Module Specification

Module Summary Information

1	**Module Title**	CGI Modelling
2	**Module Credits**	20
3	**Module Level**	4
4	**Module Code**	DIG4165

5	**Module Overview**

This module provides students with the technical skills and experience to produce 3D models and renders for use in gaming products and visual effects.

The skills developed in this module will inform and underpin the use of 3D models throughout the rest of your course.

The module aims to develop your modelling skills to a highly competent standard, developing your knowledge of the fundamentals of 3D modelling and rendering as well as providing you with experience of using industry-standard modelling tools. By the end of the module you will be able to approach modelling productions by drawing on a suite of 3D modelling methods and tools. The module will also provide an overview of how 3D assets are used in a variety of industries.

Within the module there will also be demonstration of how to use your models in different productions, for example Visual Effects and Games Production.

6	**Indicative Content**

Modelling Concepts

Co-ordinate system; polygons Vs NURBs; subdivision modelling; topology; model translation; efficient use of mesh; smoothing; using references; using 3D assets.

Modelling Tools

Manipulating: objects, faces, edges and vertices; extrusion; mirroring; Boolean operations; merging surfaces; rotating, extruding and lofting NURBs surfaces.

Texturing

Lambert, Blinn and Phong shaders; diffuse, colour, bump, displacement, luminance and specularity shader attributes; UV mapping; projection; techniques for unfolding UVs; techniques for sourcing and manipulating image based textures; procedural shaders.

Lighting

Specular, diffuse and ambient light; directional, point, ambient and spot lights; lighting configurations; casting shadows; lighting decay; image based lighting.

Rendering

Raytracing; scanline rendering; multipass rendering; rendering wire frames; ambient occlusions; global illumination; final gathering; resolution and film gates; camera focal length and film back.

7	**Module Learning Outcomes**	
	On successful completion of the module, students will be able to:	
	1	Choose and utilise appropriate approaches to building a 3D model.
	2	Build 3D models which are refined and have a sound topology.
	3	Implement lighting, texturing and shading techniques to produce realistic still rendered images.
	4	Make effective use of industry standard 3D modelling tools.

8	**Module Assessment**		
Learning Outcome			
	Coursework	**Exam**	**In-Person**
1-4	X		

9	**Breakdown Learning and Teaching Activities**	
Learning Activities	**Hours**	
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable	48	
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE	48	
Private Study (PS) includes preparation for exams	104	
Total Study Hours:	200	