

Module Title	Computer Graphics	School	Mathematical & Computer Sciences				On or Off-Campus	On	
Module Co-ordinator	Mike Chantler	SCQF Level	9	Module Code	F29GR	Semester	1	Credits	15

1. Pre-requisites	Programming Languages (F28PL) OR equivalent		
2. Linked Modules (specify if synoptic)	None		
3. Excluded Modules	None		
4. Replacement Module	Code:	5. Availability as an Elective	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	Date Of Replacement:		
6. Degrees for which this is a core module	Mandatory module for BSc Computer Science & MEng Software Engineering		
7. Aims			
To introduce fundamental Computer Graphics theory and programming.			
8. Syllabus			
<ul style="list-style-type: none"> ◆ Overview of Computer Graphics & practical introduction to graphics programming ◆ Event driven I/O and callback programming & typical structure of an interactive, real-time computer graphics program ◆ 2&3D transformations, homogeneous co-ordinates, post-multiplication ◆ Modelling and instantiation ◆ Hierarchical modelling and scene graphs ◆ Scene graphs: creating, manipulating, creating a display list ◆ Perspective & orthographic projection ◆ Project specification ◆ Shading models and programming ◆ Texture mapping ◆ Putting it all together: the graphics pipeline ◆ Module summary and review 			

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9. Learning Outcomes (HWU Core Skills: Employability and Professional Career Readiness)

Subject Mastery	<p>Understanding, Knowledge and Cognitive Skills Scholarship, Enquiry and Research (Research-Informed Learning)</p> <ul style="list-style-type: none"> ◆ Critical understanding of the theory of 2D and 3D transformations, projection and viewing ◆ Ability to find & combine relevant sources and synthesise designs ◆ Detailed knowledge of the graphics pipeline ◆ Detailed knowledge of shading and texture mapping algorithms ◆ Broad knowledge of 3D modelling and rendering techniques ◆ Ability to understand, design and implement scene graphs ◆ Practical skills in graphics programming including scene graph programming and I/O processing
Personal Abilities	<p>Industrial, Commercial & Professional Practice Autonomy, Accountability & Working with Others Communication, Numeracy & ICT</p> <ul style="list-style-type: none"> ◆ Ability to think and plan critically in three dimensions ◆ General critical analysis, evaluation and synthesis of ideas for the design of their project ◆ Technical report writing and organisation ◆ Team working skills (in pairs) ◆ Representation of, planning for, and solution of problems ◆ Ability to draw upon a range of sources when making decisions in their project work

10. Assessment Methods

11. Re-assessment Methods

Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?	Method	Duration of Exam (if applicable)
Examination	2 hours	65%		Course work (individual project)	
Course work (joint project)		35%			

12. Date and Version

Date of Proposal	24/9/2007	Date of Approval by School Committee	December 2007	Date of Implementation	15/9/2008	Version Number	1
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