



Australian Government

ICTGAM423 Apply artificial intelligence in game development

Release: 1

ICTGAM423 Apply artificial intelligence in game development

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 research, develop and implement artificial intelligence (AI) solutions in games.

It applies to individuals who contribute to the creation of system-controlled objects in games and who support the design, development and programming of basic digital games as part of a larger development team.

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
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Conduct research on AI strategies	1.1 Research and identify terminology involved in AI applicable to games and its industry 1.2 Identify and analyse range of AI path-finding strategies including required genres and environments and how they influence design and development 1.3 Discuss AI strategies and ideas with required personnel 1.4 Organise research and findings during development process and update required personnel 1.5 Identify industry standards applicable to using AI strategies in game development

ELEMENT	PERFORMANCE CRITERIA
2. Design, implement and test AI game strategy	2.1 Generate a range of goals and actions and other factors in design of an AI non-player character (NPC) 2.2 Select technically feasible AI strategies in designing NPCs according to brief and provide creative solutions to design issues 2.3 Design and customise AI strategy according to client brief and game requirements 2.4 Reflect on and assess implications in AI strategies regarding budget, timeline, technical feasibility and user suitability according to brief 2.5 Implement a path-finding algorithm and a NPI AI strategy in a game 2.6 Test implementation of AI strategy and amend as required
3. Evaluate game and confirm with required personnel	3.1 Review game design and AI strategies and confirm design brief is fulfilled 3.2 Discuss, seek feedback and confirm additional requirements and modifications to game design with required personnel 3.3 Apply required amendments according to discussions with required personnel and feedback 3.4 Obtain final sign-off from required personnel

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
Numeracy	• Outlines parameters using whole numbers and decimals • Interprets budgets and adds, subtracts, multiplies and divides whole numbers and decimals and confirms budget, timelines and other brief requirements are met
Oral communication	• Obtains information and facilitates discussions using listening and open questioning techniques and relevant industry language
Reading	• Investigates, interprets and comprehends technical documentation, diagrams, icons, symbols, text, numbers and letters when determining AI strategies
Writing	• Records research findings and documents solutions and process using relevant programming language, and required code layout, code, diagrams and syntax

SKILL	DESCRIPTION
Initiative and enterprise	• Uses creativity and initiative in design
Self-management	• Makes routine decisions and implements standard procedures in routine tasks • Uses formal decision-making and analytical processes in more complex and non-routine situations
Technology	• Completes routine tasks using specific digital systems and tools

Unit Mapping Information

Supersedes and is equivalent to ICTGAM404 Apply artificial intelligence in game development.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a53af4e4-b400-484e-b778-71c9e9d6aff2>

Assessment Requirements for ICTGAM423 Apply artificial intelligence in game development

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- identify and analyse at least two artificial intelligence (AI) strategies applicable to a game development brief
- design a feasible AI game strategy
- implement at least two path finding algorithms and at least two non-player character AI strategies in a game.

In the course of the above, the candidate must:

- review and evaluate AI strategies
- comply with industry standards, client brief and game requirements.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- basic path-finding algorithms implications on game development
- major AI terms used in the game industry
- the development process of creating AI strategies in non-player characters (NPCs) in a game
- applying object-oriented programming practices
- overall architecture of a game engine
- game development testing processes
- industry standards applicable to game development.

Assessment Conditions

Skills in this unit must be demonstrated in a workplace or simulated environment where the conditions are typical of those in a working environment in this industry.

This includes access to:

- the internet
- research tools
- required hardware, software and its component
- path-finding libraries
- game development testing tools
- development tools to implement AI strategies
- game design specifications and documentation.

Assessors of this unit must satisfy the requirements for assessors in applicable vocational education and training legislation, frameworks and/or standards.

Links

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