Module Title **Architectural 3D Graphics** **Keywords** 3D Modelling, 3D Rendering, Ray Tracing, 3D Modelling Tools	Reference CM3057 SCQF Level SCQF 9 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved September 2012 Amended September 2012 Version No. 1

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

None, in addition to course entry requirements.

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide the student with the ability to evaluate the use of 3D graphics primitives, and advanced principles of modelling and rendering used in 3D graphics.
To provide the student with the ability to build 3D graphics applications.

Lighting: Realistic lighting, photometric system, Father Gather, global illumination, diffusion, refraction, reflection, light systems and caustic illumination.

3D modeling tools: Use of 3D modeling systems and render farm.

Indicative Student Workload

Contact Hours	Full Time
Assessment	10
Laboratories	24
Lectures/Tutorials	12
Directed Study	
Coursework preparation	24
Information gathering	24
Private Study	
Private Study	56

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.
2. Understand and evaluate techniques for shading and texturing object surfaces.
3. Evaluate and illustrate techniques for global illumination modelling.
4. Design and implement 3D models and scenes using suitable modelling tools.

Indicative Module Content

3D architectural modeling: solid modeling, primitive modeling, extended modeling, poly modeling,advanced modeling, sub-level modeling, modifiers, transform toools and splines, farm rendering, model scaling, smoothing and optimisation, layering and asset management.

Shading: reflection, refraction, light sources, translucency, local super-sampling.

Mode of Delivery

Key concepts are introduced and illustrated through interactive lectures. In the laboratories the students will progress through a sequence of exercises to develop sufficient knowledge of 3D modelling tools and environments to enable them to complete the practical design and implementation of 3D models.

Assessment Plan

	Learning Outcomes Assessed
Component 1	1,2,3,4

Component 1 - Coursework

Indicative Bibliography

1. VAN DER STEEN,J,and BOARDMAN,T.,2013. Rendering With Mental Ray and 3ds Max. 2nd ed. Focal Press.
2. GERHARD,M.,HARPER,J,and MCFARLAND,J.,2009. Mastering Autodesk 3ds Max Design 2010. John Wiley and Sons.
3. BROOKER,D., 2008. Essential CG Lighting Techniques with 3ds Max. 3rd Ed. Focal Press.
4. TOOD, D.,2008. Poly-Modeling with 3ds Max. Focal Press.
5. DRAPER P., 2008. Deconstructing the Elements with 3ds Max. 3rd Ed. Focal Press.

Texturing: Materials creation, maps, material editor, UVW wrap maps, UVW unwrap maps, Standard maps, Multi/Sub-object maps, reflective materials and realistic maps.

6. TODD, D., 2009.Poly-Modeling with 3ds Max: Thinking Outside of the Box
7. CHANDLER, M,. 2013.3D MAX Projects. 3D Total Publishing
8. DERAKHSHAN, R. & DERAKHSHAN, D. Autodesk 3D Max 2016 Essentials.1st Ed. Sybex.