CUFANM303A

Create 3D digital models

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to create 3D digital models.

This unit is a prerequisite for CUFANM401A Prepare 3D digital models for production.

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

Employability Skills

This unit contains employability skills.

Application of the Unit

3D modellers working on relatively simple projects apply the skills and knowledge described in this unit. From reference material and established designs, they create 3D models using whatever software is applicable to the production.

3D models need to meet technical and design specifications, as well as being efficient, reliable, to scale, and easy to rig and animate.

Modellers need to appreciate what will be required of their models in later stages of production because this can affect the work they produce. Close liaison with other team members is, therefore, important. Even though a senior modeller or technical director supervises the creation of models, people at this level are expected to work autonomously within clear guidelines.

More complex skills associated with 3D digital modelling are covered in:

- CUFANM401A Prepare 3D digital models for production.

Unit Sector

No sector assigned

ELEMENT	PERFORMANCE CRITERIA
1. Clarify work requirements.	1.1 With reference to ***production documentation,*** clarify ***requirements*** and ***purpose*** for 3D digital models.
	1.2 In consultation with ***relevant personnel,*** clarify work flow sequences to ensure that ***production*** schedule deadlines are met.
	1.3 Select ***software*** that best suits the type of production and ***delivery platform*** for which 3D digital models are being created.
	1.4 Gather and analyse ***reference materials*** to help with visualisation of 3D models.

2.	Create 3D digital models.	2.1	Use software features to block out models to determine correct proportions in relation to reference materials.
		2.2	Manipulate software features to apply basic lighting and shaders as required.
		2.3	Ensure that models' topology allows appropriate deformation, as required.
		2.4	***Progressively refine*** and check ***integrity*** of models until they meet design requirements.
		2.5	Submit models to relevant personnel for comment on whether production requirements have been met and make final adjustments as required.
		2.6	Render and output models in required ***format*** and submit to relevant personnel by agreed deadlines.
		2.7	Make back-up copies of files and complete workplace documentation according to enterprise procedures.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

- communication, teamwork and literacy skills sufficient to:
    - interpret and clarify written or verbal instructions
    - work as a member of a production team, both independently on assignment and under direction
    - respond constructively to feedback received from other team members
    - complete workplace documentation
- technical skills sufficient to:
    - use industry-current software applications to create 3D models to specifications
    - manage files and directories using standard naming conventions and version control protocols
    - make back-up copies of files and store appropriately
- initiative and creativity in the context of visualising and accurately creating 3D digital models of a range of animate and inanimate objects
- self-management and planning skills sufficient to:
    - prioritise work tasks
    - meet deadlines
    - seek expert assistance when problems arise.

Required knowledge

- roles and responsibilities of project team members in the relevant industry sector
- basic understanding of the stages in the production process from initial design through to finished product
- issues and challenges that arise in the context of creating 3D digital models
- 3D digital modelling techniques
- strong sense of scale, form, weight and volume
- geometry as it applies to the creation of realistic 3D digital models
- features of a range of delivery platforms
- OHS standards as they relate to working for periods of time on computers.

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:	• animatics • brief • storyboard • technical specifications.
Requirements may include:	• assets for integration • collaboration with other team members • creative expectations • design specifications • output format • technical specifications • timelines.

Purpose of 3D digital models may be for:	• animations
	• digital simulations, e.g.:
	  • architectural models
	  • e-learning resources
	  • demonstration of processes and procedures.

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

Production may include:	• animated productions • commercials • digital media products, e.g.: 　• simulations 　• games 　• e-learning resources 　• virtual worlds/environments • documentaries • feature films • filmed events or performances • music video • short films • television productions.
Software may include:	• 3D, e.g.: 　• 3D Studio Max 　• Maya 　• Softimage • graphics, e.g.: 　• Photoshop 　• Illustrator.
Delivery platforms may include:	• broadcast television • CD • DVD • film • internet • kiosk • mobile phone • PDA (personal digital assistant) • other digital devices.
Reference materials may include:	• books • concept drawings and designs • direct observation of actions to be simulated in 3D models • real object on which models are to be based • still images • videos.
Progressive refinements may include:	• achieving required shape • achieving required topology.
Aspects to be checked for *integrity* may include:	• double faces • isolated vertices • pivot points • resetting transform • scale of models relative to other components in final sequences.

Formats may include:	• AVI
	• IFF
	• JPEG
	• MPEG
	• PNG
	• Quicktime
	• Targa
	• TIFF.

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 models 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 models • access to appropriate learning and assessment support when required • the use of culturally appropriate processes, and techniques appropriate to the oracy, language and literacy capacity of the assessee 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 models created by the candidate to determine ability to create models for different kinds of objects • 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:

- CUFANM302A Create 3D digital animations
- CUVDSP11A Research and apply techniques for illustrative work
- CUVVSP16A Research and experiment with techniques to produce drawings.