Liverpool John Moores University

Title: ADVANCED COMPUTER GRAPHICS
Status: Definitive
Code: **6014COMP**   (102988)
Version Start Date: 01-08-2016

Owning School/Faculty: Applied Mathematics
Teaching School/Faculty: Applied Mathematics

Team	Leader
Paul Strickland	Y

Academic Level:	FHEQ6	**Credit Value:**	12	**Total Delivered Hours:**	38
Total Learning Hours:	120	**Private Study:**	82		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	12
Practical	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Coursework demonstrating 3D programming abilities.	40	
Exam	AS2	Examination	60	2

Aims

To explain the principles and techniques underlying 3d computer graphics.
To introduce an advanced current 3D graphics API
To develop advanced programming skills in 3D computer graphics.
To introduce advanced techniques for 3D rendering and modelling.

Learning Outcomes

After completing the module the student should be able to:

1. Demonstrate competence in a current 3D graphics API.
2. Solve advanced problems in 3D graphics and develop graphical applications.
3. Explain the principles of 3D graphics rendering and modelling.
4. Evaluate algorithms for 3D graphics problems.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

3D programming   1   2   3   4

Exam   2   3   4

Outline Syllabus

Introduction to 3D Modelling and Rendering.
3D Scene construction
Principles of Geometrical Transformations
Collision Detection
Colour and Lighting Models: Illumination and Shading
Texture Mapping
Advanced Modelling Techniques: Quadratics, Bezier, NURBS
3D Animation Techniques

Learning Activities

Lectures and practicals to address issues raised in lecture material and provide opportunities to demonstrate understanding via the completion of 3D graphics programmes.

Notes

This module introduces more advanced concepts in 3D computer graphics. It looks at the programming techniques for modelling and rendering 3D scenes. Students will look at key topics such as, geometrical transformations, hidden surfaces, illumination and animation, texture mapping, advanced modeling and animation.