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MODULE DESCRIPTOR

Module Title

3D Modelling

Reference	CM3112	Version	3
Created	December 2020	SCQF Level	SCQF 9
Approved	August 2017	SCQF Points	15
Amended	March 2021	ECTS Points	7.5

Aims of Module

To provide the student with the ability to evaluate the use of 3D graphics primitives, and advanced principles and concepts of modelling, texturing, lighting and rendering used in 3D graphics techniques. To provide the student with the ability to build post-processed 3D graphics products and applications.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Demonstrate understanding and evaluate techniques for modelling and transforming objects in 3D space, using primitives and poly-modelling concepts in the field of architectural design.
2	Understand and evaluate techniques for shading, texturing and rendering object surfaces.
3	Evaluate and illustrate techniques for global illumination, lighting and shadow mapping.
4	Design realistic 3D models and architectural scenes using suitable modelling tools and software.
5	Develop, implement and post-process 3D designs to final realistic products using post-processing software.

Indicative Module Content

Preparation: Concept development, visual research. 3D Modelling: primitives, geometry, translation and manipulation, poly Modeling, low & high poly, scene management, modifiers, hard surface modeling. UV Mapping: unwrapping, seams, projection, islands, packing. PBR Materials and Texturing: shader graph, nodes, textures, procedural shader methods. Lighting: light types, intensity, colour, cinematography, HDRI environments. Camera: field of view, depth of field. Rendering: render engines, ambient occlusion, bloom, samples, baked lighting and reflection, render optimisation.

Module Delivery

Key concepts are introduced and illustrated through lectures and directed reading. The understanding of students is tested and further enhanced through interactive laboratories in which student will progress through a sequence of exercises to develop sufficient technical knowledge and practical skills.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	44	N/A
Non-Contact Hours	106	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4, 5

Description: This is a practical coursework assessment which involves designing, developing and evaluating a 3D scene, worth 100% of the module.

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The calculation of the overall grade for this module is based on 100% weighing of C1. An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student needs to achieve an A in C1.
B	The student needs to achieve a B in C1.
C	The student needs to achieve a C in C1.
D	The student needs to achieve a D in C1.
E	The student needs to achieve an E in C1.
F	The student needs to achieve an F in C1.
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

1	CAUDRON, R & NICQ, P. (2015) Blender 3D by example : design a complete workflow with Blender to create stunning 3D scenes and films step by step!
2	BRITO, ALLAN. (2019) Blender 2.8: The beginner's guide
3	BLAIN, J. M (2019) The Complete Guide to Blender Graphics: Computer Modeling & Animation, Fifth Edition
4	CHOPINE, A. (2011) 3D Art Essentials: The Fundamentals of 3D Modeling, Texturing, and Animation: The Fundamentals of 3D Modeling and Animation