

**MODULE CODE:** DH3BAGA02C

**MODULE TITLE:** Intro to Programming for Games Engines

**Level:** 4

**Credit Value:** 15

**Pre-Requisites:** NONE

### Module Description

This module is designed to develop knowledge of programming skills through practical experimentation and experience of coding and manipulating game assets using C# in Unity. The module also allows development of game design techniques through practical sessions in game mechanic design and coding for mechanics. The student will develop skills in product analysis and peer-evaluation, vital for skill development and product improvement, through practical testing and review. Work created here will be added to the student's accompanying portfolio this portfolio of design and realisation will be developed, in additional modules to aid course progression and employment.

### Learning Outcomes

On completion of this module, students will be able to:

1. Develop a programming style that is acceptable industry practice.
2. Demonstrate knowledge of the underlying concepts and principles of computer based design.
3. Develop a basic understanding of C# scripting language.
4. Design and implement basic games mechanics into a games engine.
5. Work effectively individually and with others to produce a computer game using expected media conventions to a semi-professional standard.
6. Effectively and confidently create and import 3D models into a game engine.
7. Evaluate and evidence the process of creating a computer game, game assets and /or games level.

### Assessment

| Hand-in   | Aggregate (Yes/No) | Semester Due |
|---|--------------------|--------------|
| GDD, Game Mechanics and Asset Manipulation, coded in Unity C# (60%)<br>LO1-LO6      | Yes                | Sem 1 End    |
| 1200 word evaluation reflecting on peer feedback received during Playtest (40%) LO7 | Yes                | Sem 1 End    |

Submit via Moodle

### Indicative Content:

- Coding and computer programming using C#
- Unity
- Practical skills
- Movements and decision making for playable characters
- Player asset move set
- Co-operative mechanics which are both physical and fun
- Study of games and games genres
- Games testing
- Computer graphics
- Introduction to Artificial intelligence
- Game mechanics.

- Software development

### **Learning and Teaching Strategies**

Practical sessions, lectures, workshops, group and individual sessions and tutorials are combined to give a balanced programme of study. The course is supported by the use of varied ICT, and independent learning.

Computer programming and creative skills will be developed through a range of practical work including conceptual planning, gameplay exploration, research, construction of pre-production documentation, product pitching, digital based audio-visual production and post-production and testing used to inform critical, evaluative and reflective practice.

Media production skills are developed through a series of practical tasks which are designed to build on students' skills at entry to the programme leading to the development of secure technique, imagination and creativity as applied to the digital media industry. A suite of computer / video game consoles and a library of PC and console games – including retro equipment will be developed in addition to the students' own home facilities and access to online gaming resources.

### **Specific Learning Resources**

- 2D and 3D design and modelling software
- Coding software Visual Studio
- Online and offline games design tools
- Graphics editing software such as Photoshop
- PC or Mac suites
- Games Suite
- Internet resources via Moodle

### **Reading Lists**

#### **Recommended**

Geig, M., Tristem, B. (2015) Unity Game Development in 24 Hours, Sams Teach Yourself. Bedford: Sam Publications.

Goldstone, W. (2011) Unity 3.x Game Development Essentials. Birmingham: Packt Publishing.

Hocking, J. (2015) Unity in Action: Multiplatform Game Development in C# with Unity. New York: Manning Publications.

Moakley, B., Berg, M., Duffy, S., Van de Kerckhove, E., et.al (2016) Unity Games by Tutorials: Make 4 Complete Unity Games from Scratch Using C#. London: Razeware LLC.

Watkins, A. (2011) Creating Games with Unity and Maya: How to Develop Fun and Marketable 3D Games. Oxford: Focal Press.

### Assessment Grading Criteria:

|   |   |
|---|---|
| <b>FIRST CLASS</b><br><b>70%+</b>           | <ul style="list-style-type: none"> <li>• Provides evidence of a sustained and distinguished capability in self-evaluation.</li> <li>• Applies practical skills in a very assured and distinguished manner.</li> <li>• Demonstrates a rigorous and broad grasp of relevant principles and concepts in a distinguished manner.</li> <li>• Written work whose presentation is comparable with industry examples</li> </ul> |
| <b>UPPER SECOND CLASS</b><br><b>60%-69%</b> | <ul style="list-style-type: none"> <li>• Provides consistent evidence of an assured capability in self-evaluation.</li> <li>• Applies practical skills commendably and in an assured manner.</li> <li>• Demonstrates a strong grasp of relevant principles and concepts in a commendable manner.</li> <li>• A fluent document with only minor mistakes or omissions</li> </ul>  |
| <b>LOWER SECOND CLASS</b><br><b>50%-59%</b> | <ul style="list-style-type: none"> <li>• Offers, with guidance, a firm evaluation of own strengths and weaknesses.</li> <li>• Applies practical skills firmly and soundly.</li> <li>• Demonstrates a sound grasp of relevant principles and concepts in a sound manner.</li> <li>• Written work which is largely accurate, though may be unclear in some details</li> </ul>   |
| <b>THIRD CLASS</b><br><b>40%-49%</b>        | <ul style="list-style-type: none"> <li>• Evaluates own strengths and weaknesses adequately</li> <li>• Applies practical skills adequately.</li> <li>• Demonstrates adequate awareness of relevant principles and concepts in a broadly satisfactory manner.</li> <li>• Written work which is not always accurate, but largely decipherable, perhaps lacking some important detail</li> </ul>                            |
| <b>FAIL</b><br><b>0%-39%</b>                | <ul style="list-style-type: none"> <li>• Fails to demonstrate an adequate ability to evaluate own strengths and weaknesses adequately.</li> <li>• Inadequate in the application of practical skills.</li> <li>• Fails to demonstrate adequate awareness of principles and concepts.</li> <li>• Mistakes and ambiguities in written work which affect understanding</li> </ul>   |