Module Title **Interactive 3D Animation** **Keywords** Splines, Keyframe animation, Animation hierarchies, Physical animation	Reference CM4014 SCQF SCQF Level 10 SCQF Points 15 ECTS Points 7.5 Created May 2003 Approved April 2005 Amended September 2012 Version No. 3

This Version is No Longer Current

The latest version of this module is available here

Prerequisites for Module

CM4044 - Interactive 3D Graphics or CM3057 Architectual 3D Graphics or equivalent.

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide the student with the ability to evaluate and develop interactive 3D animation systems.

Learning Outcomes for

Animation techniques: key framing with linear, spline curve and FFD interpolation, scripting, physical simulation, motion blur, inverse kinematics, walk cycles.

3D modelling and animation tools: use of appropriate interactive 3D modelling and animation system. Use of 3D games engine.

Indicative Student Workload

Contact Hours	Full Time
Assessment	3
Laboratories	24
Lectures/Tutorials	12
Directed Study	
Coursework preparation	31
Information gathering	30

Learning Outcomes for Module

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

1. Design and evaluate animation techniques based on splines and Free-Form Deformations (FFDs).
2. Design and evaluate techniques for constructing hierarchical 3D objects.
3. Design and evaluate techniques for interactive animation.
4. Design and implement an interactive 3D animation using appropriate tools.

Indicative Module Content

Spline curves and surfaces. FFDs.

Hidden line and surface removal: by algorithm and by depth buffer.

Solid object trees and object heirarchies for animation.

Collision detection.

Private Study

Private Study	50

Mode of Delivery

Key concepts are introduced and illustrated through lectures. The understanding of students is tested and further enhanced through interactive tutorials. 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. DERAKHSHAN, R. & DERAKHSHAN, D. Autodesk 3D Max 2016 Essentials.1st Ed. Sybex.
2. PARENT,R. 2007. Computer Animation Algorithms and Techniques. Morgan Kaufmann.

3. WATT,A.and WATT,M. 1992. Advanced Animation and Rendering Techniques: Theory and Practice. ACM