

Unit Title	How to Build Game Mechanics
FHEQ Level	Level 5 (Technical Design Pathway)
Unit Code	GMD20208
Credit Value	30 Credits
Unit Type	Subject

Learning Hours			
Staff – Student Contact Hours		Independent Study Hours	
Classes	45	Independent Study	100
Supervised access to resources	30	Preparation for Assessment	15
		Unsupervised Access to Resources	110
Total			300

Unit Description

This unit builds on the previous How to Code If You Are A Designer unit, and develops the scripting languages introduced in that unit through a series of design challenges.

This unit concentrates on the intersection of coding in game engines and game design. It builds confidence in both disciplines through weekly challenges. Each challenge will penetrate a particular game mechanic or game design problem that students will probe through fast iterative prototyping.

The unit will develop student's lean and agile programming skills and their design thinking through creative applications of engine technology and game design flair. Students will be expected to build solutions in multiple game engines and develop understanding of multiple gaming platforms.

Students will create a repertoire of game mechanics and game features that can then be applied to group projects in the collaborative unit Rave Games: Studio.

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

- Developing key scripting skills in several game engine environments.
- Weekly challenges to develop technical understanding and design thinking.
- Understanding how to iterate quickly
- Deeper dives into the current principle technologies.
- Create a portfolio of playable game mechanics.

Unit Aims

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

- Develop understanding of how game mechanics are designed to specific briefs.
- Develop understanding of scripting languages and their application to rapid prototypes.
- Encourage students' further engagement with evolving engine technologies.
- Encourage students' to experiment with game mechanics and execution of their designs.
- 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:

- Aligned Workshops, Lectures and Seminar sessions support the core teaching delivery (online and physical classes)
- 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 prioritising goals 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 Mechanics Portfolio

100%

Indicative Assessment Criteria

- **The ability to demonstrate technical competence producing game mechanic prototypes. (LO1)**
- **The ability to research and make design and technical choices appropriate to the challenge. (LO5)**
- **Evidence reflection of current understanding and work to improve ideation and executions. (LO1, LO4)**

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. Swink, S. (2008) Game Feel: A Game Designer's Guide to Virtual Sensation. CRC Press.
2. Nystrom, R. (2013) Game Programming Patterns. Genever Benning.
3. Schell, J. (2019) The Art of Game Design: A Book of Lenses, Third Edition Paperback. CRC Press.
4. Kodicek, D. (2008) Mathematics and Physics for Programmers. Charles River Media Game Development
5. Poppendieck, M. (2006) Implementing Lean Software Development. The Addison-Wesley Signature Series.

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