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SPECIALIST EDUCATORS IN
GAMES, ANIMATION & FILM VFX

2021 Subject & Assessment Guide

Introduction to Programming

ICT30120

Certificate III in Information Technology

Game Development Foundations

academy of interactive entertainment
Sydney Melbourne Canberra Adelaide Lafayette Seattle Online

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Introduction to Programming

Units of Competency

The units of competency that are covered in this subject are as follows:

BSBCRT301 - Develop and extend critical and creative thinking skills

ICTPRG302 - Apply introductory programming techniques

Assessment processes and competency evidence requirements are described in the *Assessment Criteria* section below. If you have prior or other evidence against competency you should discuss this with your trainer.

Subject Overview

Overall Learning Outcomes

- Demonstrate an understanding of the syntax and operation of the C# programming language
- Implement data types, control structures and functions applicable to real-time applications
- Develop and apply creative thinking skills to solve programming problems

Subject Description

C#, pronounced C-Sharp, is a managed language that allows a programmer to focus on problem solving rather than on the manipulation low-level resources. Developed in 2000 by Microsoft, C# is one of the most popular programming languages used in software development and is increasingly used in video game programming thanks to popular game engines like MonoGame and Unity 3D.

In this subject you will develop foundational programming skills with the C# programming language, that you will apply in other subjects throughout this course. You will learn the syntax and structure of the C# language, and gain practical experience by programming console-based applications.

Industry Relevance

Over the past two decades C# language has seen widespread adoption within the games industry due to its use in popular game engines like Microsoft's XNA, MonoGame, and Unity 3D. C# is also one of the most popular programming languages within the broader software development industries due to its open-source licensing, cross platform support, and integration with may platforms including iOS and Android.

This subject delivers training in foundational programming concepts that are transferrable to a wide variety of modern, object-oriented programming languages found within the game development industry. Skills learnt in this subject are applicable not only to game programmers developing

applications and games in C#, but to all programmers regardless of implementation language or platform.

Assumed Knowledge

- Knowledge of computer use
- Knowledge of video games

Learning Components Guide

Your learning in this subject will be achieved through the following components. The study hours may vary.

Learning Component	Duration	Description
Classroom Activity	30 hours	Presentations, group work and tutorials
Individual Skills/Knowledge Development	5 hours	Self-paced practice exercises exploring Unity3D and basic skills in C#
Project Work	10 hours	Self-paced work developing a video game project, periodically checking-in with your trainer to show progress

Assessment Criteria

Assessment Description

Assessment Milestones

Please refer to your Class Schedule for actual dates on your campus

General Description

The assessment for this subject consists of several tasks:

- Knowledge questions,
- Group exercises, and
- Implementing, debugging, and testing the Gamertag project

Knowledge Questions

The knowledge questions of this assessment can be via an online quiz at https://aie.instructure.com/ or answered and submitted in a MS Word document.

Questions cover programming standards and guidelines, as well as topics on creative thinking and problem solving.

Group Exercises

There are two group exercises that form part of this assessment.

The first task involves working in a group to design an interactive application. A brief will be provided during this in-class activity.

In the second group exercise you will conduct research around a specified topic, and present your findings to the class in a short presentation or guided discussion.

Gamertag Project

This final assessment task is a practical assessment in which you will create a console application that will load a list of gamertags from a file and display that information to the screen in a variety of different ways.

This program will be completed in the C# programming language through a series to tutorials available on https://aie.instructure.com/.

During this project you will complete the debugging exercises consisting of several short-answer questions that will demonstrate your familiarity with the debugging tools available in Visual Studio.

Finally, you will test your application and record the testing outcomes in a written document. The format of this document, along with the minimum tests to perform, is included in the learning material for this subject.

Evidence Specifications

This is the specific evidence you must prepare for and present by your assessment milestone to demonstrate you have competency in the above knowledge and skills. The evidence must conform to all the specific requirements listed in the table below. You may present additional, or other evidence of competency, but this should be as a result of individual negotiation with your trainer.

Your Roles and Responsibilities as a Candidate

- Understand and feel comfortable with the assessment process.
- Know what evidence you must provide to demonstrate competency.
- Take an active part in the assessment process.
- Collect all competency evidence for presentation when required.

This table defines what you need to produce as evidence of competency.

