Australian Government

ICTGAM536 Design interactive 3-D applications for scientific and mathematical modelling

Release: 1

ICTGAM536 Design interactive 3-D applications for scientific and mathematical modelling

Modification History

Release	Comments
Release 1	This version first released with ICT Information and Communications Technology Training Package Version 6.0.

Application

This unit describes the skills and knowledge required to design interactive 3-D applications with applicable environments for scientific and mathematical modelling, according to specifications.

It applies to those with object-oriented programming skills working in any industrial context that requires 3-D computer simulation of a well-defined environment, system or set of relationships.

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

Unit Sector

Game development

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes.	*Performance criteria describe the performance needed to demonstrate achievement of the element.*
1. Determine and confirm business expectations and needs	1.1 Identify business requirements and verify accuracy of gathered information 1.2 Determine task and user requirements according to business needs 1.3 Determine critical environmental and systemic relationships requiring simulation in 3-D environments 1.4 Identify critical data sources required by simulations or modelling 1.5 Document critical environmental and systemic

ELEMENT	PERFORMANCE CRITERIA
	relationships and data sources requiring simulation in 3-D environments
2. Design interactive 3-D applications for scientific and mathematical modelling	2.1 Provide proof of concept for environmental and systemic relationships using prototyping tools 2.2 Identify, analyse and select technologies and platforms suitable for deployment of scientific or mathematical modelling 2.3 Design algorithms according to requirements of scientific or mathematical modelling in interactive 3-D environments
3. Design 3-D environment that simulates a scientific and mathematical model	3.1 Select applicable visual representation for elements of a 3-D scientific or mathematical model according to task requirements 3.2 Analyse required interaction between user and 3-D environment according to task requirements 3.3 Design a graphical user interface (GUI) and support required interaction between user and 3-D environment
4. Test and finalise scientific and mathematical model	4.1 Develop and document testing procedures and standards and verify modelling integrity 4.2 Perform testing and evaluate results and confirm model meets task requirements 4.3 Seek feedback from required personnel and amend model as required 4.4 Document work performed and obtain final sign-off according to organisational procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

Skill	Description
Reading	• Interprets, analyses and comprehends instructions, briefs, technical and conceptual information to inform job requirements.
Writing	• Writes and customises precise code using specialised language, industry-approved coding techniques and programming practices • Prepares documentation detailing testing procedures and standards
Numeracy	• Uses whole numbers, decimals and percentages when manipulating measurement, scale, ratio, coordinates, colour, shading and other variables

Skill	Description
	during application phase • Designs complex algorithms
Get the work done	• Plans, organises and completes work according to defined requirements and schedules taking responsibility for decisions and sequencing tasks • Takes responsibility for decisions regarding end-product evaluation, data integrity and management • Identifies purposes and uses key features of specific digital systems and tools and operates them to complete development tasks

Unit Mapping Information

Supersedes and is equivalent to ICTGAM509 Design interactive 3-D applications for scientific and mathematical modelling.

Links

Companion Volume Implementation Guide is found on VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2