1.1 Module 3: 3D Modelling for Games

1.1.1 Headline information about the module

Module title	3D Modelling for Games
Module NFQ level (only if an NFQ level can be demonstrated)	6
Module number / reference	CT003
Parent programme(s) the plural arises if there are embedded programmes to be validated	BA (Hons) in Creative Technologies and Digital Art Certificate in Creative Technologies and Digital Art
Stage of parent programme	1
Semester (semester1/semester2 if applicable)	Semester 1
Module credit units (FET/HET/ECTS)	ECTS
Module credit number of units	10
List the teaching and learning modes	Full-Time, Direct Contact / Blended
Entry requirements (statement of knowledge, skill and competence)	Learners must have achieved the programme entry requirements
Pre-requisite module titles	N/A
Co-requisite module titles	N/A
Is this a capstone module? (Yes/no)	No
Specification of the qualifications (academic, pedagogical and professional/occupational) and experience required of staff (staff includes workplace personnel who are responsible for learners such as apprentices, trainees and learners in clinical placements)	Lecturing staff must be qualified to minimum NFQ Level 9 in multimedia or games, or a related discipline, or hold an equivalent professional qualification. Experience in the games or animation industry would be desirable. Ideally, they would also hold a third level teaching qualification (e.g. the Griffith College Certificate in Education, Learning and Development).
Maximum number of learners per centre (or instance of the module)	25
Duration of the module	12
Average (over the duration of the module) of the contact hours per week	4
Module-specific physical resources and support required per centre (or instance of the module)	• Computer lab with capacity for 25 learners equipped with a projector • Access to Unity 3D and 3DsMax as well as user licences for Photoshop • Substance Painter.

Analysis of required learning effort		
*Effort while in contact with staff	Minimum ratio teacher / learner	Hours
Classroom and demonstrations	1:25	48
Monitoring and small-group teaching	-	-
Other (specify)	-	-
Independent Learning		
Directed e-learning (hours)		-
Independent learning (hours)		135
Assignment		67
Work-based learning hours of learning effort		-
Total Effort (hours)		250

Allocation of marks (within the module)					
	Continuous assessment	Supervised project(s)	Proctored practical examination	Proctored written examination	Total
Percentage contribution	100%	-	-	-	100%

1.1.2 Module aims and objectives

The aim of this module is to introduce the learner to 3D modelling game assets. The learner is instructed as to how to create basic hard surface models and organic forms. This module focuses on creating low poly-efficient mesh topology designed specifically for use in games.

1.1.3 Minimum intended module learning outcomes

On successful completion of this module, the learners are able to:

(i)   navigate industry-standard 3D authoring and animation software and use that software to express themselves creatively;
(ii)   translate 2D concepts into 3D models;
(iii)   describe key terminology, such as 'textures', 'materials' and 'UV coordinates', 'efficient topology' and 'edge flow'.

1.1.4 Rationale for inclusion of the module in the programme and its contribution to the overall MIPLOs

A basic understanding of 3D geometry and the ability to construct hard surface models is essential for those wishing to develop 3D games and environments. However, the skills acquired over the course of this module have broad applicability, and are of use in a diverse range of sectors, including film, animation and architecture. The minimum intended module learning outcomes address programme learning outcomes (i), (iii) and (vi).

1.1.5 Information provided to learners about the module

Learners are provided with number of sources of information about this module, such as the induction session which presents learners with an overview of the modules. The induction session touches upon key areas of study such as the module aims, expectations and supports available. At the commencement of each module, the learner is provided with a detailed overview of the module, the

assessment strategy and schedule. The learner is then issued assignment briefs that fall in line with the deliverables outlined in the module objectives / outcomes.

The Learner Handbook, included with this submission, demonstrates how the learning in this module fits in to the overall structure of the programme. The handbook contains detailed module descriptors including teaching, learning and assessment strategies. Learners are provided with access to a learner Google account and to Google Classroom. Here, information regarding module descriptors, programme timetables and assessment information is uploaded. Google Classroom is for use by both learners and staff for the presentation of class notes and content as well as a point for assignments to be issued and submitted to.

1.1.6 Module content, organisation and structure
Learners are provided with notes on geometry and projects for each class. They are expected to review, extend and build upon this content independently, outside of class.

The following topics are explored over the course of this module:

- Using 3D animation software
- Polygons, edges and vertices
- Box modelling
- Extrusions
- Bevels
- Edge loops
- Insets
- Chamfers
- Organic topology and edge flow
- Modifiers
- Concept art
- Proportions.

1.1.7 Module teaching and learning (including formative assessment) strategy
The module is delivered through a series of lectures. Each lecture session breaks down a technique of modelling, texturing, material creation or rigging.

Activity	Teaching / Learning Strategy	Learning Environment
Lectures and demonstrations (48 hours)	Formal lectures and demonstrations on various aspects of 3D modelling, including polygons, box modelling, extrusions, edge loops, chamfers, etc.	College
Independent work (135 hours)	Self-directed work	College / Home
Assignments (67 hours)	Comprises of three principal elements: (i) producing a piece of hard surface environment art; (ii) producing a bipedal character in 3D format; (iii) producing a full modular 3D level asset pack.	College / Home

1.1.8 Work-based learning and practice-placement
There is no work-based learning or practice-placement within this module.

1.1.9 E-Learning

Google Classroom acts as a reference point for the learner where all relevant information regarding the module is compiled. It also provides the learner with a messaging service between classmates and staff. Any changes or updates to module content is reflected on the platform along with a notification of change / messaging service. Google Classroom also accommodates for the submission of larger file types, a common feature of this programme. Learners also have access to additional academic material and supports through the Moodle virtual learning environment (VLE).

1.1.10 Module physical resource requirements

The module requires a computer lab with capacity for 25 learners, equipped with a projector, access to Unity 3D, SDsMax, and Substance Painter, as well as user licences for Photoshop.

1.1.11 Reading lists and other information resources

Primary reading
Gahan, A. (2011) *3DS Max Modeling for Games: Insider's Guide to Game Character, Vehicle, and Environmental Modeling: Volume I*, 2nd Edition. Waltham, MA; Oxford: Focal Press.

1.1.12 Specifications for module staffing requirements

For each instance of the module, one lecturer qualified with at least master's level (NFQ Level 9) in multimedia, games, or related discipline, or hold an equivalent professional qualification. Experience in the games or animation industry would be desirable.

Ideally, they would also hold a third level teaching qualification (e.g. the Griffith College Certificate in Education, Learning and Development).

1.1.13 Module summative assessment strategy

Assessment is divided into three main deliverables. Firstly, learners are tasked with producing a simple piece of hard surface environment art. The second assessment takes the form of a more complex project whereby the learner is expected to produce a bipedal character, developed from concept art and rendered in a 3D format. The third comprises a full Modular 3D level asset pack.

The three assignments are designed to instruct the learner in the use of industry-standard 3D animation software, and to help them better understand key terminology and concepts. The marking criteria for each assignment assesses three such conceptual areas (topology, polygon count, and UVs and materials). Terminological and conceptual understanding is to be reinforced through the act of doing. (See Sample Assessment Handbook for further details).

The assessed work breakdown can be seen in the table below.

No.	Description	MIMLOs	Weighting
1	Hard Surface Environment Art	(i) – (iii)	25%
2	Bipedal Character in 3D Format	(i) – (iii)	35%
3	Full Modular 3D Level Asset Pack	(i) and (iii)	40%

1.1.14 Sample assessment materials

Please see sample assessment supplementary document submitted with this proposal.