Assessment Tasks & Evidence Descriptions
1. Knowledge Questions Evidence that includes: • Demonstration of requisite knowledge through the completion of the Knowledge Assessment Tasks (available on https://aie.instructure.com/).
2. Group Exercises Evidence that includes:

• Participation in the following group activities:
  ○ Developing a questioning mindset, and
  ○ Generating ideas and responses

3. Gamertag Project
Evidence that includes:
• Completion of the Gamer Tag project, displaying evidence of
  ○ The application of C# language syntax and layout, including variables, scope and functions
  ○ The application of control structures, including sequence, selection and iteration constructs
  ○ The use of standard programming algorithms, including the use data structures, string manipulation, and reading and writing text files
• Visual Studio solutions and projects that compile without errors
  ○ All temporary and built executable files in the obj and bin folder have been removed

4. Debugging Exercise Evidence that includes: • Completion of the debugging exercises
5. Program Testing Evidence that includes: • The creation of a document to record the testing of the Gamertag project • Completion of all tests listed in the testing exercises

Assessment Instructions for Candidate

METHOD OF ASSESSMENT

Assessment is a cumulative process which takes place throughout a subject. A 'competent' or 'not yet competent' decision is generally made at the end of a subject. Your assessment will be conducted by an official AIE qualified assessor. This may be someone other than your trainer. The evidence you must prepare and present is described

above in this assessment criteria document. This evidence has been mapped to the units of competency listed at the beginning of this document. Assessments will be conducted on a specific milestone recorded above in this assessment guide document.

ASSESSMENT CONDITIONS

Formative assessment takes place as your trainer observes the development of your work throughout the subject and, although the assessor is likely to be aware of the evidence you are submitting, it is your

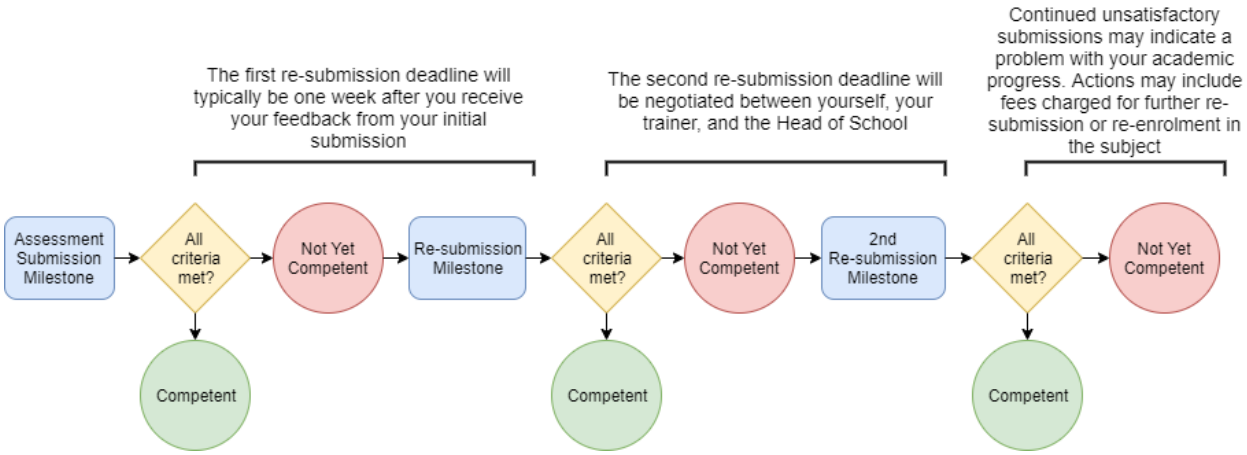
responsibility to be prepared for the interview where a competency judgement is made (summative assessment). Forgetting something, or making a small mistake at the time of the milestone assessment, can be corrected. However, the assessor may choose to assess other candidates who are better prepared and return to you if time permits.

Upon completion of the assessment you will be issued with feedback and a record of the summative assessment and acknowledge that you have received the result. If you are absent for the nominated assessment milestone (without prior agreement or a sufficiently documented reason) you will be assessed as not yet competent.

GRADING

The assessment you are undertaking will be graded as either *competent* or *not yet competent*.

REASSESSMENT PROCESS



If you are assessed as being not yet competent you will receive clear, written and oral feedback on what you will need to do to achieve competence. You will be given a reassessment milestone no more than one (1) week later to prepare your evidence. If you are unsuccessful after your reassessment, you may be asked to attend a meeting with your Head of School to discuss your progress or any support you may need and further opportunities to gain competency.

REASONABLE ADJUSTMENTS

We recognise the need to make reasonable adjustments within our assessment and learning environments to meet your individual needs. If you need to speak confidentially to someone about your individual needs, please contact your trainer.

FURTHER INFORMATION

For further information about assessment and support at AIE, please refer to the assessment and course progress sections of your learner handbook.

Software

Core

Unity3D

Unity3D is a modern game engine used by many developers worldwide for developing games and interactive media. It is free to use, with paid premium options available. For this course you are able to use the free license.

- http://unity3d.com

Visual Studio

Microsoft's Visual Studio is the recommended Integrated Development Environment (IDE) for this subject. Other IDEs may be employed if desired as the content of this subject is designed to be cross-platform and IDE agnostic. However, we cannot guarantee that all subject material will operate as intended on other IDEs and platforms.

- https://visualstudio.microsoft.com/vs/community/

