

<b>Module Title</b>	<b>Computer Games Programming</b>	<b>School</b>	<b>Mathematical and Computer Sciences</b>				<b>On or Off-Campus</b>	<b>On-campus</b>	
<b>Module Co-ordinator</b>	<b>Peter King</b>	<b>SCQF Level</b>	<b>11</b>	<b>Module Code</b>	<b>F21GP</b>	<b>Semester</b>	<b>2</b>	<b>Credits</b>	<b>15</b>

<b>1. Pre-requisites</b>	C++ programming skills		
<b>2. Linked Modules (specify if synoptic)</b>	None		
<b>3. Excluded Modules</b>	None		
<b>4. Replacement Module</b>	<b>Code:</b>	<b>5. Availability as an Elective</b>	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
	<b>Date Of Replacement:</b>		
<b>6. Degrees for which this is a core module</b>	Optional module for BSc Computer Science, MEng Software Engineering, BEng/MEng Computing & Electronics Optional module for MSc IT (software systems), MSc Mobile & Handheld Applications, MSc Software Engineering, MSc Creative Software Systems, MSc Intelligent Systems, MSc Artificial Intelligence		
<b>7. Aims</b>			
To develop programming skills and techniques specific to the area of 2D and 3D computer games			
<b>8. Syllabus</b>			
<ul style="list-style-type: none"> <li>◆ History and types of computer games</li> <li>◆ Elements of game design</li> <li>◆ Game-state, simulator, renderer, (hierarchical) controllers</li> <li>◆ Tools and environments – e.g. Flash, games engines</li> <li>◆ 2D games programming techniques</li> <li>◆ Physically-based modelling, particle systems, flocking</li> <li>◆ Use of physics engines</li> <li>◆ Obstacle avoidance and path planning</li> <li>◆ Group movement</li> <li>◆ Learning and adaptation in games</li> <li>◆ Action and behaviour selection</li> <li>◆ Game theory and games</li> <li>◆ Module summary and review</li> </ul>			

<b>Module Title</b>	Computer Games Programming	<b>School</b>	Mathematical and Computer Sciences				<b>On or Off-Campus</b>	<b>On-campus</b>	
<b>Module Co-ordinator</b>	Peter King	<b>SCQF Level</b>	11	<b>Module Code</b>	F21GP	<b>Semester</b>	2	<b>Credits</b>	15

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

<b>Subject Mastery</b>	<i>Understanding, Knowledge and Cognitive Skills</i> <i>Scholarship, Enquiry and Research (Research-Informed Learning)</i>		
	<ul style="list-style-type: none"> <li>◆ Critical understanding of game theory and computer games history, genres and impact</li> <li>◆ Critical understanding of available tools and their application</li> <li>◆ Detailed knowledge of algorithms for particle systems and flocking</li> <li>◆ Detailed knowledge of algorithms for path planning and navigation</li> <li>◆ Broad knowledge of physically-based modelling in games and selection of techniques</li> <li>◆ Broad knowledge of AI techniques in games and selection of techniques</li> <li>◆ Ability to understand, design and implement a small-scale game using 2D and 3D tools</li> <li>◆ Practical skills in graphics and AI programming in the computer games context</li> </ul>		
<b>Personal Abilities</b>	<i>Industrial, Commercial &amp; Professional Practice</i> <i>Autonomy, Accountability &amp; Working with Others</i> <i>Communication, Numeracy &amp; ICT</i>		
	<ul style="list-style-type: none"> <li>◆ Ability to think and plan in three dimensions</li> <li>◆ Technical report writing and organisation</li> <li>◆ Team working skills</li> <li>◆ Representation of, planning for, and solution of problems</li> </ul>		

### 10. Assessment Methods

### 11. Re-assessment Methods

Method	Duration of Exam (if applicable)	Weighting (%)	Synoptic modules?	Method	Duration of Exam (if applicable)
Exam	2 hours	65%		Exam	2 hours
Coursework (joint project)		35%			

### 12. Date and Version

<b>Date of Proposal</b>	10/10/2007	<b>Date of Approval by School Committee</b>	December 2007	<b>Date of Implementation</b>	15/9/2008	<b>Version Number</b>	2
-------------------------	------------	---	---------------	-------------------------------	-----------	-----------------------	---