<table>
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<tr>
<th>Course Code: F29GR</th>
<th>Course Title: Computer Graphics</th>
<th>Course Co-ordinator: Mike Chantler</th>
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<tbody>
<tr>
<td><strong>Pre-requisites:</strong></td>
<td>F28PL2 Programming Languages or equivalent</td>
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<td><strong>Aims:</strong></td>
<td>To introduce fundamental Computer Graphics theory and programming.</td>
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| **Syllabus:** | ♦ 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  
♦ 2D&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  
♦ Course summary and review |
| **Learning Outcomes:** | Understanding, Knowledge and Subject-Specific Skills |
| Subject Mastery | ♦ 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: | Cognitive skills, Core skills and Professional Awareness |
| ♦ 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 |
| **Assessment Methods:** | Assessment: Examination: (weighting – 100%)  
Re-assessment: Examination: (weighting – 100%) |