Unit Title	How to Code if You Are A Designer
FHEQ Level	Level 5 (Tech Design Pathway)
Unit Code	GMD20207
Credit Value	15 Credits
Unit Type	Subject

Learning Hours

Staff – Student Contact Hours		Independent Study Hours	
Classes	30	Independent Study	50
Supervised access to resources	7.5	Preparation for Assessment	12.5
		Unsupervised Access to Resources	50
Total			150

Unit Description

The role of the technical designer is modern games development has grown over the last ten years. This unit will introduce the main elements of the discipline, namely the interface of deep technical knowledge of game engine systems with the creative practice of games and level design.

This unit will encompass technical due diligence, game programming patterns, advanced scripting techniques and will introduce and enhance scripting skills in a variety of game engines.

Focusing on the design of gameplay, this unit will look at the visual scripting systems and C based scripting languages used in the latest game engine technology and then leverage that learning to build fast prototypes of individual mechanics and feature sets for games.

The Five Principles underpin the Mindsets and Skillsets Manifesto and are the foundation upon which all course curriculum frameworks and unit specifications are based. The relevant Principles as stated below have been mapped against the Learning Outcomes relevant to each course unit and at each level (see Programme Specifications for full description of the Five Principles):

1. *Cultivate / Where the individual thrives.*
2. *Collaborate / Where disciplines combine and evolve.*
3. *Integrate / Where education engages industry.*
4. *Advocate / Where purpose meets practice.*
5. *Originate / Where enquiry informs creativity.*

Unit Indicative Content

- Introduce the Technical Games Design discipline
- Review current games engine technology
- Introduce programming languages alongside visual scripting systems used in game engines
- Challenge students to design and make technical solutions to gameplay problems
- Challenge students to build solutions on multiple platforms.

Unit Aims

Within the context of the Honours Degree credit framework, the aims of the course are to:

- Introduce students to the technical design field and demonstrate its role within the development team.

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- Allow students to develop their scripting skills and technical understanding within a supportive and challenging environment.
- Demonstrate the creative processes at the heart of technical executions through rapid prototypes.
- Promote diversity, inclusivity, ethical, social and environmental awareness and provide opportunities for study and progression to all students.

The curriculum design and units will *"facilitate acquisition of appropriate knowledge and understanding, development of the necessary personal attributes, and application of the skills which equip and prepare students for continuing personal development and professional practice."* (Subject Benchmark Statements, 2017).

Unit Learning Outcomes (Items in bold are the main focus within each LO for the unit)

LO1 Cultivate

- **Technical Competence**
- **Subject Knowledge**
- **Resilience**

Evidence capacity for evolving discipline specific knowledge and technical competencies, supporting academic & practical self-efficacy and evolving employability skills.

LO4 Advocate

- **Critical Reflection**
- Professional Identity

Evidence ability to engage with Critical Reflection, to review, analyse and interpret personal and professional development.

Evidence developing working process that identifies consideration and interpretation of social and ethically responsible working methods and how this guides personal professional practice.

LO5 Originate

- **Research**
- **Experimentation**
- **Ideation**

Evidence capacity for considered and aligned enquiry processes to inform practical and theoretical development in physical, written and oral forms.

Evidence capacity to combine ideas, materials, tests and outcomes into solutions that inform and guide practical and theoretical development in physical, written and oral forms..

Learning and Teaching Methods

Learning will be developed through: lectures, practical demonstrations, and online courses provided by 3rd parties. It will also feature seminars, tutorials, master classes, critical self and peer appraisal and collaborative working.

Where appropriate external guest speakers will further support delivery on the unit. Students will also need to undertake self-directed independent study to support learning.

The following methods play a significant role in learning and teaching on the course:

- Group projects underpin peer learning and are used to promote transferable skills such as team

working and communication.

- Aligned Workshops, Lectures and Seminar sessions support the core teaching delivery.

- Research led projects are used to embed an understanding of research and research methods from the beginning to ensure students develop the skill to explore the contexts and conditions of their practice.

- Reflective journals are used throughout the course to promote the development of autonomous, confident and critically reflective, self-directed learners.

- Self-evaluative writing is used to enable students to take responsibility for their own learning by identifying needs and prioritisiIgboayaka90ng and planning their learning.

- Self-assessment encourages students to take responsibility for monitoring and making judgments about aspects of their own learning.

- Peer assessment is used to promote assessment as part of learning.

- Live projects and student exhibitions and /or pop up events, support an outward facing ethos and encourage students to develop their practice in relevant professional contexts.

Assessment methods and tasks

Brief description of assessment methods

- *Formative Assessment: You will be given the opportunity for formative feedback/feedforward. This will be given midway through the unit or at an appropriate time.*
- *Summative assessment: Is the completion of the main unit tasks – typically a finished outcome together with associated research and reflective elements and the completion of a digital workbook and accompanying treatments or presentations.*
- *Presentations to peers are usually within a small group environment where at least two tutors are present.*
- *Playable builds should be self-contained and not the editor project files unless stated by the brief*
- *In some cases digital files will be required to assess technical skill.*
- *Students will be notified of their grades within 3 weeks of the hand in date and feedback is usually via an audio file in which at least two tutors contribute to feedback and feedforward.*

Assessment tasks	Weighting (%) *(one grade or multi-grade unit)*
Game Portfolio	**50%**
Reflective Journal	**50%**

Indicative Assessment Criteria

- **Demonstrate competence in multiple game engine scripting systems (LO5, LO1)**
- **Demonstrate research and execution of technical solutions to gameplay briefs (LO5, LO1)**
- **Evidence understanding of design and technical considerations through iterations. (LO4, LO1)**

Assessment criteria are the basis on which the judgment of the adequacy of the work is made. A more detailed assessment criteria will be specified in the brief.

Essential Reading list

1. Nystrom, R. (2013) Game Programming Patterns. Genever Benning
2. Buttfield-Addison, P. (2019) Unity Game Development Cookbook. O'Reilly Media
3. Martin, R. (2008) Clean Code: A Handbook of Agile Software Craftsmanship. Prentice Hall.
4. Dawson, M. (2014) Beginning C++ Through Game Programming. Cengage Learning.
5. Green, D. (2020) The C++ Workshop: A New, Interactive Approach to Learning C++. Packt Publishing.

Detailed further reading and online resources will be provided in the brief and through the unit via AULA.