Course Aim

- The aim of this course is to provide students with an understanding of the principles, concepts, and techniques of computer graphics from an engineering viewpoint.
CILOS

- (CILO1) Apply 3D object representation techniques to build up a graphics scene
- (CILO2) Model and view articulated objects by hierarchical structuring techniques and coordinate transform
- (CILO3) Apply lighting, shading and rasterization techniques to create a 2D image
- (CILO4) Apply texture mapping and animation techniques to create a movie
- (CILO5) Apply and evaluate advanced graphics techniques
Course Content

Object Representation → Modeling Transform → Viewing & Projection Transform → Lighting & Rasterization → Animation

Sample of Advanced Techniques
Examples of A+ Projects
Control:
Drag the mouse to move the camera.
Move the light source: w, a, s, d, q, e
Pause / Resume animation: h
Reset position: r
Zoom IN / OUT: +/-
Turn ON / OFF texture: t
FLAT / GOURAUD shading: f
Toggle Grid (during no texture): g
Toggle Lighting: y
Applications

Movie Industry

■ Type I: Created entirely Using CG
  e.g. “Madagascar”
■ Type 2: Real people + CG characters
  e.g. “District 9”
■ Type 3: CG Movie + Real People
  e.g. “Space Battleship Yamato”
■ Type 4: Conventional movie with CG special effects
  e.g. “Initial D”
■ Type 5: “3D Movies”
  e.g. “Avatar”
Other Applications

- Game Industry
- Advertising Industry
- Design Industry
- Virtual Reality
- Visualization
- Training
- Education
- Computer Art

Partial list of CG companies in Hong Kong
Assessment and Schedule

- Coursework  40%
- 2 hour Examination  60%

Students must obtain

i) $\geq 35$ marks (out of 100 marks) in the coursework AND
ii) $\geq 35$ marks (out of 100 marks) in the examination

to get a PASS in the course.
Coursework Components

<table>
<thead>
<tr>
<th>Time</th>
<th>Item</th>
<th>Scope</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wk 6</td>
<td>Quiz 1</td>
<td>everything taught in Wk 1- 5</td>
<td>33 1/3 %</td>
</tr>
<tr>
<td>Wk 11</td>
<td>Quiz 2</td>
<td>everything taught in Wk 6 - 10</td>
<td>33 1/3 %</td>
</tr>
<tr>
<td>Wk 13</td>
<td>Mini-Project</td>
<td></td>
<td>33 1/3 %</td>
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Further Information:
http://www.cityu.edu.hk/pg/current/course/EE5808.htm