Australian Government

Department of Education, Employment and Workplace Relations

ICAGAM412A Design interactive media

Release: 1

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Modification History

Release	Comments
Release 1	This Unit first released with *ICA11 Information and Communications Technology Training Package version 1.0*

Unit Descriptor

This unit describes the performance outcomes, skills and knowledge required to design and implement technologies relating to human-computer interaction.

Application of the Unit

The unit applies to concept artists, game designers, games programmers, animators and other personnel working in the game development industry.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit at the time of endorsement but users should confirm requirements with the relevant federal, state or territory authority.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Element	Performance Criteria
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

1. Define human-computer hardware interface devices	1.1 Identify ***standard human-computer interaction devices*** 1.2 Identify ***game-specific human-computer interaction devices*** and the ***common controls*** used in their implementation
2. Research common event handling systems	2.1 Identify and review industry standard event handling systems used in ***application libraries*** 2.2 Create and application, accessing and using technologies and showcasing captured events from hardware devices 2.3 Discuss considerations for human-computer interaction device selection
3. Understand commonly used graphical user interface (GUI) widget sets	3.1 Identify ***common widgets*** and their usage within an application environment 3.2 Identify and review industry standard ***graphical user interface libraries*** and their relevancy within game-engine software 3.3 Discuss considerations for selection of widgets within a game ***heads up display*** (HUD) 3.4 Use human-computer interface devices and event handling call-backs in the creation of an application, showcasing captured events with GUI widgets
4. Design a simple media software device	4.1 Discuss and ***design a prototype*** for the development of a custom user interface widget to be used within a game heads up display environment 4.2 Select GUI software for implementation and discuss ramifications of selection
5. Build and implement a simple media software device	5.1 Integrate all custom widget elements as required by prototype specifications 5.2 Make final checks to ensure functionality conforms to the original design 5.3 Save into specified storage systems

Required Skills and Knowledge

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

Required skills

- analytical skills to:
  - assess suitability of software and hardware technologies within project context
  - discuss suitability of custom widget prototype within project context
  - establish clear advantages, disadvantages and limitations of technologies and their implementation
- planning and organisational skills to:
  - establish clear goals to achieve required software development outcomes
  - meet project deadlines
- research skills to:
  - conduct professional research into software and hardware technologies required for successful completion of project
  - understand and implement efficient design patterns for professional completion of project
- technical skills to:
  - resolve basic hardware, software and other technical issues associated with software production
  - use correct file formats and archiving procedures.

Required knowledge

- basic programming techniques
- specific terminology used by computer game developers
- technical constraints that hardware imposes on software development, code development and creative visual design.

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 ability to: • explain commonly used hardware and software as it applies to a human-computer interaction environment • develop simple applications using correct methods of hardware event handling • use such technologies within the context of a video game environment • produce a custom control for use within a large project • present a completed project on time.
Context of and specific resources for assessment	Assessment must ensure access to: • computer hardware, software, games engines and file storage • copyright and intellectual property legislation • OHS legislation and enterprise policy • appropriate learning and assessment support when required • modified equipment for people with special needs.
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: • evaluation of work samples or simulated workplace activities • verbal or written questioning to confirm knowledge of design processes and methods used to resolve issues and problems • analysis of fault-finding exercises • evaluation of reports and logbooks.
Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended, where appropriate. Assessment processes and techniques must be culturally appropriate, and suitable to the communication skill level, language, literacy and numeracy capacity of the candidate and the work being performed. Indigenous people and other people from a non-English speaking background may need additional support. In cases where practical assessment is used it should be

	combined with targeted questioning to assess required knowledge.

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.

Standard human-computer interface devices may include:	• keyboards • mice • track balls • track pads • web cameras.
Game-specific human-computer interaction devices may include:	• game pads • gaming keyboards • gaming mice • joysticks.
Common controls of devices may include:	• analog hats • buttons • digital pads • joysticks • keys.
Application libraries may include:	• DirectX • Irrlicht • Microsoft Visual Studio • Ogre • OpenGL • Simple DirectMedia Layer (SDL).
Common widgets may include:	• buttons • check boxes • containers • drop down menus • environments • images • input text boxes • input text fields • labels • radio buttons • scroll bars • tabs • Windows.

Graphical user interface libraries may include:	• Carbon • Cocoa • GLUI • Guichan • Java Swing • Microsoft Foundation Classes • WX Widgets.
Heads up displays may involve the use of:	• chat windows • context menus • dialogue screens • health bars, ammunition bars and mana bars • inventory screens • main menus • objective guides • overhead maps, mini maps and compasses • pause screens.
Designing a prototype may involve:	• defining a clear context in which the custom widget will be implemented in and used for • having a firm knowledge of existing game-engine architecture • prototyping for a specific purpose • researching existing widgets used in existing products.

Unit Sector(s)

Game development