature film • broadcast television • games • internet • CD • mobile phone • kiosk • DVD • PDA (personal digital assistant) • other digital devices.
Reference materials may include:	• real environments that are to be reproduced digitally • videos • still images • books • direct observation of actions to be simulated in 3D environments • concept drawings and designs.
Progressive refinements may include:	• achieving required shape • achieving required topology.
Aspects to be checked for ***integrity*** may include:	• pivot points • scale of models relative to other components in final sequences • isolated vertices • double faces • resetting transform.

Aspects to be checked for ***spatial relationship*** may include:	• relevant design principles, e.g.:
	  • balance
	  • proportion
	• accuracy
	• functionality

RANGE STATEMENT	
	• game-play requirements.
Lighting rigs may include:	• light domes • global illumination • radiosity • standard lights.
Formats may include:	• TIFF • JPEG • IFF • Quicktime • AVI • MPEG • Targa • PNG.

Unit Sector(s)

Unit sector	

Competency field

Competency field	Visual communication - animation and digital effects

Co-requisite units

Co-requisite units		